

THE ASSOCIATION OF AMERICAN GEOGRAPHERS



2007 Annual Meeting Abstracts

April 17-21, 2007
San Francisco, California



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The Association of American Geographers

1710 16th Street, NW
Washington, DC 20009-3198
Phone (202) 234-1450
Fax (202) 234-2744
Web www.aag.org
E-mail gaia@aag.org

Manuel B. Aalbers, University of Amsterdam, AMIDSt. Email: m.b.aalbers@gmail.com; *How and why is geographical access to mortgage loans in different countries?*

What depends on local context, what on national context, and what is taking place all-over the globe? It is obvious that access to mortgage loans is differs per country as different countries have different mortgage markets. Yet, empirical research from Italy and the Netherlands, and a literature review on the US, demonstrate that redlining - the refusal of mortgage loans based on location? is a mechanism operating in all three countries, but not in all cities. It is argued that through the globalization of the regulation of mortgage markets, the same mechanisms may be operating in widely different contexts, but that the ways in which these mechanisms operate are highly dependent not only on different national systems but also on the different metropolitan areas. To explain why the differences between cities in one country can be bigger than the differences between two cities in two very different countries, we need to pay attention not only to local contingencies, but also and equally important, to national differences in the design and operation of mortgage markets. Although redlining is only observable at the urban level, it is constituted through processes and institutions located at different scales.

Keywords: mortgage markets, redlining, economic geography, urban geography, Netherlands, race, credit, housing, globalization, inequality

Justin Abart, University Of Memphis. Email: ; Thad Wasklewicz, University of Memphis. Email: ; *Spatial Patterns of Talus Cone Surface Complexity, Arapahoe Basin, Colorado, USA*

Alpine talus cones in the Colorado Front Range exhibit topographic variability related to the spatial distribution of geomorphic processes. Field reconnaissance and past research indicate the form of alpine talus cones varies in both longitudinal profile and latitudinal cross-section. This research utilizes traditional profile measurements combined with regularly spaced cross-sections to analyze talus cone form. The profiles and cross-sections map detrended elevation data derived from Airborne Laser Swath Mapping (ALSM) sources. These data produce a quantitative elevation surface at a much finer spatial resolution than traditional surveying methods. The inclusion of these high resolution data allow for the analysis of talus cone form at previously unattainable scales for a large sample population. Spatial patterns of topographic variability at several spatial scales are identifiable from these data. Fine scale patterns are attributed to the forms produced by individual processes. Broader scale patterns reflect the legacy of the numerous processes responsible for talus cone evolution. Comparing the characteristics of fine scale topographic complexity and coarse-scale asymmetry allows for improved conceptual models of the evolution of talus cone form, and the feedbacks between geomorphic process and surface topography.

Keywords: geomorphology, DEM, mountain, GIS, talus

Charles W. Abbott, University of Iowa. Email: abbott.charles@gmail.com; *African Immigrant Associations in North America: Current Patterns, Future Hopes*

Most African immigration to North America has occurred in the last 30 years, and the volume of migration is increasing. African immigration provides a window for examining issues related to economic development, associational life, identity, and racial/ethnic relations. First, African immigration to North America typically involves an element of 'brain drain,' in which educated and skilled professionals migrate to portions of the rich, stable, OECD world. Second, many Africans have a tradition of forming migrant associations within Africa itself (and often within their own country). Thus many Africans in North America have brought with them pre-existing traditions for uniting for mutual aid and collective endeavors, including the maintenance of links between migrants and their home community. Third, many Africans have various layers of identity on which to base organizations: town of origin, ethnicity, language, religion, sect, and home country. Fourth, many African immigrants are phenotypically not easily distinguishable from African-Americans, though they may be culturally distinct. This "Black" - "African" difference permits opportunities for cross-cultural understanding or misunderstanding between African-Americans (or African-Canadians) and newly arrived Africans. As African immigration unfolds, organization of migrant groups in North America is aided by technologies such as the internet; links to home are promoted by phone, email, and transatlantic air travel. Examples of Nigerian, Kenyan, Sudanese, and Ghanaian associations in North America are provided. The paper concludes with a list of "natural experiments" currently proceeding as immigration to North America continues, and an agenda for further research.

Keywords: Immigration, Africa, Associational Life

J Anthony Abbott, Ph.D., Stetson University. Email: tabbott@stetson.edu; *Wind Blown Landscapes of Conservation, Production, and Leisure: Wind Power Development in the Kittitas Valley of Washington*

Wind power, now the fastest growing source of energy in the United States and the world is often considered an environmentally desirable technology insofar as it offsets demand for fossil fuel and other polluting forms of energy production. Despite such benefits, wind power has been criticized as a detrimental with regard to corruption of the natural environment. Impacts on wildlife including migrating birds, raptors, bats, and grazers such as deer and elk have been cited as a serious concern among biologists. Of recent interest has been the groundswell of protest against the construction of windmills based on their visual impact upon pristine and natural landscapes. Thus landscapes of conservation in areas with sufficient wind density suffer the tensions of defining best use inherent with multiple use areas. In Kittitas County, Washington, efforts to develop wind power facilities have given rise to conflicts regarding the best kind of conservation for potential wind power development areas. While concerns with wildlife conservation are shared universally among those debating construction of windmills, lay opponents exhibit such concern less when windmills are erected in remote, unseen, wild landscapes. When windmills are not seen, wildlife (and other) concerns diminish and the rhetoric of global conservation and alternative energy holds sway. This brings into question the legitimacy of visual impact as a conservation metric for natural areas. Visual impact concerns simply echo the changing priorities for multiple use landscapes towards those of leisure enjoyment rather than a burgeoning concern with wild areas and wildlife per se.

Keywords: conservation areas, multiple use, view shed, Washington State, wind power

Patrick Abbott, Kansas State University. Email: pka54@hotmail.com; *United Caliphates of Europe: A Geographical Look at Sharia Microstates*

The latter half of the twentieth century saw a large rise in Muslim migration into Western and Central Europe. Originally, Europeans assumed that only a small number of immigrants would arrive and that they would assimilate. However, the promise of Europe attracted a larger than expected number of migrants. At the same time, immigrants interpreted European promises of "human rights" to mean that cultural assimilation would not be necessary. Now original misunderstandings have led to societal conflict, and have helped create spaces where regular law enforcement is nominal at best. Not falling into anarchy, these spaces have instead become microstates under improvised Sharia law. These microstates have similar demographic, infrastructural, and spatial qualities with each other and are each a part of a larger communicative network.

Keywords: Islam, Europe, Military Geography

Teresa Vita Abbruzzese, York University. Email: teresa@yorku.ca; *The Circus of Globalization: Tracing transient livelihoods and transnational mobility in an era of late capitalism*

This paper examines the production of marginality and the blurred boundaries between the formal and informal processes of everyday carnival life in the Puglia region of southern Italy. This study particularly investigates the ways in which the "magical" world of the fairground can be seen as a prism to examine larger global processes, such as regional economic restructuring, and the reconfiguration of difference and the division of labour that (re)produces systemic forms of globalized capitalist exploitation. For nine months of the year, national and transnational fairground travellers follow a pre-planned route in their caravans coordinating days and nights with mainly religious festivals and observances, such as town celebrations of patron saints and local Madonnas. This specific form of itinerant work is rooted in place, historical practices and meanings that are connected to worship and ritual. These practices and transient ways of living blur dominant conceptions of space, time, regulated and unregulated economies and labour. It is quite peculiar to unearth in this carnival landscape another landscape of modern day globalized nomadic identities-transnational labour migrants, that overlays the existing locale to produce an unusual landscape of juxtaposed marginality. This contradiction highlights double itinerant processes occurring: one internal or regional (national Italian carnival workers), and the other transnational (specialized migrant workers) metaphorically joining the 'circus of globalization'. My research will be informed by various ethnographic methods, mainly participant observation (my point of entry into itinerant fairgrounds is through my kinship networks), and semi-structured interviews with fairground travelers and labour migrants.

Keywords: circus, globalization, transient livelihoods, transnational labor migration

Osama Abdelgadier, Ph.D, Framingham State College. Email: oabdel@frc.mass.edu; Sudan: A Pariah State? The Challenges of Peace and National Unity.

Is Sudan a pariah state? How did it get to that situation? Is this western-based conceptual notion of a particular type of state useful or applicable to understanding the turmoil that has been occurring in Sudan? Should Sudan hold together or split into newly independent states along religious and ethnic lines? To investigate and analyze the challenges of peace and national unity in Sudan we need to look at local, regional, and global factors of conflict. Locally, exclusion and unequal development are the root causes of conflict. Regionally, border communities and neighboring countries do affect conflict in Sudan. Globally, Sudan has become caught in a global geo-politics as a significant player in an ideological war of ideas (religion) and resources (oil).

Keywords: Sudan, conflict, peace

Elvira Abdrazakova, . Email: era81@tomsk.gov.ru; Siberia and Transportation of Nature Resources

Transport complex of a region plays an extremely important role in its development. Western Siberia in the line of latitude is crossed by some big trunk-railways, besides new railroads were constructed to the northern parts of the region, where oil and gas, and wood is produced. River transport is developed; and sea transport is developed in the North. Motor transport is especially important for southern regions. Pipeline transportation is extremely important as well. In the North development of the natural resources is impossible without aviation. In this article I argue that the regions of Asian Russia (namely, Western Siberia) have bad infrastructure and transportation conditions. The transport system that exists in Asian Russia is the main factor that restrains the development of the region and of the economy of the whole country. Bad transportation aggravates small population of the region. My research shows that Western Siberia transport complex has many problems and should be developed. The projects of new transport systems could help to reach this goal. I also claim that Siberian natural resource base is very important for further improvement of transport system. I state that the projects of new transport systems (TRACECA, Eastern Siberia - Pacific Ocean pipeline and others) provides an opportunity for further development of integration with neighbor countries. The report clarifies that the transport system of Western Siberia is still being developed, the potential is very big. In the conclusion I name some further steps to promote development.

Keywords: transportation complex, Russia, Siberia

Majd Abdulla, . Email: majd@iastate.edu; Land Ownership and Sustainable Agriculture

Land in Iowa is characterized by aging owners. Based on the results of surveys conducted in 2006, 49% of landowners are over 65 years old. Furthermore, absentee landownership is increasing. By investigating the differences in agricultural practices between owner/operators and owner/absentees, this first part of the article examines the following questions: What is the impact of aging farmers as landowners on agriculture? What is the impact of the absentee owners on adopting sustainable agricultural practices such as conservation practices? The second part of the paper will answer the following concerns: Can new young farmers access the land market and practice agriculture? What are the difficulties facing new young farmers? Do young farmers have alternative to be involved in agriculture other than owning land? Are these alternatives affordable for them and economically viable? What is the government's role in helping the new and beginning farmers? Preliminary answers to these questions suggest that aged owners affect the future of agriculture by increasing the probability of using agricultural land for purposes other than agriculture, such as industrial or commercial uses. Preliminary results also show that absenteeism affects land management practices that impact conservation practices use as a tool to sustain the agricultural land and natural resources, consequently the future of agriculture in Iowa. Furthermore, it is expected that young farmers still face various obstacles toward working in agriculture in spite of the existence of some programs to facilitate this process for them.

Keywords: Landownership, Owner/operator, Owner/absentee

Tsion Abebe, California State University, Los Angeles. Email: bone_tsion@yahoo.com; An Examination of the Push Factors Affecting African Emigration to the United States from 1989 to 2004

The number of migrants worldwide (people living outside their country of origin) more than doubled in the 35 years leading up to 2005, reaching an estimated total of more than 185-192 million in 2005 (Optimum Population Trust). The United States is one of the most developed countries in the world and migrants from all over the world, including Africa, choose the United States as their destination. The increasing African presence in the United States may be attributed to a number of "push and pull" factors. Numerous studies have determined that the three main push factors in Africa are economic, educational, and political. This paper examines which economic and demographic push

factors affect the emigration from Africa to the United States from 1989 to 2004. This paper examines African emigration to the United States on the macro level and the outcome of the study indicates patterns of African emigration and provides regional generalizations. This paper also examines whether the economic and demographic push factors produce a regional or temporal variation. By using data from the CIA World Factbook and Office of Immigration Statistics and by utilizing a quantitative analysis, this study sheds some light on how significant a particular factor is on African emigration by examining the temporal and spatial variation in the emigration of Africans to the United States.

Keywords: Africa, Emigration

Jeremy W Aber, Kansas State University. Email: aber@ksu.edu; The Video Arcade in Memoriam: California Extreme and Place Attachment

The California Extreme (CAX) is an arcade expo organized by dedicated arcade collectors every summer in San Jose. The 2006 show was the tenth year and consisted of more than 400 individual games that were played by more than a thousand visitors on the weekend of July 8th-9th. Not all attendees were arcade collectors, but a large percentage of the visitors fell into this category. Although every collector has their own reasons for being involved in the hobby, a shared reason exists: a strong place attachment to the video arcade of the late 70's and early 80's. This attachment is a driving force behind the desire to collect video arcade games in the home, and sharing in the attachment to place is a driving force behind the organization of the CAX show. The show's impetus was a desire for collectors to interact and share their love of the video arcade. It has evolved over the years into a large scale ephemeral museum for non-collectors, in addition to being a venue for collectors to interact.

Keywords: place attachment, place, recreation, arcade, video games, nostalgia

Dilumie Saumedaka Abeyisirigunawardena, Student (PhD Candidate). Email: dilumie@uvic.ca; Atmospheric and Sea level responses to Climate Variability and associated impacts on a low lying coastal system in Northern British Columbia

Atmospheric and sea level responses to climatic variability signals at multiple temporal scales (inter-decadal to monthly) are examined using long-term meteorological and tide gauge records on the north coast of BC. Relations between sea levels wind and climatic variability indices are explored to identify potential controls of climatic variability phenomena (e.g., ENSO, PDO) on regional winds and sea level trends. In addition, potential changes to local scale morphodynamics (via altered wave forcing) resulting from climatic variability and climate change, is modeled for a low lying coastal system in Northern BC. This study adopts, wave transformation modeling, linear and non-linear statistical methods including: correlation, multiple regression, Cumulative Sum (CumSum) analysis, Superposed Epoch Analysis (SEA). Results suggest that climatic variability signals such as ENSO and PDO forcing, acting on decadal to inter decadal temporal scales exerts significant influence on regional winds and sea level fluctuations. These shorter-term fluctuations are significantly greater than longer-term sea-level responses, by as much as an order of magnitude and with trends over 2x that of Mean Sea level. Results also demonstrate the need to reduce the spatial scale of climate variability induced atmospheric and oceanic forcing from regional to local scale, to better predict the potentially damaging climate variability impacts along a coastal margin. Overall conclusion of this study is that the shorter-term climatic variability impacts, though related to climate change, pose greater hazard than eustatic mean sea level trends and thus, should be of more immediate focus for the development of coastal adaptation strategies.

Keywords: Climate Variability, Climate Change, Climate Indices, Sea level rise, British Columbia,

Christian Abizaid, McGill University. Email: christian.abizaid@mail.mcgill.ca, cabiza@yahoo.com; River channel dynamics, land use change and agricultural markets in the Peruvian Amazon: lessons from a meander cut-off along the Central Ucayali River

This paper reports on a study of the evolution of land use patterns and agricultural markets in relation to a large meander cut-off on a major Amazon tributary in Peru. This cut-off, which occurred in 1997, effectively reduced the length of the Ucayali River near Pucallpa, from 71 kilometers to roughly one-tenth of its former distance on the same reach in 1981. The shortening of the channel altered local flooding patterns along nearby upstream and downstream reaches, affected river travel between rural villages and the city, and opened up new areas for agricultural use. A combination of data collected in 2003, through field observations and a household survey in three villages affected by the cut-off, and secondary data on crop prices and agricultural output in the region provide the base for this study. These data are used to examine how this abrupt change in the course of the river modified the spatial distribution of crop production and land use patterns in the region and led to changes in regional agricultural markets.

Findings from this study offer important insights into the nature of land use change along dynamic rivers and the economic implications of rapid environmental change.

Keywords: Latin America; Peru; Amazon; Amazon Floodplain; Environmental Change; Land Use; Economic Change

Joseph Scott Abraham, Ph.D., U.S. Environmental Protection Agency. Email: abraham.joe@epa.gov; *Rural Arizona Community Water Systems, Shortages and Vulnerability: Drought Impacts or Socially Constructed Water Scarcity?*

This paper examines local and regional drivers of water shortage vulnerability of community water systems in rural Arizona. A comparative case study examines two proximate communities in rural Arizona that have experienced water shortages in recent years blamed, in part, on the indirect impacts of record drought conditions. In contrast to official and mainstream analyses of the causes of the water shortages, the study examines the effectiveness of state and local regulations, and historical patterns of local and regional population growth and land and water development. In doing so, the water shortages are contextualized as symptoms of broader unsustainable nature-society relationships in central Arizona taking place during the second half of the 20th century. Using statewide data, the case study is then extrapolated to identify other areas of rural Arizona where community water systems may be (or become) vulnerable to water shortages as a result of similar trends in population growth and land and water development.

Keywords: Vulnerability, Drought, Water, Arizona, Rural

Gregory Lawrence Acciaoli, PhD (Anthropology, ANU), University of Western Australia. Email: acciaiol@cyllene.uwa.edu.au; *'Palm Oil Fever': Plantation Proliferation and Problems of Indigenous Resistance in Central Kalimantan, Indonesia*

This paper examines the social consequences of the proliferation of oil palm plantations in Central Kalimantan, Indonesia. It documents the rise of oil palm plantations as a consequence of the heightened demands from regency governments for local revenue as a consequence of regional autonomy laws in Indonesia. The paper documents instances of the granting of oil palm concessions in both customary land and national park land for oil palm plantation concessions. It examines how various communities have attempted to resist the appropriation of their land and examines the reasons for their failures. In particular, it concentrates upon the case study of the communities around Lake Sembuluh in Seruyan Regency. Muslim migrants in Sembuluh I and Sembuluh II villages find themselves in a bind because they do not subscribe to the customs of the surrounding Dayak relating to land tenure, which have become the standard used by oil palm companies for compensation. Local disputes over compensation claims have been increasing in frequency, as some villagers attempt to claim compensation on the basis of Dayak land tenure norms based on right of first clearance not endorsed by village headmen, while others find they have no recognised basis for their competing claims. This local situation is then placed in the national context of the ways in which the indigenous people's movement has been attempting to assist communities in their claims against encroaching oil palm plantations.

Keywords: indigenous peoples, resistance, plantations, land tenure, Indonesia

Robert Acker, University of California. Email: bobbie@uclink4.berkeley.edu; *Water Table Depth and Centers of Settlement in Medieval Cambodia*

Angkor was the earliest, largest and richest state in medieval Southeast Asia. Attempts to account for its prosperity have been based on its ability to feed a population large enough to maintain its army and build its cities. The first comprehensive theory of Angkor's historical trajectory posited that irrigation from large reservoirs or baray around the capital city permitted the irrigation of downslope land, allowing a second rice crop to be cultivated, doubling Angkor's agricultural production and so supporting its urban workforce and army. This thesis was, however, never quantified. Recent measurements have shown that the water retained in the baray would have sufficed to grow enough rice to have fed a minuscule percentage of Angkor's population, an amount too small to have been the decisive factor in its historical trajectory. In 1998, I suggested that Angkor's agronomy was based on Cambodia's very high water table. In 2005, I generated a data set measuring the depth of the water table at over 800 points, which shows that the first Angkorian capital was in a region approximately five km in diameter with a very high water table, and that the second, much larger capital was in the center of a region 30 km in diameter in which the water table was similarly within two meters of the surface. These spatial correlations corroborate the thesis that Angkorian agronomy and settlement were based on those regions of the country with near-surface water resources available for rice cultivation.

Keywords: Water, rice, Angkor, historical geography, GIS

William V. Ackerman, Ohio State University. Email: ackerman.37@osu.edu; *South Lima: Residential Decay, Crime Hot Spots, and Neighborhoods in Transition*

Lima, Ohio, not unlike a number of smaller urban places, has experienced substantial blight in older neighborhoods. These areas have become the repositories of concentrated poverty, crime, and racial minorities. This research evaluates the likelihood that the construction in 2005 of sixty new single-family homes in South Lima will achieve the necessary threshold of new investment to stimulate economic and social recovery throughout that part of the city. It is hypothesized that success will require building some critical mass of new housing that will alter the economic climate in South Lima and stimulate additional investment. Recent research for several U.S. cities indicates that new or improved housing has served as a neighborhood catalyst to spur further revitalization and growth. The potential for success of this project is analyzed by mapping the location of the new homes and analyzing their proximity to existing low quality housing, crime hot spots, suitable open space for additional new construction, the proximity to three new schools constructed in South Lima, occupancy, rates and property maintenance. Each of the sixty new homes is currently occupied and the properties are being well-maintained. Major crime hot spots are several blocks removed, and attractive open space exists for additional construction. In addition, twelve new single-family homes are under construction in South Lima and another builder has proposed a two-phase, 101 single family home development to replace old and severely blighted multi-family low-income housing. Results to date suggest a positive outlook for improved neighborhood viability.

Keywords: Urban Blight, Urban Renewal

Jessica Acosta, Pennsylvania State University. Email: jza119@psu.edu; Robert P. Brooks, Ph.D., Pennsylvania State University. Email: rpb2@psu.edu; William A. Gould, Ph.D., USDA-Forest Service. Email: wgould@fs.fed.us; *Geographic analysis of habitat change for endemic animal species of Puerto Rico*

Puerto Rico has long been recognized as a hotspot (high concentration of species) for animal species diversity and endemism. Changes in land cover in the last centuries have dramatically affected habitat distributions, with a shift from a forested landscape, to a nearly deforested agricultural landscape, to a very fragmented landscape of secondary forest, agriculture, and urban development. This paper examines the spatial and temporal changes of the geographic distributions of 56 vertebrate terrestrial endemic species using geospatial data from the Puerto Rico Gap Analysis Program. We created species habitat models and predicted habitat extent for the years 1977, 1991, and 2003 using Geographic Information Systems and land cover maps. We evaluated the habitat change for each species, as measured by land cover change, and determined what species are most vulnerable to change over time. We used landscape pattern analysis to quantify the differences in available habitat on unprotected and protected areas for each year. There was an overall increase in habitat for most of the species from 1977 to 2003 due to the recovery of secondary forests on abandoned agricultural land during the second half of the twentieth century. Landscape metrics showed variations in this pattern, which we interpreted in terms of the habitat requirements of particular species and taxonomic. This research will enhance ongoing conservation efforts, such as prioritizing the restoration of endemic species on the island. This will be useful for preserving the species from extinction and keeping what is part of Puerto Rico's natural heritage.

Keywords: habitat change, endemic animal species, species habitat models, landscape pattern analysis, Gap Analysis Program, Puerto Rico, biodiversity conservation

Iddrisu Adam, PhD, University of Wisconsin - Marshfield Campus. Email: iddi.adam@uwv.edu; *Migration and HIV Spread - The case of temporary migrant girls in Accra, Ghana*

Every year, thousands of young men and women leave the country side and move to the city with the hope of improving their lot in life. All too often, the dream of a better dream is never realised. Instead, the migrant young men and women find themselves confronted with numerous real problems in the city, and often, when they return to their villages. This paper examines the situation of young girls and women who temporarily migrant from the Nanumba District of Northern Ghana to Accra to make some money in order to buy "basic necessities" in preparation for marriage. These girls often contract various diseases, included sexually transmitted diseases like HIV/AIDS. They often come home without realising that they are carriers and pass on the disease to their spouses and children. Strategies for reducing and combating this problem are also offered.

Keywords: Migration, HIV/AIDS, Kayayo

Maria Adames, Virginia Tech, . Email: madames@vt.edu; *Neighborhood Revitalization in the Historic District of San Felipe de Neri, Panama*

Residents in historic districts in Latin America are challenged by revitalization and gentrification, especially in World Heritage Sites. Increase in rents and taxes, land speculation, and residential displacement often follow. Furthermore, revitalization efforts may not always consider residents' interests. As a result, there is a disruption in the social structure and linkages that residents have cultivated for years. This paper assess residential perceptions about the physical, economic, and social changes that revitalization and gentrification unleashed in the World heritage historic district of San Felipe de Neri in Panama. I surveyed 205 households and conducted in-depth interviews with current residents and displaced residents of San Felipe de Neri. The study shows that residents are still finding spaces within their political and social networking to fight for what they call their "rights to live" in a place in which they have resided for many years. Their struggle reveals how they strive to compromise with authorities and property owners in order to continue residing there.

Keywords: Revitalization, gentrification, tourism, Latin America, neighborhood, perception, World Heritage Site.

Ellen E. Adams, College Of William and Mary. Email: eadam@wm.edu; *The Handmaiden of History?: Ellen Churchill Semple and American Geography*

This paper looks at the Conference on the Relation of Geography and History held at the 1907 meeting of the American Historical Association in Madison, Wisconsin, at which Ellen Churchill Semple presented a paper, "Geographical Location as a Factor in History." While Semple and the session's chair, Frederick Jackson Turner, agreed that environment played a critical role in determining historical events, another participant, George Burr, professor of history at Cornell, argued that geography was only one factor in history, and by attributing too much power to the environment, one risked reducing or even eliminating the role of human agency. Questions about the relationship between geography and history are perpetual; is geography, as Herodotus said, "the handmaiden of history"? Or is it true that "history lies not near but in nature," as Carl Ritter claimed? This issue achieved particular importance among American geographers and historians at the turn of the twentieth century. In part this was because of their sense that they were living in a time and place where the effects of the environment were especially visible. But such questions were also asked because they related to some of the most important issues of the day: the effects of the closing of the frontier, questions about overseas expansion, and perhaps most importantly, the relationship between heredity and environment. Ellen Churchill Semple, who was trained in both history and geography, was well suited to try to answer these questions.

Keywords: Ellen Churchill Semple

Joy K. Adams, Humboldt State University. Email: joy@humboldt.edu; *Conjunto culture: Celebration and racialization in the German-Texan "border-lands"*

Continued migration of Hispanics and Anglos into Texas's "German belt" has contributed to a significant decline in the proportion of Central Texans claiming German ancestry. Under these circumstances, ethnic festivals are playing an increasingly important role in maintaining the German-American identity of many of the region's people and places. Organizers and participants frequently tout the events' inclusiveness, claiming that anyone can temporarily cross ethnic boundaries to become "German for a day" within the festival context. However, surveys and interviews with festival participants and local residents in three historically German-American communities (Brenham, Fredericksburg, and New Braunfels) suggest that ethnic-themed events mirror processes of racialization that have persisted in the region for more than 150 years. In this paper, I argue that, in helping to construct "German" identities for the region's people and places, German-themed events in Central Texas are implicitly involved in the construction of "non-German" and, by extension "non-white," ethnic identities. Further, event participation patterns reflect a long-standing black-white racial dichotomy in the region. Within this ethnoracial hierarchy, Hispanics have long occupied a liminal status that is illustrated by their involvement in the production and consumption of German-themed events. Thus, in adopting a symbolic, Germanized ethnic identity during these events, Hispanic Texans are able to claim some privileges of "whiteness." Although black Texans continue to be underrepresented in these activities today, increased black participation in German-themed events may, over time, pose a challenge to the persistence of the color line within Central Texas.

Keywords: Texas, ethnic festivals, German Americans, racialization

Paul C. Adams, Ph.D., University of Texas at Austin. Email: paul.adams@mail.utexas.edu; *Ground-Truthing Code*

The process of encoding employs a set of operations that can be observed in a wide range of encodings: subdivision, generalization/classification, sequentialization, and transformation/condensation. A simple environmental

observation can be encoded in image form, in spoken words, or in a wide range of systems that concretize words in various ways. The basic set of coding operations is the same whether we encode a representation of our environment in pixels, vectors, spoken words, hieroglyphs, tokens, quipu, an alphabet, an abjad, or an abugida. While every coding operation is a human construction, inextricable from social power relations, the end result is not as arbitrary as we are often led to believe. We can see through our codes to levels of reality that lie below them—subjective, intersubjective and objective. Science and daily life both depend on the possibility of "ground-truthing" our codes and our commitment to this reality-defining task.

Keywords: representation, reality, code, symbolism

Simon Addison, Senior Research Officer, Refugee Studies Centre, University of Oxford. Email: simon.addison@qeh.ox.ac.uk; *Force-Full Bodies: On Power and the Production of Socio-nature(s)*

This paper seeks explicitly to articulate historical materialist approaches to the 'production' of socio-nature with Michel Foucault's conceptualisations of power and history via a consideration of the notions of 'force' and 'energy'. In their analyses of the production of both bodies and spaces these notions are presented by Michel Foucault and Henri Lefebvre respectively as being fundamental to the processes by which socio-nature, as the metabolic field of relations that exist between human and non-human bodies and things, is produced. For Foucault, the body and its milieu are formed and re-formed perpetually through the exercise of power relations which are conceived of in terms of the deployment of 'force'. For Lefebvre, 'production' is the mobilisation of 'energies' which effect a transformation in the material, social and discursive constitution of bodies, spaces and things. This paper investigates the extent to which these two notions of 'force' and 'energy' may be reconciled and articulated to provide a more comprehensive understanding of the operations of power in the production of socio-nature. The paper suggests that while Foucault and Lefebvre mobilise these notions with particular respect to the operations and production of the body and of space specifically, that Foucault's notions of the milieu and of the operation of biopolitics allow a broadening of the analytical field to incorporate a consideration of the significance of force/energy as critical concepts for the analysis of the (re)production of socio-nature at the scales of environment, population, species-body and globe.

Keywords: Foucault, Lefebvre, Socio-nature, Body, Force, Energy, Production

Jimmy O Adegoke, University Of Missouri-Kansas City. Email: adegokej@umkc.edu; Godstime James, University of Missouri Kansas City, Missouri, USA. Email: ; Saba Ekechukwu, Map and Image System Ltd., Ogunu-Warri, Delta State, Nigeria.. Email: ; Imah Chris-Adegoke, Integrated Geospatial Environmental Foundation, Port Harcourt, Nigeria. Email: ; *From the Slave Economy to the Oil Economy: Culture, Commerce, Politics and the Environment in the Niger Delta*

This presentation will employ audio and video narratives from a cross section of Niger Delta community stakeholders, including traditional rulers, elders, women group leaders and local politicians to examine historical and contemporary facets of the interplay between culture, commerce, politics and the environment in this resource rich but highly volatile region. This study is mostly based on individual and focus group interviews conducted at various Niger Delta locations during summers of 2005 and 2006.

Keywords: Niger Delta, Environment, Culture, Commerce and Politics

Peter Nicholas Adey, Keele University. Email: p.adey@esci.keele.ac.uk; *'The air is our concern': mobility, character and the airminded body*

This paper examines how a form of British identity became tied to the mobile technology of aircraft, its spaces, and the promises and possibilities it afforded. In questioning the tendency to see airmindedness - a kind of aerial enthusiasm - as an abstract concept circulated by discourse and propaganda, this paper explores how young people were made airminded by being encouraged to act and move in particular ways and in specific geographical contexts. It was understood that these bodily mobilities would have certain benefits for the development of identity, citizenship and character.

Keywords: mobility, aviation, identity, citizenship, education

Maro Adjemian, MA Student, McGill University (student). Email: maroita@gmail.com; *Medicine from the forest: the impact of deforestation on medicinal plant availability and use in the Chikanta region of southern Zambia*

Medicinal plants collected from the forest are widely used in the Chikanta region of southern Zambia. Not only is traditional medicine based on medicinal plants an integral part of culture and indigenous knowledge, it is also the most economically feasible and accessible healthcare option for people in this area, as in most of the developing world. However, rapid deforestation has recently begun to threaten these resources. The Chikanta region borders Kafue national park. In

1979, the state handed over control and ownership of this plateau region, formally a protected area, to local Tonga chiefs. Since that time, there has been significant migration into the area. Deforestation has quickly become a problem: the total area of cleared agricultural land in this region more than doubled between 1986 and 2000 according to recent remote sensing data. Drawing on analysis of quantitative and qualitative research carried out in the area by the Gwembe Tonga Research Project, a social science study in southern Zambia that has continued from 1956 to the present, I discuss rates of deforestation in this region and its impacts on medicinal plant use and availability. The Chikanta region is an ideal site for a case-study on the impact of deforestation on medicinal plant use and availability, due to existing background data, recorded rapid rates of deforestation, and extensive local use of medicinal plants.

Keywords: medicinal plants, Zambia, Non-Timber Forest Products, deforestation

Adriana Elisa Adriana Elisa, Graduate Geography Group, University of California Davis. Email: aeparra@ucdavis.edu; Place-based Identity Building in Colombia

The discussion of power and empowerment has increasingly entered the pages of development and feminist scholars (Rowlands 1997). Some have criticized the focus on the local in this discussion as having “profound limitations”. They state that ignoring global and national forces “encourages a rather romantic equation between empowerment, inclusion and voice” (Parpart, Rai and Staudt 2002). The Ruta Pacifica de las Mujeres para la Resolucion Negociada del Conflicto en Colombia offers an example of a coordinated national movement connecting the local to the national and beyond. Through physical and symbolic acts of sisterhood, especially massive mobilizations of women to the most conflictive corners of Colombia, the Ruta Pacifica has put a human face to the victims of the armed conflict and forced displacement. Its interaction with these communities and ethnic groups has contributed to a growing understanding of the strong relationship between identity and place. The Ruta Pacifica has shown how institutional organizations at the national level can generate power through the development of core values such as courage, joyfulness, independent vision, and constancy. The coherence of these values from the local to the national level requires a clear sense of place for all of the actors. While phenomena such as the Ruta Pacifica may be more visible in the margins of the state, they have serious implications for those searching for alternatives to a hegemonic and placeless globalization (Hunt 2006; Das and Poole 2004).

Keywords: power, gender, place, movement

Julia Affolderbach, Simon Fraser University. Email: jaffolde@sfu.ca; Environmental governance: the case of the Great Bear Rainforest

This paper focuses on British Columbia's Great Bear Rainforest to illustrate the role environmental groups play in forest conflicts. After many years of conflict, and opposition to large-scale industrial forestry, in February 2006 an agreement was reached that ‘remapped’ the region to privilege environmental values. The agreement is considered to be a major victory for the environmental movement. Based on a growing literature and fieldwork conducted in 2006 this paper examines the strategies and campaigns of the main environmental groups and the relationships between actors as the conflict evolved, especially since the late 1990s. The analysis seeks to reveal the basis for the bargaining strength of the environmental movement and the extent to which environmental groups achieved their goals.

Keywords: economic geography, environment, forestry, British Columbia

Jytte Agergaard, Department of Geography, University of Copenhagen. Email: ja@geogr.ku.dk; Global-local interactions: Socio-economic and spatial dynamics in Vietnamese frontiers

The traditional concept of ‘frontier’ is linked to the notion of virgin land being transformed by settlers who build up new livelihoods in the frontier region. Settler activities often involve confrontation with indigenous population groups who have exploited the natural resources for generations. We maintain that the frontier concept can also be a useful analytical category for regions characterised by rapid changes in demographic structure, occupational possibilities and land use. These frontier regions typically experience high immigration rates and changing livelihood opportunities including the establishment of new commercial activities. Previously stagnating economic activities are being replaced by new activities, predominantly the production of export-oriented commodities, which are experiencing increasing demand on the global market. In this broader sense, frontiers are ideal locations for studies that aim to understand regional socio-economic and spatial dynamics resulting from local-global processes, in particular the interaction between local livelihoods and world markets. This paper elaborates on the frontier concept and maps out its analytical strengths in terms of bridging two previously isolated approaches, livelihood analysis and global value chain analysis. The analytical approach is then applied to an exploration of three Vietnamese frontiers with distinct and relatively recently established

‘commodity’ connections to the world market: the Red River Delta (handicrafts), the Central Highlands (coffee) and the Mekong Delta (fruit).

Keywords: Livelihoods, global value chains, frontiers, Vietnam

Sunil Aggarwal, PhC, University of Washington. Email: sunila@u.washington.edu; Medical Cannabis Cost-effectiveness and Death Penalty Apportionment for a Germplasm-linked Group of Qualifying Patients in Washington State: the Political Ecology of Botanical Medicine Delivery and of Being and Becoming High

Human-environment relationships between people and as few as ten banned psychoactive botanical biota take place on contested and hysteria-laden grounds and have significant influence on human health, morbidity, and mortality globally. Here I propose a medical geographical framework to interrogate a subgroup of these relationships in the local environment surrounding a single, continuously cultivated germplasm line of *Cannabis sativa* L., the highly globally-distributed, yet nearly globally banned, botanical. Human orientation towards this *Cannabis* germplasm line will be looked at through two American policies that embody diametrically opposed viewpoints on the human-*Cannabis* relationship of germplasm cultivation: RCW69.51a and 18 U.S.C. 3591(b). The former, a Washington state policy, regards qualified *Cannabis* cultivation practices as botanical medicine production intended for therapeutic consumption, and the latter, a U.S. federal policy, regards without exception the cultivation of 60,000 *Cannabis* plants (~12 acres with 3-ft crop spacing) as grounds for the imposition of a sentence of death. This study, whose progress will be reported on, examines the medical geography of the implementation of these two policies for a qualifying patient group in Washington State who have obtained some medical amnesty protections for *Cannabis* consumption and who rely on botanical medicine produced from a shared germplasm line. Using a political ecology of health approach which quantifies and qualifies medical cannabis cost-effectiveness by measuring subjective health-related quality of life as a function of dosing, a group cost-effectiveness germplasm branching diagram will be mapped that takes into account *Cannabis* delivery costs, related health care cost savings, and death threats.

Keywords: political ecology of health, political ecology of disease, medical geography, medical marijuana, cannabis, botanical medicine, structural violence

John A. Agnew, University of California - Los Angeles. Email: jagnew@geog.ucla.edu; The Small-Nation Journal in a World of International Specialization: The Past and Future of the Scottish Geographical Journal

General purpose journals can be accused of an eclecticism that is out of date in an academic world increasingly characterized by narrow specialization. Journals such as the *Annals* and *Geographical Review* in the US and the *Transactions* in Britain find themselves of importance as outlets for younger scholars before tenure or trying to establish their careers but they then fade from sight as more specialized journals assume greater importance. Do general journals have a future? Here I want to make a case for what I call the “small nation” journal that provides a range of geographical papers but does so without the immediate problem of the “intellectual imperialism” that can be seen as afflicting the major US and British journals. I argue that such journals can in fact assume greater significance as geography becomes relatively more integrated as a field and more general audiences grow alongside this trend. The heyday of the *Scottish Geographical Magazine* in the late 19th century may not be recuperable but a more humble but vital role is now more possible than even just a few years ago.

Keywords: Journals, Geography, Scotland, Small nations

Luis LM Aguiar, PhD, Sociology, University of British Columbia - Okanagan. Email: luis.aguiar@ubc.ca; “Is the Justice for Janitors the Model of Global Unionism for the 21st Century?”

This presentation seeks to discuss the following question: Is the Justice for Janitors model a new form of global unionism for the 21st century? The JfJ model is being exported by the Service Employees International Union (SEIU) to Africa, Asia and Western and Eastern Europe to organize building cleaners who work for globalized cleaning firms, and are simultaneously unprotected by governments and marginalized by a changing industry. At the same time, labour movements everywhere are searching for ways to recover the losses in membership, social position, and respond to global capital and are therefore experimenting with various models of organizing to capture new workers in the expanding service sectors of the post-industrial economy. The JfJ is attractive to the global labour movement because of its impressive successes in organizing building cleaners in the United States; these workers are largely visible minorities, immigrants and women - the new working class of the global service economy. Using material from Canada and Australia, I try to develop a preliminary assessment of the progress of the JfJ outside the US.

Keywords: global unionism, janitors, SEIU, Justice for Janitors, organizing, workers

Alexis Aguilar, Ph.D., Salisbury University. Email: atolchuco@yahoo.com; *Disturbance and Forest Succession in the Coastal Mountains of Honduras*

High-resolution Ikonos imagery, historical Landsat images and ground data were used to evaluate the response of various forest types to human disturbance at the landscape level. The study area, Cusuco National Park and surrounding areas in northern Honduras, encompasses elevations ranging from sea level to 2300 m and climate conditions ranging from wet Caribbean slopes, to cool/windy highlands, to semi-arid leeward slopes. Detailed forest structure and floristic composition data were collected across a gradient of elevation and precipitation. Various forest types were identified including lowland humid forest, montane deciduous forest, cloud forest, dwarf forest, and semi-arid pine forest. This study examines the relationship between the rate of successional development of various types of secondary forest and physical variables (i.e., elevation and precipitation), proximity to anthropogenically-disturbed areas, and proximity to mature forests.

Keywords: Forest succession, montane tropical forests, protected areas, Honduras

Julian Agyeman, Tufts University. Email: julian.agyeman@tufts.edu; Karen Bickerstaff, University of Durham. Email: k.j.bickerstaff@durham.ac.uk; *(Dis)assembling environmental justice: developing cross-national comparisons*

The Environmental Justice (EJ) movement in the US has been a bottom-up discourse of community outrage against the siting of locally unwanted land uses in disadvantaged and specifically minority ethnic neighbourhoods. In neither the UK nor Europe more widely is there a discourse seeking to empower and mobilise minority (ethnic) groups to compare with that of the US. In the UK context(s) we arguably see a more top-down and less coherent or universal framing of EJ, with links being made to a diffuse set of particular public policy agendas to include sustainability, social inclusion, access to green space and participation in environmental decision-making. Taking the cue of authors such as Latour (2005) and Law (2003) - who have argued that the world is a hybrid assemblage of objects, people and ideas - we seek to build a picture of the actors, resources, relations and tactics that are (being) collectively assembled to constitute these different environmental justice 'infrastructures'. Here we ground our account in the place-specific contexts of North East England and North Eastern United States. These case studies offer different entry points for thinking through the socio-spatial dynamics of EJ assemblages as well as their political agency. Our purpose is therefore to begin to develop, through cross-national comparison, an understanding of how certain configurations of environmental justice come to be, their capacity to draw sympathy, support and solidarity with groups and individuals beyond the local, and more broadly to consider what constitutes resilient or vulnerable EJ infrastructures.

Keywords: Environmental justice, infrastructure, resilience, USA, UK

Ola Ahlqvist, The Ohio State University. Email: ahlqvist.1@osu.edu; *Categorical Measurement Semantics - A Second Space for Geography*

Categorically measured data often portray each category as separate from other categories with no inherent ordering. Contrary to this understanding and the perception that categorical data offer limited analytical capabilities, I examine the basis for rethinking categorical measurements in terms of a second conceptual space for mapping out categorical semantics. An inherent ordering of nominal categories can be described through this space that provides a transformation into a numerical measurement domain. Semantic variograms and two-space clustering visually illustrate the analytical potentials of this extension to categorical data as it relates to simultaneous autocorrelation in feature and geographic space. The deep semantics captured by nominal variables suggest that these provide a richer information source than any individual measurement variable albeit with a larger degree of uncertainty.

Keywords: semantic visualization, representation,

Rafique Ahmed, Prof., University Of Wisconsin La Crosse. Email: ahmed.rafi@uwlax.edu; *Tropical Cyclones in Bangladesh*

Bangladesh is one of the most cyclone-prone countries in the world. Statistical analyses of tropical cyclone occurrences in Bangladesh from 1960 through 2004 are presented in this paper. A total of 22 cyclones hit the coastal areas of Bangladesh during this period. There were 2-3 cyclones in some years, and there were several years in a row without any cyclones. Of the 22 cyclones during the study period, 6 were Category-1, 9 were Category-2, 3 were Category-3, 3 were Category-4, and 1 was Category-5 cyclone. To determine the regional variation of cyclone occurrences, coastal area of Bangladesh has been divided into five zones (from west): (a) Zone-1: from Hariabhanga River at the western border to Haringhata River, (b) Zone-2: Haringhata River to Meghna River, (c) Zone-3: Meghna River to Feni River, (d) Zone-4: Feni River to Karnaphuli River, and (e) Zone-5: Karnaphuli River to the southeast corner of Bangladesh.

Of the 22 cyclones, 2 made landfall in Zone-1; 2 in Zone-2; 3 in Zone-3; 8 in Zone-4; and 7 in Zone-5. It appears that coastal Zones 4 and 5 are the most cyclone-prone regions in the country, with 68% of cyclone occurrences.

Keywords: Bangladesh, tropical cyclones, cyclone category, cyclone frequency, cyclone zones

Waquar Ahmed, Clark University. Email: wahmed@clarku.edu; *Global Discourses and Local Politics in the production of Power Policy in India*

This paper examines the evolution of electric-power policy in India and its relation to dominant discourses on development and internal contradictions within the Indian society. I have used a relational view, a network analysis, as a methodology for analyzing the heterogeneously constituted economy, state, and society in understanding the dynamic nature of India's power policy. In order to understand the exercise of power within this network, I have examined the state's institutional forms, including the government; oppositional movements inside and outside the government; and relations with civil society institutions. In addition, I have examined the power exercised by mobile global capital on national governments on account of its ability to dictate terms for locating at specific places as national governments have to constantly attempt at attracting FDI and synthesizing economic growth with development. I have also examined how the civil society, by using electoral democracy to its advantage, ensures that state policy also represents the interest of its citizens. The study looks at India's policy transition through the lens of the former Enron subsidiary, the Dabhol Power Corporation, using the case of a failed power project in Maharashtra, India. The paper is based on primary and secondary data and employs a combination of quantitative and qualitative techniques in analyzing that data. Primary data has been generated by interviewing resource persons working in US corporations, political and bureaucratic agents in India, and representatives of civil society groups in India.

Keywords: India, power, policy, Enron, Keynesianism, neoliberalism

Akile Ahmet, BA (hons), MSc, Queen Mary, University of London. Email: a.ahmet@qmul.ac.uk; *Balanced Upbringings: Cultural, religious and ethnic identities within the space of the home for young men of mixed descent*

This paper addresses the multi-layered identities embodied by young men of mixed descent in relation to their ideas and lived experiences of home. Previous research on mixed descent and the home has located people of mixed descent as 'homeless' (see Ifekwuingwe, 1999, Garimara, 2002 and Carton, 2004). I will suggest that for mixed descent young men (aged 16-19) the space of the home becomes a cultural site of their own identities and their family identities. Religious and cultural identities both via material possessions and emotional signifiers influence the identity of these young men and their definitions and experiences of home. This paper seeks to address the multiple web of identity which these young men embody via their religion, culture, ethnicity, and in some cases language. I move beyond the location of mixed race households to address the multiple webs of identity these young men embody via their religion, culture, ethnicity and in some cases language.

Keywords: Mixed descent, Home, Masculinities and Youth Geographies

Kyung Ju Ahn, Syracuse University, Anthropology. Email: kahn01@maxwell.syr.edu; *Seoul to Syracuse, Transnational Korean Family's Education Project*

Since the middle of the 1990s, the Korean transnational family or "multinational household," otherwise known as "Geese Families" or Gi-ruh-gi, consists of a father who remains in Korea as financial support, while the mother and elementary, middle, or high school-aged children stay in the U.S. for the sake of the children's education. Different from the labor migration, Korean transmigration for education purposes has brought reversed capital flow from the third to the first world; the risks to the transnational Korean family often happen in combination with split households. This demographically is a very important phenomenon in the light of understanding the socio-cultural aspects of Korea. My aim in this study is to investigate how each family member in a transnational household experiences cultural norms and differences in values in his or her trans-local everyday life with the Rashomon effect, and how these factors contribute to the production of emerging norms. Through the ethnography of twenty transnational Korean families which consist of a mother and children in Syracuse and a father in Korea. I will investigate the contested relations of culture, place, and identity by gender within the context of transnationalism. I also expect to modify the ethnographic method with an attempt to connect two national trans-local research areas.

Keywords: Transnational Family, Transmigration,

Hisatoshi Ai, The University of Tokyo. Email: hisaai@ua.t.u-tokyo.ac.jp; Atsuyuki Okabe, The University of Tokyo. Email: ; Yukio Sadahiro, The University of Tokyo. Email: ; A New Framework to Classify and Distinguish Spatio-temporal Analysis Methods

This paper proposes a framework of spatio-temporal analysis based on the classification of entities and their analytical methods. A final goal is to construct a matrix that shows both characteristics of methods and linkages between methods. First, entities in the real world are classified by their spatial and temporal properties such as dimension, connectivity, topology, and so forth. The product of spatial and temporal properties gives a matrix of entities and applicable analysis methods classified by their spatio-temporal properties. Each cell in a matrix contains a set of entities and methods that share the same properties. They can be further classified by considering the detail properties of entities in both spatial and temporal dimension. For instance, some entities can even change their spatial dimension while others have to preserve their shape and size. Various changes such as appearance, disappearance, translation, rotation, and scaling are considered. Second, for each cell in the matrix, methods of analyzing entities are discussed. Each type of entities may have a number of analytical methods with different approaches. The methods are similarly examined from various points of view and then systematically classified in the form of table. The table shows the characteristics of the methods that are helpful to detect similar methods in different study fields.

Keywords: Spatio-temporal analysis, framework of spatio-temporal analysis, concepts for spatio-temporal analysis

Danielle Aiello, Ohio University. Email: da278705@ohio.edu; Coast to Coral: Evaluating Terrestrial Development's relationship to Coral Ecosystem Condition in Roatán, Honduras

The island of Roatán, Honduras has an extensive coral reef system which is part of the Meso-American Caribbean reef. Roatán's economy relies on the condition of this keystone habitat for their fishery and tourism industries. During the past several decades, there has been a noted decline in coral reef health across the planet. Coral reefs are one of the most important ecosystems in the world in terms of biodiversity and providing economic viability for millions of people worldwide. The connection between coral condition and human development in the terrestrial zone of Roatán has received little attention, although it has increasingly been cited as a potential cause for coral degradation. This study examines the relationship between terrestrial development within Roatán's watersheds and their associated coral reef habit adjacent to shore through the use of remote sensing and in situ coral surveying methods. Two satellite images are used to determine the amount of change in human development from 1985-2001. Reef locations were randomly selected and evaluated by recording coral condition data utilizing SCUBA techniques. The land cover change and coral condition data are then combined utilizing GIS methods to produce a spatial risk map identifying threatened reef areas. Preliminary results indicate that human development is expanding on the island, changing the landscape and its interactions with the marine environment. The results provide a way to determine terrestrial development's impact on coral reef condition. Additionally, it will provide a flexible tool which conservationists and government officials can use to help manage this key resource.

Keywords: coastal and marine geography, coral reef, land cover, coastal management

Charles S. Aiken, University of Tennessee. Email: csaiken@utk.edu; The Past is a Distant Land: Fact, Fiction, and Remembrance in Faulkner's Mississippi

William Faulkner, a distinguished writer of the twentieth century, set most of his short stories in fictional Jefferson and Yoknapatawpha County, Mississippi. Critics have long argued over the relationship between Faulkner's fiction and fact. The purpose of this paper is to show how Faulkner used and influenced local history. He was not overly concerned with what was true and what was false. Faulkner used certain myths and avoided particular truths. He was aided by the history's of Lafayette County and Oxford seeming ancient, even though when he began his Yoknapatawpha County stories in 1929, the county and the town were less than 100 years old. To evaluate the relationship between fact and fiction, three brief statements concerning the history of Oxford and Lafayette County are examined: the state historical marker for the town and county, a summary of Oxford's history on a plaque at city hall, and a paragraph in the Works Progress Administration's Federal Writer's Guide, Mississippi (Viking 1938). Faulkner wrote his most innovative short stories and novels during the 1930s. Without intention, he altered what became accepted as local history. By the late 1930s, certain aspects of local history were false remembrances based on Faulkner's stories. This was possible, in part, because the past seemed ancient and distant.

Keywords: United States Southern Fictional Literature, William Faulkner

Rabah Aissaoui, University of Leicester. Email: rabah.aissaoui@leicester.ac.uk; Class, Ethnicity and the Political Mobilization of North African Migrants in 1970s France: The Case of the Mouvement des Travailleurs Arabes (MTA)

The 1970s were a decade marked by heightened racist tensions, segregation and numerous aggressions against migrant workers in France. It was within this context that the Mouvement des Travailleurs Arabes (Arab Workers Movement / MTA), a social movement born within the North African migrant population, grew to become the one of the strongest autonomous political voices of North African immigrants in France during those years. Understanding this movement, it could be argued, is important as it highlights the long-standing tradition of political activism among North Africans in France. It formed a link between earlier North African nationalist movements such as the political organisations led by Messali Hadj from the inter-war period to Algerian independence, and the so-called "Second Generation" anti-racist protest movements in the 1980s. This paper explores some key aspects of the actions and discourses of the Arab Workers Movement - a revolutionary political organization established by North African immigrants in 1970s France - against racism, capitalism and the French authorities immigration policies. It looks at some of the ways in which the MTA's political mobilization and discourse on the workplace, the foyers and on illegal immigrants' rights were constructed. Secondly, it examines the cross-ethnic links of solidarity that this movement established with other immigrants' groups and organizations in France and with the catholic and protestant priests in its struggle for immigrants' rights in France. Finally, the paper looks at the often antagonistic, but sometimes close relationship between the movement and the French trade unions.

Keywords: migration, politics, France

Btihad Ajana, London School of Economics. Email: b.ajana@lse.ac.uk; Homo Carded: Exception and ID Cards

The field of global governance and policing has been centred in recent years around the development of modes of surveillance and control. Technologies of identification in particular, such as biometric identity cards are now firmly placed on the security agenda of many countries. As these technologies increase in proliferation, so too does the logic underpinning the state of exception whereby identity, citizenship, politics, etc. are reconfigured in the name of risk and security. Drawing upon the work of Giorgio Agamben, the paper will seek to examine the relationship between biometric ID cards and the state of exception. In doing so, specific examples will be used to elucidate the ways in which what was once confined to the realm of exception (criminal justice, immigration and asylum policy, border control, etc.) is now in the process of becoming a normative and all-encompassing practice. The aim of drawing such a parallel is to examine and understand the biopolitical stakes behind the adoption of this technology- specifically vis-à-vis the (dis)articulation and management of identity.

Keywords: Agamben; biometrics; biopolitics; exception; identity

Clark Akatiff, . Email: cakatiff@sbcglobal.net; The Roots of Radical Geography: AAG Convention, San Francisco 1970: A Personal Account

Using collected documents and ephemera from the period, the paper address the social and political maelstrom surrounding the beginnings of Radical Geography. Focus will be on the 1970 AAG Convention in San Francisco and how that event crystallized the radical thoughts and behaviors of the time in both their strengths and weaknesses. Specific emphasis is placed on "People's Geographical Expeditions" student rebellion, psychedelic consciousness, and shifting paradigms in Academic Geography. It is submitted as a flawed but critical step in the eventual establishment of radical or socialist geography, which — though the consequences for most of the principals involved were personally mixed or negative—none the less provided a jumping off point for subsequent development. It is based on the author's knowledge of the events as a participant and as an observer.

Keywords: San Francisco, Radical Geography, the Sixties, 1970 AAG Convention

Ezgi Akpinar, University of Cincinnati. Email: akpinar@email.uc.edu; Nicholas P. Dunning, University of Cincinnati. Email: nicholas.dunning@uc.edu; John G. Jones, Washington State University. Email: jonesjg@wsu.edu; Aguadas of the Pre-Hispanic Maya Lowlands as Paleoenvironmental Sources

Water availability has been an ever important source of concern for the inhabitants of the karstic landscape of the Yucatan Peninsula. Maya peoples were no exception to this. As a part of its climatic regime, the Yucatan Peninsula experiences a highly seasonal distribution of rainfall. As a result, it is necessary to capture and store rainfall for later uses. Aguadas served this purpose for the Maya in many areas, and the ubiquity of these features around ancient settlements demonstrates their significance. The study of aguadas is also valuable for

understanding the paleoenvironment of the pre-Hispanic Maya Lowlands. The authors analyzed sediments from three urban and four rural aguadas from the Preclassic and Classic Maya periods. Dating with AMS and standard radiocarbon methods along with palynological analysis were undertaken where was possible. The systematic study of the sediments from these aguadas helps establish the archaeological record of aguada construction and their use, Maya settlement history, agricultural practices, and general paleoenvironmental reconstruction.

Keywords: paleoenvironmental change, geoarchaeology, cultural ecology, Maya Lowlands

Bhuiyan M Alam, University of Toledo. Email: bhuiyan.alam@utoledo.edu; Md M Islam, Principal Scientific Officer (Ex), RRI, Ministry of Water Resources, Associate Specialist, Institute of Water Modelling, Bangladesh. Email: mresj04@gmail.com; Trans-Boundary River Water Sharing To Meet The Local Fresh Water Demand: A Regional Approach

Fresh water sharing of common rivers or water bodies like like/reservoir among the concerned countries are always a critical issue worldwide and requires rigorous information based analysis to reach a common and acceptable agreement. In the context of trans-boundary river, situation of Bangladesh is unique. Being a small country (area of about 144,000 sq km), it contains 57 trans-boundary rivers out of which 54 are along the India-Bangladesh border and the rest three are flowing along Myanmar-Bangladesh border. Most part of the fresh water flow in the major rivers are from the contribution of watersheds lying out side Bangladesh. Fresh water flow in the trans-boundary rivers vary greatly from almost zero in dry season to about 80000 cumecs in monsoon. During monsoon tremendous amount of fresh water passes over the country; on the contrary, the flow during the dry season is very low, which causes recurrent flood-drought cycle, depletion of groundwater table, contamination of groundwater, saline water ingress, sedimentation in the tide influenced rivers resulting reduction/damage to agricultural and fisheries productivity, choking of the distributaries and tidal rivers, water logging and drainage congestion, environmental degradation, loss of domestic animals, trees and plants, health hazard and loss of livelihoods. Reduction of fresh water supply in the dry season causes chronic economic, social and environmental hazards in the lower riparian region which results indescribable distress to the people. This paper will discuss the needs and sharing issues/strategy of fresh water in the trans-boundary river systems along Indo-Bangladesh boarders.

Keywords: Fresh Water Sharing, Politics of Water, Indo-Bangla Rivers, Ganges, Local Water Demand

Undala Alam, PhD, Cranfield University. Email: u.z.alam@cranfield.ac.uk; Paul Jeffrey, PhD, Cranfield University. Email: u.z.alam@cranfield.ac.uk; Facing scarcity in international river basins

International basins supply sixty percent of the world's freshwater. With water availability diminishing, how countries respond to the scarcity is influenced by their sanctioned discourse. Thus, most countries rely on unilateral development of a shared resource, which perpetuates a zero-sum game because it can conflict with other countries' national plans. An alternative approach is to develop the services needed from water in optimal locations across the whole basin, and share those. This approach is termed the benefit-sharing principle and we compare its relevance to two case study basins in this paper. To meet increasing water demand, Spain and Portugal have both developed the Guadiana river independently of each other, pursuing a sanctioned discourse of unilateral control. The result has been decreasing water availability and water quality. By contrast, despite greater poverty and climatic challenges the Senegal basin countries are jointly developing the river according to the benefit-sharing principle. The consequence is greater access to key services such as irrigated agriculture and electricity.

Keywords: Guadiana basin, Senegal basin, cooperation, water allocation

Samer N. Alatout, Ph.D., University of Wisconsin-Madison. Email: snalatout@wisc.edu; Bio-territorial power and bio-territorial in/securities: Israel during the 1950s

In/security has often been addressed through a territorial framework that is linked to Weberian notions of the state and, more recently, through a quality of life framework linked to Foucault's notion of governmentality. In a recent work of mine (Alatout 2006) I was critical of the singular focus on territory in state theory and on populations in theories of governmentality and attributed those to their very singular conceptions of power, territorial-power and bio-power, respectively. I developed a third framework of power, bio-territorial, and argued that rather than focusing on the distinction of territory from population as the main framework of power, we need to focus on what links together, articulates categories of population with categories of territory: power, in this case, becomes about the construction of, articulation with one another, and distribution of

categories of people and of territories. In this paper, I use this framework to understand Israel in the 1950s and discuss the implications of such a framework of power for understanding and dealing with different kinds of in-securities. Specifically, I discuss attempts at constructing and articulating together different categories of territory (empty, insecure, infertile, arable, border towns, desert) and of population (immigrants and non-immigrants, lazy, courageous, Yemenites, Sabras, Ashkenazim, Mizrachim). I also discuss the in/securities that emerge from these practices. Here, in/securities do not start, for example, from the moment of a territorial invasion or an epidemic, but long before?in the very discursive, ideological, and institutional acts of constructing and articulating together categories of territory and of population.

Keywords: power, state theory, governmentality, insecurity, Israel, bio-territoriality

Heike C Alberts, University of Wisconsin-Oshkosh. Email: alberts@uwosh.edu; Berlin's Quest to Host the Olympic Games

The Olympic Games have now become the largest and most important international sports competition. Due to the prestige associated with staging the event, as well as the hopes for tangible benefits for the host city such as the realization of major infrastructure projects, bidding for the Olympic Games has become intense. Potential host cities now have to submit sophisticated application materials, requiring them to design a comprehensive urban development plan as well as to realize some projects before applying to strengthen their bid. Because of these investments, even an unsuccessful bid for the Olympic Games can have far-reaching impacts on a city. Berlin, wanting to showcase its new role in the reunited Germany, competed for the 2000 Summer Games, but was unsuccessful. Several large-scale urban projects have now been realized, as the two halves of the city are growing together and Berlin has assumed the role of the seat of the German government. However, another sports mega-event, the FIFA Soccer World Cup in 2006, also provided Berlin with an improved infrastructure. For example, the Olympic Stadium, originally built for the Games in 1936, was completely renovated to host the final match. From this strengthened position, Berlin is now preparing to bid for the Olympic Summer Games in 2016. This paper chronicles Berlin's quest to host the Olympic Games, based on an analysis of bidding materials, newspaper articles and interviews with people preparing Berlin's application, and discusses the costs and benefits of hosting such a mega-event.

Keywords: Berlin, Olympic Games, urban development

Heike C. Alberts, University of Wisconsin, Oshkosh. Email: alberts@uwosh.edu; John Bowen, University of Wisconsin, Oshkosh. Email: bowen@uwosh.edu; Julie L. Cidell, California State University, San Bernardino. Email: jcidell@csusb.edu; The Restructuring of Berlin's Airport System and the City's Position in International Airline Networks

After its unique history as a divided city, Berlin was expected to become a major world city after reunification. While the city has grown in terms of investment and social capital, it has not attained the preeminent status on the global stage that was expected. One important reason for this is Berlin's failure to unite its three separate airports into one major facility capable of functioning as an intercontinental gateway to Europe. In this paper, we trace the history of airports in Berlin, including the long planning process for Berlin Brandenburg International Airport. We further demonstrate that it is not just the unique history of this place, but larger economic and political forces affecting all airports, that have led to Berlin's continuing marginalization within the European airline network.

Keywords: Berlin, air transportation, airports, world cities

Jochen Albrecht, Hunter College CUNY. Email: jochen@hunter.cuny.edu; The Changing Looks of NORCs

The study of naturally occurring retirement communities (NORCs) has a long tradition in New York State, where they were first "discovered" as village-sized aging high rises in New York City. With the revitalization of inner cities and the trend towards second homes in rural fringes, traditional NORCs are disappearing. At the same time, diverse groups of former immigrants are now bringing their elderly relatives to the country and create new types of NORCs especially in Asian communities. Established policies of facilities planning for existing and prospective NORCs have to adjust the changing demographics of NORCs themselves. This paper discusses a methodology to determine the needs of prospective NORCs in New York. The methodology combines predictions for the location of future NORCs with measures of relative well-being in these areas to provide the information necessary for the allocation of funds that help to balance service disparities for the elderly. NORCs have traditionally been perceived as areas of special needs. Our work turns this perspective around by pointing out why elderly choose to age in place. The very same reasons that cause senior citizens to live within their community rather than to move into a nursing home (or in the New York case to Florida) make many NORCs proto-

typical examples of healthy communities. Our GIS- and spatial analysis-based study looks at what are the characteristics of successful NORCs and creates a typology of NORCs along many dimensions.

Keywords: public health, aging in place, social capital, healthy communities, immigration

Serena Aldrich, Texas A&M University. Email: serena@neo.tamu.edu;
Jennifer Hoss, Texas A&M University. Email: jhoss@geog.tamu.edu;
Charles Lafon, Texas A&M University. Email: clafon@geog.tamu.edu;
Georgina DeWeese, University of Tennessee, Knoxville, TN. Email:
gwright@utk.edu; Henri Grissino-Mayer, University of Tennessee,
Knoxville, TN. Email: grissino@utk.edu; Fire Regimes and Successional
Dynamics of Table Mountain Pine Forests in the Central Appalachian Moun-
tains

Fire exerts a strong influence on vegetation patterns and ecosystem function. It is a key process in some ecosystems, where periodic burning is essential for the long-term maintenance of vegetation structure and species composition. In much of the U.S., fire exclusion over the twentieth century contributed to declines in the abundance of fire-associated vegetation. Pine (*Pinus L.*) forests that cover the dry uplands of the central Appalachian Mountains are thought to have developed under a regime of frequent burning. Currently, following several decades of fire exclusion, the dominant species in these ecosystems are declining in abundance, and fire-sensitive trees and shrubs are encroaching. Little is known about past fire regimes of the Appalachian Mountains or about the consequences of altered fire regimes for vegetation change. The purpose of this research is to (1) characterize past and present fire regimes (i.e., frequency, severity, and seasonality of fire) in xeric pine-dominated stands located on a ridge (Kelly Mountain, Virginia) in the central Appalachian Mountains, (2) evaluate current age structure of the stands to assess potential links between fire and species establishment and (3) assess the successional trajectory of the stands in the absence of fire. We expect the results of this study will highlight the historic role fire has played in the development of Table Mountain pine stands and to provide ecological information crucial for the successful management of fire-dependent forests in the Appalachians.

Keywords: dendrochronology, forest dynamics, succession, Appalachia, Virginia-central

Stephen Peter Aldrich, Michigan State University. Email:
aldric30@msu.edu; Robert T Walker, PhD, Michigan State University.
Email: rwalker@msu.edu; Cynthia Simmons, PhD, Michigan State
University. Email: simmo108@msu.edu; Marcellus M Caldas, Michigan
State University. Email: caldasma@msu.edu; Dante Vergara, Michigan
State University. Email: vergarad@msu.edu; Deforestation and Conflict in
the South of Pará, Brazil

The region of the eastern Brazilian Amazon known as the South of Pará has long been the location of contentious relationships over land resources. While the ongoing "land war" has, over the past 300 years, drastically reshaped the environment in this location, land conflict rapidly increased during the late 1980s through the 1990s and has further altered the landscape in the region. The awakening of Brazilian civil society after the opening of national politics in the 1980s has led to a strong set of social movements focused on forcing the government's hand in long promised but largely unrealized land reform. This paper will show, through the use of a spatial regression model, the forest cover impacts of the more recent, social-movement driven, fight for land in the South of Pará using land conflict data provided by the CPT and INCRA as well as Landsat imagery spanning the years from 1984 to 2003.

Keywords: DALR, land reform, spatial regression, remote sensing, Amazon, Brazil

Jared R. Aldstadt, University at Buffalo. Email: geojared@buffalo.edu;
An Incremental Knox Test for the Determination of the Serial Interval between
Successive Cases of an Infectious Disease

An estimate of the interval between successive infections is essential for surveillance, control, and modeling of infectious diseases. This paper proposes a method for determining the serial interval when the location and time of onset of illness are known. The theoretical underpinning of this method is the intrinsically spatial nature of disease transmission. Successive infections tend to be closer than unrelated cases of disease and, therefore, exhibit spatial clustering. An incremental Knox type analysis of cases is introduced. Cases occurring at a range of time intervals are examined to determine the serial interval. The significance of clustering is determined using a permutation approach under the null hypothesis of space-time independence. The power of this method is evaluated using an individual level, spatially explicit epidemic simulation. The time increment Knox test is robust to multiple introductions and incomplete sampling. Finally, the increment Knox statistic is used to analyze an outbreak of dengue fever in the city of Florida, Puerto Rico during 1991. Results indicate that

the likely interval between successive cases during this outbreak is at least 18-19 days.

Keywords: Space-Time, Diffusion, Infectious Disease

Safaa Zakaria Aldwaik, . Email: saldwaik@clarku.edu; The Corridor:
Using GIS to Propose Satisfactory Transportation Paths between the West Bank
and Gaza Strip

Contiguity of West Bank and Gaza Strip is a critical factor to promote the Palestinian prospected State's success. Such contiguity cannot be guaranteed without providing Palestinians with a transportation path or "a corridor" through Israel that includes roads, a rail link, and infrastructure. The Palestinian Ministry of Planning needs a flexible process modeling tool to propose a range of acceptable ground based transportation paths between the two territories. The flexibility will be utilized in the future to modify the weights of each criterion so as to adapt to the requirements of negotiations with the Israeli side. This paper describes how to use the Multi-Criteria Evaluation with Weighted Linear Combination to create a map of suitability, then how this map can be used as friction surface of cost to calculate the least cost pathways between Gaza main cross points and West Bank major roads. This paper reflects Palestinian recommended criteria which take into account: 1) Israeli city centers that limit where pathways can run, 2) topographical realities for environmental and technical considerations, 3) existing Palestinian main roads network for financial considerations, and 4) existing and planned Israeli routes to minimize number of intersections with longitudinal Israeli routes. Results show that there are four possible solutions that satisfy all the criteria; the lowest cost is a path runs south east from Erez crossing point of Gaza to Beit Awwa village near Hebron city in the south west of the West Bank.

Keywords: West Bank, Gaza Strip, the Corridor, Multi-Criteria Evaluation, Suitability map, Weighted Linear Combination

Catherine Louise Alexander, BA, MA, Durham University. Email:
catherine.alexander@durham.ac.uk; Abayas, Niqabs and Hijabs - the
Embodiment of Fear in Fenham?

The demonisation of Muslims within many national discourses is the result of a 'moral panic', further fuelled by unsavoury media representations, which would have us believe that deep rooted Islamophobia epitomises the UK today. Yet my own research with disadvantaged urban youth has thrown up ambiguities in the ways in which young people interpret Muslims on a personal everyday basis, (which sometimes contrasts with their personal racist views in regards to national security). As such, the literature does not devote enough explicit attention to the ways in which different aspects of young people's identities such as fears, prejudices and intolerances are developed and formed alongside compassion, understanding and acceptance of difference, and the ways in which these intersect and interact within their everyday urban lives. This paper will discuss the ways in which young people negotiate local urban spaces, focussing specifically upon how fear of 'the other' mediates and shapes their personal opinions and beliefs. It considers the highly specific social context of Fenham in Newcastle upon Tyne, to understand how young people may read Muslims as 'risky' bodies and the meanings they attach to groups of 'feared others' - while at the same time they may themselves be resisting widespread national demonisation at a local level - through their friendship groups and daily encounters. Thus the paper questions how young people encounter such ambiguities emotionally, and finally how they might seek to manage these complex hopes and fears.

Keywords: Islamophobia, Moral Panic, Everyday Life, Fear, Hope, Identity.

Melinda Alexander, Arizona State University. Email:
Melinda.Alexander@asu.edu; Imagine That: Performing an Artistic Sense of
Place in Downtown Phoenix

The transition from an industrial and service to a knowledge economy, emphasizing the economic potential of information and creativity, is taking place across the United States. This paper examines the momentum of the grassroots arts community in downtown Phoenix, and the popularity of the monthly artwalk events, which draw thousands of visitors to the downtown on a regular basis. This burgeoning arts scene takes place at the same time as massive investment in downtown revitalization, to an extent representing bottom-up versus top-down growth. This paper is a narrative study of place-making accentuating political and personal implications of affect, and the experience of place and self through art. Three themes or critical constellations are illuminated: contestation, performance, and imagination. The political process in Phoenix seems relatively open; though not successful in all their aims, activist groups have established a presence at City Hall, and in many cases maintain participation and input. A challenge facing Phoenix is the sense of isolation and placelessness expressed by loose social networks, a result of the transient nature of the population, coupled with the far-flung spatial pattern of development. Socially performative events like the artwalks, with their open access and free

flowing atmosphere, act as an arena for personal and interactive experience, and are crucial in engaging awareness and care for place.

Keywords: performance, art, humanistic geography

Jennifer Alford-Teaster, Dartmouth College. Email: jaat@dartmouth.edu; Xun Shi, PhD, Dartmouth College. Email: xun.shi@dartmouth.edu; Dongmei Wang, Dartmouth College. Email: Dongmei.Wang@Dartmouth.edu; Tracy Onega, Dartmouth College. Email: tracy.onega@dartmouth.edu; Assess the Access to Cancer Care Facilities in the US

This research aims at characterizing the spatial variation of the accessibility of cancer care facilities in the US, based on which potentially under-served areas and under-served demographic groups can be identified. The cancer care facilities considered include the National Cancer Institute (NCI) centers and the academic medical centers (AMC) throughout the contiguous US. Service areas are created around these centers using travel times from 30 min to 4 hrs, using a 30 min interval. The inverse of the population-at-risk, within the 4-hr service area, is used to estimate the service density of a center. The service received at a given location is the accumulation of the service densities from all centers. When doing the accumulation, the service density is adjusted by the distance between the given location and the center. The service received at a location is then divided by the population-at-risk at that location for identifying areas that are under-served but have big populations. These areas should be given high priorities when planning new centers. Demographic analyses can be applied to these areas to reveal potential social-justice issues. The population-at-risk is estimated through an integration of LandScan data and US Census data.

Keywords: Accessibility, Health Care, Cancer, Service Area, LandScan

Katie Algeo, Western Kentucky University. Email: katie.algeo@wku.edu; Present at the Creation: Negotiating Nature and Culture in the Early Years of Mammoth Cave National Park

This paper examines the dichotomy of policy and action governing the social construction of nature during the establishment of Mammoth Cave National Park from the 1920s through its official dedication in 1941. In formally articulated statements, nature and culture were frequently construed not only as discrete ontological categories, but opposing ones, such that the presence of one threatened the existence of the other. Land management practices, however, embodied a subtler, if unacknowledged, interplay between the two. In this paper, I explore the praxis of these contradictory approaches to the nature-culture relationship. The divide was most sharply delineated through the clearance of some 500 families during the land acquisition phase of park creation. Concurrently, however, the nature-culture boundaries were being obscured by Park Service practices that altered the landscape to make the park's "wilderness" more accessible to visitors. Both approaches contributed to the production of a landscape conceptualized as and now commonly perceived as wild.

Keywords: nature-culture, national parks, Mammoth Cave, Kentucky

Assaf A Alhawas, King Saud University. Email: alhawas@ksu.edu.sa; Regional Flood Frequency Curve for Some Internal Wadis in Saudi Arabia

Saudi Arabia is covering vast area in the southwest Asia. It extends between latitudes 16°-33° N, and between longitudes 34°-56° E. Seldom-rainy events in Saudi Arabia, are driven by three mechanisms. Uncertainty associated with rainy events is intensified when reflected on ephemeral stream runoffs in the country. That is because runoff is not only dependent on rain incidents but on their anomalous magnitudes and intensities. In a rapidly growing country like Saudi Arabia flood data are essential for decision makers, following the vast horizontal growth of major cities and villages to cover areas that have never been populated before. It is also important for the increasing number of road building projects. For sustainable development, the need is certain for a fast and reliable method of estimating drainage basin runoff for un-gauged stations based on available data. As a step into that direction this paper's aim is developing flood regional curves for internal wadis of Saudi Arabia utilizing the available runoff records and using the standard procedures used by USGS, as outlined in Bulletin 17B of Interagency committee on water resources. Five catchments for which systematic flood records were available for more than twenty years are investigated. A representative regional curve was developed, after checking for homogeneity, and correcting for outliers and zero values. The slope coefficient of the relationship between drainage area and mean annual flood was estimated to be 0.335.

Keywords: Regional curves, Flood, Flood frequency, Saudi Arabia

Petteri Alho, Dept. of Geography, Univ. of Turku, Finland. Email: mipeal@utu.fi; Jukka Käyhkö, Dept. of Geography, Univ. of Turku, Finland. Email: jukkay@utu.fi; Noora Veijalainen, Finnish Environment Institute (SYKE), Finland. Email: noora.veijalainen@ymparisto.fi; Juha Aaltonen, Finnish Environment Institute (SYKE), Finland. Email: juha.k.aaltonen@ymparisto.fi; Mikko Selin, Dept. of Geography, Univ. of Turku, Finland. Email: mianse@utu.fi; Characteristics of the Future Flooding Problems in Finland: Flood Scenario Studies in SW Finland

Floods in Finland are usually related to snow melt, ice jamming, torrential rain events and prolonged rain events. These phenomena follow a typical seasonal cycle, and have a characteristic regional occurrence. The most widespread floods take place in the spring during the snowmelt season. Recently, however, spring floods have been less pronounced in southern Finland as a consequence of repeated snowmelts during winter. Special characteristics of Finland in future flooding include land uplift caused by postglacial rebounding. Channel gradients will decrease significantly, as uneven land uplift will change relative elevations in Finland. The coastal areas of Western Finland will have the highest land uplift rate (up to 90 cm/100a) and this change will also affect estuary formations in combination with erosion-transportation-sedimentation processes. In this paper, we present flood scenarios in the city of Salo and in the city of Pori, SW Finland in year 2100 including effects of climate change, erosion-transportation-sedimentation processes and land uplift. Future discharge estimations have been undertaken with Watershed Simulation and Forecast System (WSFS) with HQ1/100a & HQ1/250a for next 100 years time period. Utilized input climate data (HadAM3H & ECHAM4/OPYC3 scenarios with A2 & B2 emission scenarios) was down-scaled with the Swedish regional climate model RCAO. WSFS simulated 20-24% increase in HQ 1/100a & 1/250a discharges for Salo and Pori by year 2100. The enlarged flood inundations were simulated with 2D-hydraulic model (Enhanced RMA). These results indicate more severe flooding and the altered flow conditions in SW Finland in the future.

Keywords: flood scenarios, Finland, climate change, hydraulic modelling

S. Harris Ali, York University. Email: hali@yorku.ca; Roger Keil, York University. Email: rkeil@yorku.ca; Multiculturalism, Racism and Infectious Disease in the Global City: The Experience of the SARS Outbreaks in Toronto

The SARS outbreak in Toronto, which killed 44 and made hundreds sick, tested the common multicultural model, which is often described as the reason for making this a livable global metropolis. Billed as the 'Chinese disease', SARS, on one hand, connected seamlessly and traditionally with previous periods of racialization of disease assumed to originate from migrants and foreigners in North America. Yet when restaurants in the city's three Chinatowns remained empty for weeks and close contact with Chinese citizens was avoided by others in public, the dynamics that unfolded also tied in with a new development in Toronto: the formation of the global city. As news on the SARS outbreak spread and the intricate details of travel patterns and infection-pathways became clearer, the relationships of Toronto diaspora communities and business ties with other globalizing cities like Hong Kong, Guangzhou and Singapore became obvious and Toronto's vulnerability in the network of global flows of finance, culture, commodities and people was exposed. Our paper will provide a narrative of the racialization of infectious disease in the context of Toronto's multiculturalism and the region's formation as a major global city. We will provide evidence of racialization in public discourse, everyday practices and institutional policies. We will advance the hypothesis that the SARS outbreak strained the usually happy appearance of this particular multicultural urban fabric of diversity.

Keywords: racialization of disease, multiculturalism, SARS,

Saleem H Ali, Associate Professor, University of Vermont. Email: saleem@alum.mit.edu; Ganlin Huang, Ph.D. candidate, University of Vermont. Email: Ganlin.Huang@uvm.edu; Spatial Analysis of Tourism versus Mining in Yunnan, China: Comparing economic and environmental impacts

Tourism, a service sector, is often promoted as a more suitable alternative to extractive economics, such as mining. Yet few studies have compared their environmental impacts and contributions to the regional economy. This study fills the gap in the context of Yunnan, southwest China where tourism and mining (coal and gold) have been growing at a rate of 20-30% since 1998 and competing with the landscape and pristine communities. The province is the fourth-poorest province in China while also providing habitat for 59.4% of all protected animals in the country. Yunnan is also home to twenty-five ethnic groups which necessitates a path to economic growth that could conserve ancient cultures as well as natural resources. Geographic Information Systems (GIS) and statistics techniques were used to quantitatively analyze the correlations among four data sets - tourism, mining, economy and environment, and their spatial patterns at prefecture level (the administrative unit under province). Four prefectures were selected to conduct the same analysis at the county level. The

results showed that 1) both mining and tourism had positive spatial relationships with the environment degradation; 2) both the tourism income and the number of mines were strongly correlated to local GDP; and 3) although both having the tendency to aggregate in the areas with higher GDP, tourism dispersed more to the peripheral area than mining. Contrary to popular perception the study reveals that sectoral differences between extractive industries and service sector economies may have little impact on sustainability performance.

Keywords: resource dependence, ecotourism, china, gis analysis

Alison Hope Alkon, Abd, University of California, Davis. Email: ahalkon@ucdavis.edu; *Constructing Community through Farmers Markets: The (in)visibility of race*

Farmers markets are more than just a place to buy vegetables. Often, they are intended by managers, farmers and shoppers to create a sense of community, by both connecting consumers to producers and creating vibrant public spaces. My research looks at the social construction of community in two very different Bay Area farmers markets, one in an affluent, largely white neighborhood known for gourmet food and the other in a food-insecure, largely African American area. Various notions of blackness are essential to the discourse concerning community at the second market. However, notions of race and class privilege subtly inform the former. This paper looks at the consequences of this social construction for who does and does not participate in the alternative food systems.

Keywords: food, community, race, urban

John All, JD, PhD, Western Kentucky University. Email: john.all@wku.edu; *Overlap between the Clean Water Act and Safe Drinking Water Act in Karst Water Stormwater Management*

Bowling Green and other small municipalities are in the early phases of implementing subject to Clean Water Act (CWA) Phase II permit requirements for stormwater discharges. New management plans are being considered as these areas move into compliance. However, there is an important legal/hydrologic issue that has been overlooked that could penalize small karst municipalities during future CWA enforcement activities. Generally, one of the simplest ways to manage stormwater nationwide is to force it to infiltrate into the ground. Infiltration will reduce the volume of water potentially available to contribute to flooding and will help cleanse water of contaminants. However, class V injection wells (dry wells) are often used in karst and they don't have soil to absorb water and pollutants. These wells are regulated under the Safe Drinking Water Act and there is a conflict/overlap with CWA jurisdiction. Under the CWA, a 'point source' is a specific location (like a pipe) that directly contributes pollution into a river, lake or stream. An injection well in a karst landscape could thus be considered a 'point source' subject to monitoring and regulation because of its 'direct' connection to waterways via springs. If the EPA would adopt this definition, it would create major new requirements for karst municipalities. As stormwater options are considered by a multitude of smaller karst municipalities, this issue must be addressed early in the planning process or major costs could result later as additional infrastructure is required.

Keywords: Water, Law, Karst, Environmental Planning, Management, Stormwater

James P. Allen, California State University - Northridge. Email: james.allen@csun.edu; Eugene Turner, California State University - Northridge. Email: eturner@csun.edu; *Income Levels in Ethnic Residential Concentrations*

Are residents of concentrated ethnic settlements necessarily poor? Immigrant Spatial Assimilation Theory and the experiences of immigrants and their children a century or so ago suggest that residents of such ethnic concentrations should have low incomes. We tested this notion with household income data from Census 2000 for Asians and Latinos in the New York, Los Angeles, and San Francisco Consolidated Metropolitan Statistical Areas (CMSAs). Concentrations were defined as census tracts in which the ethnic group comprised at least 40 percent of the total tract population. While very low incomes characterized many ethnic concentrations, the median incomes of 11 percent of Latino households in concentrated tracts and 57 percent of Asian households in concentrated tracts were above the metropolitan medians for all households. Moreover, 18 percent of residentially concentrated Asians lived in tracts in which median Asian household incomes were at least 50 percent above the metropolitan medians for all households. Thus, in contrast to expectations, the evidence indicates that many residents of ethnic residential concentrations have moderate or high incomes. Mapping demonstrates that larger ethnic concentrations commonly contained tracts with substantial variations in median income.

Keywords: ethnic, immigrant, concentration, enclave, economic status, income level

Jeannette Allen, MA, SSAI at NASA Goddard Space Flight Center. Email: Jeannette_Allen@ssaihq.com; *Integrating Remote Sensing with Geography Education*

Integrating space-based remote sensing technology with geography for two-year college, middle and high school students has become an area of fertile ground for geospatial education and workforce training. NASA and other federal agencies' remote sensing data and images of the Earth's land, water, life, air, and ice have become much more accessible to educators, and they apply to a myriad of societal problems over the last several years. They can be used to full advantage in the geography classroom, not only for K-14 students but also for professional development of people already in the workforce. This paper will explain the intersection between remote sensing and geography education, and will provide specific sources of NASA data and images, tutorials, and lesson plans that can be applied in the classroom. It will also point to exemplary existing education products and programs that explicitly integrate geography and remote sensing, and to sources of information on careers in geospatial technology.

Keywords: Education, Remote Sensing, NASA, Satellite

Jonnell Allen, Syracuse University. Email: jdallen@maxwell.syr.edu; *Using Geographic Information Systems to Evaluate Neighborhood Patterns of Adolescent Childbearing in Onondaga County, New York*

Adolescent pregnancy and childbearing are important public health concerns in much of Onondaga County, and Syracuse City in particular. Despite an overall decline in adolescent childbearing, birth rates in Onondaga County for 10-17 year-olds are the highest in the region and higher than the New York State average. Similarly, the incidence of sexually transmitted infections (STIs), including Gonorrhea and Chlamydia, are alarmingly high among adolescents. The reported Gonorrhea rate for Onondaga County is more than twice as high as the regional rate and nearly double the state rate. Numerous pregnancy/STI prevention and parenting services for the adolescent population exist, but little is known about the geographic relationship between service availability and at-risk adolescents. In an effort to elucidate geographic clusters of adolescent childbearing and service accessibility, a Geographic Information System (GIS) was used. This talk highlights the processes and findings of a community-integrated GIS analysis of adolescent births and STI infection incidence for adolescents, ages 10-19, residing in Onondaga County. The study utilizes a participatory process, involving pregnancy prevention stakeholders from the nonprofit sector, the Public Health Department and Syracuse University. GIS is used to map residential addresses from birth certificates of adolescent mothers during the period January 1, 2002 to December 31, 2005 and incidence of STIs for adolescents during the same time period. Spatial statistical methods are used to evaluate the geographic patterning and clustering of adolescent childbearing, adverse birth outcomes, and STI incidence.

Keywords: GIS, Community-integrated GIS, adolescents, adolescent childbearing, service accessibility

Thomas Richard Allen, East Carolina University. Email: allenth@ecu.edu; George Oertel, Old Dominion University. Email: goertel@odu.edu; George McLeod, Old Dominion University. Email: gmcLeod@odu.edu; *Analysis of Tidal Flushing Using Multitemporal ASTER Thermal Data and a Tidal Repletion Model, Chincoteague Inlet, Virginia*

Chincoteague Bay is a thirty-three thousand hectare coastal lagoon located on the Atlantic shore of the Delmarva Peninsula of the United States, with a total lagoon volume of about 4×10^8 cu m. The lagoon has a hydraulic turnover time of about four tidal cycles. During the ebb, the water surface falls over the entire basin surface leaving a "void prism" in the upper part of the basin that has a volume equivalent to the tidal prism. However, the actual water mass exchanged during each tidal cycle is not the void prism. Tidal channels cover a small percentage of the surface hypsometry yet contain a large volume of water and are important pathways where exchange occurs at rates 2-5 times greater than shallow environments. This project constructs a spatial repletion model of Chincoteague Inlet using subtidal hydraulic depth and plane-jet hydraulics. These data were used to estimate repletion zones and define portions of the outer lagoon with the appropriate tide-equivalent volume for the repletion-water mass. Multitemporal thermal IR ASTER satellite data were separately analyzed at different tidal phases and seasons in 2004-2005. At-satellite radiances were transformed to derive skin surface temperatures and differentiate flood tidal penetration and ebb flow. Remotely sensed and modeled tidal repletion zones are intersected with the tidal prism to measure and compare volumes. These parallel analyses provide spatial characterization of flushing and potential water residence time, an important factor in eutrophication and water quality.

Keywords: coastal, remote sensing, GIS, estuary

Nasser A Alsaaran, King Saud University. Email: alsaaran@ksu.edu.sa; Artificial neural networks pedotransfer function for water-retention of arid soils

Soil water retention curve (SWRC) is required for quantifying water flow and solute transport within unsaturated soils. Because direct measurements of SWRCs are very laborious, time-consuming and expensive, they are commonly estimated rather than measured. Estimates of SWRC from available and/or more easily measurable basic soil physical properties are routinely obtained by empirical pedotransfer functions (PTFs). This paper presents an artificial neural network PTF for estimating van Genuchten SWRC parameters for arid soils from soil texture and bulk density data. The PTF was developed and tested using datasets from arid central and eastern Saudi Arabia. The PTF was calibrated using a data set of 100 samples and its validity was evaluated using an independent data set of 45 samples. Uncertainty estimates of the predicted parameters were obtained by combining the artificial neural networks with the bootstrap method. Performance of the PTF were quantified and compared with the performance of two well-documented and widely-used published PTFs of similar input requirements, namely Rosetta and NeuroTheta. Validation results show that the current PTF has mean errors and root mean squared errors between observed and estimated volumetric water contents of -0.0004 and 0.04, respectively, compared to -0.026 and 0.063 for Rosetta and -0.068 and 0.088 for NeuroTheta, respectively. These statistics indicate that the current PTF is more accurate and less biased than Rosetta and NeuroTheta in predicting water retention parameters of arid soils.

Keywords: pedotransfer functions, artificial neural networks, water retention curve, soil hydraulic properties, arid soil, Saudi Arabia.

Kristin J. Alvarez, Keene State College. Email: kalvarez@keene.edu; A Geospatial Technologies Course Designed for Pre-service Teachers

Inclusion of GIS and other geospatial technologies in the K-12 classroom has become an important priority among the geographic education community. Progress is being made in this effort, but little attention is given at the undergraduate level to equip teacher candidates with the skills and pedagogy needed to incorporate geospatial technologies in the K-12 environment. The Geography Department at Keene State College in New Hampshire has addressed this critical need by creating a new course just offered for the first time this year entitled Geospatial Technologies for Teachers. The primary focus of this course is the acquisition of GIS skills and the associated, relevant pedagogy for K-12 classroom settings. Also included in the course is work with GPS, remote sensing, and web-based geospatial technologies. The presentation will provide an overview of the course as well as activities and projects the pre-service teachers will take into their future classrooms.

Keywords: geospatial technologies, K-12 education, teacher preparation

John A. Alwin, Central Washington University. Email: alwinj@cwu.edu; Derelict Landscapes of Decline: Detroit's Unwitting Autobiography

Detroit, Michigan, of a half-century ago was a city with almost two million residents and a reputation as a wealthy, muscular, and industrial city synonymous with the American automobile industry. "Detroit" still is a shorthand for the country's auto industry. But, it now has one of the nation's highest urban poverty rates and, over the last 50 years, has lost most of its industrial base, almost half its population, and devolved into an icon of urban decay. Its derelict landscapes of abandoned and dilapidated factories and other structures, deserted and leveled neighborhoods replaced by urban prairies, and even portions of its CBD in ruin are part of the landscape legacy of a yet unsuccessful transition of Detroit to successful, postindustrial city. This study documents the cultural landscapes of Detroit's devolution and examines such spatial forces as globalization, decentralization, and sprawl that help to explain its derelict landscapes. Efforts and ideas on revitalization also are presented, including the proposal for a 12-square block "skyscraper ruins park", an American Acropolis, in its downtown area.

Keywords: cultural landscape, derelict landscape, globalization

Shrinidhi S. Ambinakudige, Mississippi State University. Email: ssa60@msstate.edu; Integrating Ethnography And Remote Sensing To Study Cultural Landscapes: A Case Study In The Western Ghats Of India

Remote sensing techniques have been used in the study of the land use and land cover change in different parts of the world for last several decades. Even though these land use and land cover changes are cultural landscapes influenced by the socio-economic, political, and cultural factors acting at various spatial and temporal scales, studies have seldom tried to integrate the ethnographic analysis and remote sensing analysis. This study makes an effort to interpret the land use and land cover change in the Western Ghats of India in the broader context of social, cultural and political change, and economic modernization. Results showed that the global coffee market fluctuations over the last century had significant influence on the local livelihood outcomes. These impacts are scripted on the landscapes of the villages in terms of land use and land cover change.

Keywords: Remote Sensing, Ethnography, qualitative methods, India, Coffee

Yuichiro Amekawa, Iowa State University. Email: amekawa@iastate.edu; Sheila Onzere, Iowa State University. Email: sheilaonzere@yahoo.com; Ignacio Carranza, Iowa State University. Email: carranza@iastate.edu; Haroon Seguya, Iowa State University. Email: hsseguya@iastate.edu; Delineating the Multifunctional Roles of Agroecology for Smallholder Farmer Livelihoods: Toward Sustainable Agriculture Development in Developing Countries

In developing countries there are still many rural areas where food security and sustainable livelihoods are at a critical stake. Agroecology has increasingly been recognized in development circles as one of the major alternatives that could ensure rural people's basic needs while enhancing the ecological capacities grounding their livelihoods. This article explores the multifaceted dimensions of agroecology that could potentially address the compelling livelihood necessities of less advantaged smallholder farmers in developing countries by introducing the concept of agricultural multifunctionality. It is expected that the concept will help address the existing biases in agroecology toward ecological and agronomic approaches and thus serve to overcome the conventional chasm between ecological research and social realities in agroecology-based development. The article also proposes the use of an adjusted version of the sustainable livelihoods (SL) framework that will provide better analytical scopes into the theoretical perspective of the multifunctionality of agroecology.

Keywords: agroecology sustainable livelihoods developing countries

Yuichiro Amekawa, Mr., Graduate Student, Iowa State University. Email: amekawa@iastate.edu; Ignacio Carranza, Mr., Graduate Student, Iowa State University. Email: carranza@iastate.edu; Sheila Onzere, Ms, Graduate Student, Iowa State University. Email: sheilaonzere@yahoo.com; Haroon Sseguya, Mr., Graduate Student. Email: hsseguya@iastate.edu; Delineating the Multifunctional Roles of Agroecology for Smallholder Farmer Livelihoods: Toward Sustainable Agriculture Development in Developing Countries

In developing countries there are still many rural areas where food security and sustainable livelihoods are at a critical stake. Agroecology has increasingly been recognized in development circles as one of the major alternatives that could ensure rural people's basic needs while enhancing the ecological capacities grounding their livelihoods. This article explores the multifaceted dimensions of agroecology that could potentially address the compelling livelihood necessities of less advantaged smallholder farmers in developing countries by introducing the concept of agricultural multifunctionality. It is expected that the concept will help address the existing biases in agroecology toward ecological and agronomic approaches and thus serve to overcome the conventional chasm between ecological research and social realities in agroecology-based development. The article also proposes the use of an adjusted version of the sustainable livelihoods (SL) framework that will provide better analytical scopes into the theoretical perspective of the multifunctionality of agroecology. Presenters: (In alphabetic order) Yuichiro Amekawa, Ph.D. student of Sociology and the Graduate Program in Sustainable Agriculture, Iowa State University. (Email: amekawa@iastate.edu) Ignacio Carranza, Ph.D. Student of the Graduate Program in Sustainable Agriculture, Iowa State University (Email: carranza@iastate.edu) Sheila Onzere, Ph.D. Student of Sociology, Iowa State University (Email: sheilaonzere@yahoo.com) Haroon Sseguya, Ph.D. Student of Sociology and the Graduate Program in Sustainable Agriculture, Iowa State University (Email: hsseguya@iastate.edu).

Keywords: Agroecology, sustainable agriculture, developing countries

Shahalam M.N. Amin, Bloomsburg University of Pennsylvania. Email: samin@bloomu.edu; Md.Humayun Kabir, University of Dhaka. Email: mh_kabir@yahoo.com; Salim Momtaz, University of Newcastle. Email: Salim.Momtaz@newcastle.edu.au; Sustainable Management of Freshwater Wetlands in Bangladesh: A Case Study of Tanguar Haor

More than one-third of the land in Bangladesh is classified as freshwater wetlands. Located in the northeastern part, Tanguar haor is one of the largest natural freshwater wetland of the country. It occupies an area of 10,000 hectares with forty-six villages scattered in surrounding private lands. This haor is extremely important for its large and diverse waterfowl populations and other biological resources. To preserve the diverse biological resources of the haor, especially the large number of waterfowl species, it has been declared as the second "Ramsar Site" of the country in 2000, and was made off-limits for public use and exploitation of resources. Results from the field surveys show that most of the villagers depend on the haor for fishing, grazing, farming, and wetland vegetation for fuel. Most importantly, the haor is also used for rice (staple food) cultivation during the winter flood-free season. Total exclusion of local people from the current management practices greatly impacted the local people whose livelihood depends on the resources of the haor. The present study focuses on the nature and extent of dependence of the local people on the haor, and examines the significance of their involvement in sustainable management of these

resources. The study is based on information collected through field observations, household questionnaire surveys, key informant interviews, informal group discussions, and secondary sources.

Keywords: Sustainable management, Biological resources, Ramsar Convention, Tanguar Haor, Bangladesh

Abigail Amissah-Arthur, Dr., Slippery Rock University. Email: abigail.arthur@sru.edu; Intensification of croplands and the extent of land degradation

A population-agriculture and environmental nexus may exist in Africa. Over the past few decades evidence suggests that rapid human and livestock population growth, intensification of cultivation, declining rainfall including drought have increased the pressure on natural resources in the arid/semi-arid zones. The paper identifies thresholds of factors depicting human disturbance in the Sahel through spatial domain translations to derive quantitative indicators of landscape degradation. Three levels of agricultural land use intensification are identified expansion, early and late phases. The characteristics of the areas under each phase is examined and linked with the population carrying capacity to explain the nature of the land degradation observed in the Sahel.

Keywords: Cropland, intensification, degradation, population

Potter Amy, Louisiana State University. Email: amyepotter@gmail.com; Haiti's Identity Crisis: Representation in U.S. Newspaper Coverage

Most newspaper articles in the United States paint a picture of Haiti as a failed state, the poorest country in the Western Hemisphere. These articles place the blame of the country's problems entirely on Haiti itself, with little regard for the outside forces that brought the country to its present day state. This study is a critical geopolitical analysis of Haitian representation in U.S. newspapers. I will empirically examine a year's worth of articles from 2004 written on Haiti in five major U.S. newspapers. From these articles I will analyze both the words used to describe Haiti and the emerging media frame. I will then compare the repetition of words and frame to scholarly sources on Haitian history. Critical media studies have shown that representation in the media can greatly impact the conventional wisdom surrounding a place and legitimize social inequalities. Through understanding the images used to describe Haiti, I hope to develop a means through which to redirect popular perceptions of it. I argue that it is only then that the problems of Haiti might be more effectively addressed and a new dialogue created, one that encompasses the entire story of this Caribbean country.

Keywords: Media, Representation, Haiti

Roe Amy, University of Delaware. Email: amyroe@udel.edu; When Sustainability is an Afterthought, Fishing Communities in the Susquehanna River Basin and the End of the Great Shad Migration

Historical fishing communities along the Susquehanna offer insight into changing views towards sustainability over time. This study follows the rise and fall of shad fishing along the Susquehanna River from the point of view of community fishing. Special emphasis is placed on the technologies of fishing as portals for understanding the relationship between communities and natural resources, concerns about resource sustainability, and the local knowledge of shad fishing within the greater context of life on the Susquehanna. Environmental sustainability becomes contextualized in this longitudinal analysis of natural resource extraction.

Keywords: Sustainability, community, fishing

Li An, San Diego State University. Email: lan@mail.sdsu.edu; Daniel Brown, University of Michigan. Email: danbrown@umich.edu; Effect of sampling strategy on the inference of land-change processes: Role of uncertainties in spatio-temporal processes

When land-change scientists seek to infer micro-level processes from land-change data collected longitudinally over time, or sampled over space, they face several fundamental scientific questions that have been rarely, if ever, addressed: Within how large a geographic region, for how long, and at what time intervals, should the researcher collect her data? In a computer-based artificial "world", we controlled land-change processes by designing inputs (e.g., algorithms, parameters) and generating emergent spatial patterns that are observable over time. Taking samples from such generated patterns, with variations in geographic size, time lengths, and sampling intervals, we analyzed model output data using various statistical models (e.g., ordinary least-square regression, logistic regression, and survival analysis) and compared the corresponding results across a range of inputs to answer the above questions. This paper addresses fundamental questions relevant to many scientific investigations that use sampled data, and help researchers to develop a scientifically sound and economically feasible sampling strategy in consideration of uncertainties in spatio-temporal processes.

Keywords: agent-based modeling, sampling strategy, uncertainties, space-time analysis

Kevin J Anchukaitis, The University of Arizona. Email: kanchuka@lrr.arizona.edu; Michael N Evans, The University of Arizona. Email: ; High resolution isotope dendroclimatology in montane cloud forest trees from Costa Rica

In temperate regions, networks of tree-ring chronologies provide proxies for paleoclimatic analysis. Many tropical trees do not form reliably annual rings, making it difficult to develop chronologies in these regions. In the mountains of Costa Rica, where anthropogenic climate change may already be influencing regional hydroclimatology and tropical forest ecology, we seek to establish high-resolution proxy paleoclimate records from trees without rings using stable isotope dendroclimatology. Species of Sapotaceae and Podocarpaceae provide the potential for century-long records of changes in local climate, which may reflect broad-scale ocean-atmosphere forcing. Our approach uses microsampling, rapid cellulose preparation, and CFIRMS to identify isotope cycles in wood which are associated with the change in the $\delta 18O$ of water sources used by trees over a year. Isotope measurements reveal annual oxygen isotope cycles which provide chronological control in the absence of rings. Climate variability during the 20th century is evaluated using the isotope signal from multiple trees in the Monteverde Cloud Forest, using calibration with local meteorological data, forward modeling, and analysis of the relationship of the regional variability in the context of large scale dynamics and change.

Keywords: tree-rings, isotopes, paleoclimatology, Costa Rica, tropics, Central America

Delphine Ancien, The Ohio State University. Email: ancien.1@osu.edu; Urban and Regional Development in the Paris and London Metropolitan Areas and the Difference the State Makes

A distinctive feature of post-World-War-II urban politics in most advanced capitalist societies, particularly in Western Europe, is the emergence and development of large metropolitan regions as integrated production spaces. These areas benefit from agglomeration economies and are conceived as areas requiring integrated approaches to the governance of their further economic development. In Western Europe, Paris and London are two examples of these world city-regions, which present an interesting common peculiarity: in both cases, central governments continue to play a major role in their development, both as key orchestrators and as implementers of new projects. They do so through a distinctive politics that is in response to problems specifically related to these city-regions and their global-city economies. The fact that both instances occur within the context of unitary states is not coincidental. For instance, the absence of incentives for local governments to handle the housing crisis linked to regional growth in both cases - and the related non-existence of any coherent governance body encompassing the greater Southeast in Britain ? can be explained to a great extent by the unitary form of the central state and leads to a peculiar politics of scale. However, in this paper I will argue that beyond their common unitary form, the British and the French central governments remain unique and adapt to global changes in distinctive ways, and their different regulations and strategies of economic development can explain variations in the ways different agents handle regional growth and its contradictions in these capital city-regions.

Keywords: Regional development, urban governance, state, London, Paris

Kristina Vaarst Andersen, Copenhagen Business School. Email: kva.ivs@cbs.dk; Mark Lorenzen, Copenhagen Business School. Email: mark@cbs.dk; Creative Get Creativer? A Power Law Analysis of the Geography of the European Creative Class

Using novel statistical data, the paper analyzes the geographical distribution of Richard Florida's creative class among 815 European cities. First, the paper demonstrates that the distribution of the European creative class approximates a power law, albeit with a higher exponent (i.e., a higher inequality) than the distribution of the overall population. This signifies that in general, size matters in the distribution of the creative class, i.e. that cities with a high proportion of creative class tend to get creativer through attraction of still more creative labour. Second, the paper analyzes the geographical distribution's deviations from a perfect power law. For the smallest (and some extent also the largest) European cities, the proportion of creative class is lower than predicted by a power law, and for the middle-sized cities, the proportion is slightly higher. This leads us to conclude that the attractiveness to the creative class of a European city is a product of both its size and fitness. Such fitness may be predominantly negative for small cities, positive for middle-sized cities, and slightly negative for large cities. Through comparisons among 8 European countries and case studies of cities, the paper then proceeds to discussing the nature of this size-fitness product of cities with respect to attracting the creative class.

Keywords: talent, technology, tolerance, creative class, innovation, power law, European cities

Ben Anderson, Dr, Durham University. Email:
ben.anderson@durham.ac.uk; *Geopolitics and the Excess of Affect*

Attending to the excess of affect seems to offer much to critical work on contemporary politics - promising new ways of attending to events, fostering a sensitivity to the affective genesis and maintenance of the political, and calling forth inventive habits of thought, for example. How, though, to encounter techniques where it is precisely the excess of affect, its autonomy or capacity to exceed determination, that is fostered as part of processes of governance? The paper works through this unsettling question by encountering two Cold War events in which the excess of affect is fostered as part of the development of novel military techniques. First, the emphasis on the intensity of experience, and thus the problem of boredom, during the emergence of 'war gaming' in the RAND corporation during the 1960s. Second, the development by the CIA in the early 1960s of 'non-coercive' and 'coercive' interrogation techniques that attempted to induce boredom. The paper concludes with some reflections on the ethos of engagement appropriate to such events in the context of the embedding of these and other techniques in the affective geographies of the latest 'War on Terror'.

Keywords: Affect, Emotion, Geopolitics, Boredom, Terror

Brett Anderson, University of Kansas. Email: sanjuan@ku.edu; *The Historical Origins of Oklahoma's Negative Image*

It is widely accepted that Oklahoma has a largely negative image in the national consciousness. Although Oklahoma is devoid of large, well-known cities with cosmopolitan reputations or awe-inspiring physical landscapes such as snow-capped mountains or beaches that create positive impressions, other states share these qualities, yet Oklahomans are continually stereotyped as poor, uneducated, and generally unprogressive in television shows and movies in a manner worse than the portrayal of residents of most other states that are similar. This paper attempts to gain a greater understanding of Oklahoma's contemporary negative image by examining the following questions: When did Oklahoma first begin to be perceived negatively? Has Oklahoma always suffered from a negative image, or is this a recent phenomenon? What historical events, if any, created Oklahoma's image? To answer these questions, I trace the history of Oklahoma's image through the use of historical literature including articles, editorials, and cartoons in national publications from the late 1800s and the early decades of the 1900s.

Keywords: Oklahoma, image

Jeremy Anderson, Queen Mary University of London. Email:
j.j.anderson@qmul.ac.uk; *Giant steps or stepping stones? Making the terrain for transnational union organisation*

Global strategies are widely considered indispensable for the rehabilitation of the labour movement. It is also widely held that these strategies will germinate most successfully in the non-mobile service sector. This paper compares two such sectors - hotels and transport - where unions are making concrete investments in transnational organising initiatives. Three arguments are made. Firstly, unions are gradually finding a firmer footing in the transnational terrain as they experiment with an array of transnational leverage mechanisms. Secondly, the differential investments being made in the two initiatives illustrate the complex web of power relations and embedded national practices that shape emerging transnational strategies. Thirdly, I argue that there is a latent willingness to act transnationally at the grass roots, but only if mechanisms for transnational participation can be constructed.

Keywords: Unions, Labour, Transnational, Class, Power, Strategy

Jon Anderson, Cardiff University. Email: AndersonJ@cardiff.ac.uk; *Living with Fragmented Identities and Ecological Aspirations in an Industrial World*

This paper examines the tensions between the principles and practices of environmentalism. It focuses particularly on the level of the individual and how aspirations to be 'green' come into conflict with the everyday realities of inhabiting industrial society. Drawing on research undertaken on the identity-management practices of volunteers and employees at the Centre for Alternative Technology, Machynlleth, UK, the paper seeks to draw a constructive alignment between discourses of environmentalism and sustainability on one hand, and notions of fragmented and malleable identities on the other. It does so in order to work towards a vocabulary of theory and practice that is sensitive to hybridity and contradiction, whilst retaining the utopian stimuli of essentialist categories such as 'environmentalist'.

Keywords: Environmentalism, Identity, Theory, Practice, Oxymoron

Kate Anderson, LSIT, San Francisco State University. Email:
katesal@yahoo.com; *Mapping Historical Boundaries in San Francisco*

Historical land ownership and use in California has changed considerably relative to the government in power. The city of San Francisco was first settled under Spanish rule and therefore consisted of a Presidio, Pueblo and Mission, with all land held in common. Under Mexican rule, large private land grants in the form of Ranchos were made for the purpose of cattle ranching. Once California came under the rule of the United States, Land Surveyors began mapping and subdividing much of the city, spreading westerly and southerly from the original Pueblo. An investigation of this spread involves analyzing how the physical structure of the city influenced the placement of man-made boundaries and the original sites of growth in San Francisco. My research is analyzing historical maps in San Francisco between 1835 and 1920 to discern the affect of the physical environment as a determinant for human settlement patterns. Historical boundaries of Ranchos, waterways, and subdivisions are mapped using data on file with the county. Mapping applications that incorporate Geographic Information Systems (GIS) are utilized to create a visual timeline of the spread of population throughout the city. While physical parameters are an essential part of early land division and ownership, they appear to play a less significant role in later divisions. The results provide a visual account of land subdivisions depictive of population dispersal that are increasingly independent of physical parameters in San Francisco during its early development.

Keywords: San Francisco, GIS, historical geography, land ownership

Kay J. Anderson, University of Western Sydney. Email:
k.anderson@uws.edu.au; *'Race': From Representational to More-than-Representational Accounts*

"Ethnic Geography Distinguished Scholar" Session Speaker

Keywords: 'Race', Ethnicity, Cultural Geography

Kristy Michele Anderson, BA in 2007, University of California Los Angeles. Email: kristyan@ucla.edu; *The Geography of Factory Farming*

Since the industrial revolution agriculture has seen a major shift in livestock management which has come to be known as the "factory farming" model of agriculture. This model uses Concentrated Animal Feedlot Operations along with modern technology and is the most widely used method of raising and slaughtering livestock today. This model has spread globally while the space allocated to the animals exploited in this type of farming has at the same time, significantly decreased. This model continues to spread from industrialized nations to developing nations as they become more technologically advanced. This paper examines the key driving factors and government policies that made this model possible and also reviews the geographic trend of its global distribution noting both the gain in its popularity as a viable farming method as well as its need for less land space due to the increase in intensive animal confinement. Research methods employed include a comprehensive review of historical and current statistical land use information, government policy and technological advances.

Keywords: agriculture, technology, land use, global distribution, livestock, animal confinement

Matthew Anderson, Northeastern Illinois University. Email:
Apollo5710@yahoo.com; *Place Making and Suburban Culture - Transformations over the Past Three Decades*

North American metropolitan regions have experienced major restructuring over the past three decades. Cities are continuing to expand, experiencing further investment in the built environment with the creation of a new form of suburbia. With all the transformations that characterize the past three decades, how has the shape of suburbia changed? We are witnessing yet another major wave of urban dispersion similar in scale to the great outward movements of the 1920's and 1950's. However, suburbia is now different in form and place than in previous eras. It seems to exist more as an image or perception, evolving and changing through time. What can explain these differences and similarities from past forms of suburbia? The suburban image today features a new form of themed residential subdivisions increasingly acting as a new place of suburban identity within an otherwise chaotic mosaic of almost meaningless political boundaries and visual monotony. While using Kendall County, Illinois as a case study, I will focus my attention on the emergence of a cultural economy and the production of the residential subdivision as a representative place of local identity, and suburban culture. I will also comment on the current role of suburbanization within the greater structure of the economy, and its evolution over the past three decades.

Keywords: Sprawl, Suburbs, Place

Paul Anderson, American Samoa DOC. Email: pka222@yahoo.com; Land Cover Change in American Samoa

Patterns of land-use change and urbanization are investigated on Tutuila, a United States territory in the South Pacific. The investigation focuses on rapid conversion of primary and secondary forest to agroforest and urban landscapes over two time steps; annual and multi-decadal. Development trends in response to population growth are investigated. The review summarizes recent estimates on changes in agricultural production, tropical deforestation, and urbanization and identifies the still unmeasured land-cover changes. The implications and impacts of these changes are evaluated and projection of future conditions are extrapolated.

Keywords: Land Use, American Samoa, South Pacific, Urbanization

Pia Anderson, PhD, American University of Sharjah. Email: panderson@aus.edu; Tourism and Recreation in the Emirate of Dubai

The Emirate of Dubai has established itself as a leading regional and international trading hub. Although known as a business center in the region, it is more recently transforming itself into a center for tourism and recreation. This paper examines the development of tourism and recreation in the Emirate, and focuses on the impact and sustainability of the leisure business.

Keywords: tourism, recreation, Dubai

Richard Anderson, York University. Email: anderson@yorku.ca; For the "little shaver who needs a spell of good air": The Toronto Star Fresh Air Fund and the bourgeois reclamation of street children

The Toronto Star initiated its now centennial reform project to expose under-privileged children to "fresh" rural air in 1901. Motivated by the movement toward pure air, the increase of air pollution and smoke "nuisances" and, we argue, a stout belief in the efficacy of environmental determinism Toronto's reformers, in league with The Toronto Star, raised funds to provide the city's tenement children a literal breath of country air. As honourable as this sounds, we contend that bourgeois reformers were motivated to reclaim street children using salutary rural air for reasons that now strike us as less commendable. Despisers of immigrants and the immigrant city, environmentalist reformers held that exposing children to nature would alter their social behaviour and outlook. The regular removal of children from immigrant neighbourhoods to Toronto's countryside may well have had tangible health benefits. It also allowed "nature" to change the anti-bourgeois behaviour of impressionable street children into the moral-aesthetic world-view of Toronto's white Anglo-Canadian social "superiors." Thus, the Fresh Air Fund was as much about social geographical salvation as philanthropy.

Keywords: Toronto, children, pollution, bourgeoisie

Sharolyn Anderson, PhD, University of Denver. Email: sander24@du.edu; Claudio Delrieux, PhD, Universidad Nacional del Sur. Email: cad@uns.edu.ar; Fractal Modeling Of Urban Morphology

Understanding urban morphology using mathematical techniques applied to remotely sensed data is essential in modeling urban growth patterns. This work is aimed to provide a new analytical approach for assessing urban morphology and growth models using fractal and multifractal estimators. We derived indicators of the growth patterns over three distinct locations. Urban morphology attributes are derived using ten years of DMSP-OLS composite nighttime lights imagery, over urban areas in the United States, Mexico, and Argentina. Two analytical methodologies were applied to these data. First, the contour of the light imaginary is regarded as an indirect measure of the border of the urban settlements. The shapes of the contours for the series of images are analyzed using monofractal dimension estimation for several luminance thresholds. Second, the light map itself can be regarded as an indirect estimation of the 2D population density function. Over this map we performed multifractal analysis using the of fractal dimension technique. The conclusion of this analysis shows different estimation parameters for each of the urban areas under study, while the parameters at each location show similar results along the ten years of data.

Keywords: urban remote sensing

Tessa Anderson, Dr, Department of Geography, University of Canterbury. Email: tessa.anderson@canterbury.ac.uk; Geodemographics and public service delivery: a case study of vulnerable road users

Applications of geodemographics to public service delivery have been prolific in the UK in recent years. This paper seeks to firstly review how geodemographics has been integrated into the public agenda by providing a brief review of geodemographics in the UK and international arena. Increasingly academics and researchers alike place a great deal of emphasis on the use of a predominantly private sector marketing tool for determining public agenda. It attempts to explain the policy shift in which the use of geodemographics has integrated the public service sphere and gives a critical appraisal of these trends. The second part of the paper focuses on a case study of road collisions in London

and how the use of geodemographics can assist to identify vulnerable road users, and therefore potentially policy development in this area. The nature of this case study also explores the theme of risk and geodemographics, specifically applied to, in the context of road collisions, but also its use in crime and health applications of geodemographics. By questioning the quantification of risk in this nature and how this can be effectively applied to public service agenda, this paper aims to critically appraise geodemographics, using empirical evidence.

Keywords: Geodemographics, GIS, risk, collisions

Thomas K Anderson, University of Illinois. Email: tanders9@uiuc.edu; Containerization and the Quality of Life of Merchant Seafarers

Today's container ships are designed to be loaded and unloaded quickly. Over the past 30 years, containerization and other advances in transportation technology have steadily decreased turnaround times in port. These technological advances have had a direct impact on the working conditions of merchant seafarers. The objective of this study was to examine factors that impact the quality of life of seafarers in the context of intensified globalization. In March 2006, eighteen seafarers took part in face-to-face, semi-structured in-depth interviews. The subjects were selected among seafarers visiting Port Newark located in Newark, New Jersey. Findings indicate that rapid turnaround times have eroded the amount of shore leave available to merchant seafarers. Each of the seafarers participating in the study cited insufficient time for shore leave as the most pressing issue impacting the quality of their lives while at sea. The rapid turnaround times associated with the loading and unloading of container ships along with an increased workload while in port were the two most important factors contributing to the lack of time for shore leave. Post 9/11 security measures, transportation costs, and transportation times to and from the port further constricted shore leave. The frequency and duration of shore leave was also found to be contingent upon the occupational specialty of seafarers. Unlike workers in most other professions, seafarers experience long periods of separation from their shore-based families and friends. Findings indicate that shore leave plays a critical role in maintaining contact with family members.

Keywords: containerization, seafarers, quality of life, globalization, shipping

John B. Anderton, Northern Michigan. Email: janderto@nmu.edu; Robert Regis, Northern Michigan University. Email: rregis@nmu.edu; Legg J. Robert, Northern Michigan University. Email: rlegg@nmu.edu; Tyler S. Weesen, Northern Michigan University. Email: tweesen@nmu.edu; Claire E. Kitzman, Northern Michigan University. Email: ckitzman@nmu.edu; Geoarchaeological Investigations in the Pictured Rocks National Lakeshore, Alger County, Michigan USA

A multi-year geoarchaeology project in the Pictured Rocks National Lakeshore (PIRO), Michigan, is working toward identifying, mapping, and when possible, dating paleoshorelines that have potential to contain significant evidence of prehistoric archaeological occupations. Professional archeological research in PIRO began in 1968 and has continued intermittently until the present. To date, only 35 archaeological sites have been identified within the Lakeshore with the majority of these being historic Euro-American occupations. The prehistoric Native American occupation of PIRO is far less well-known. However, the presence of considerable ground cover and biomass has hindered archaeological inventory at Pictured Rocks. Archaeological survey must be accomplished with labor-intensive (and therefore expensive) close-interval shovel testing in order to expose surface and subsurface prehistoric materials. The potential to miss evidence of small prehistoric occupations is considerable. Analysis of remote sensing imagery, topographic maps, and soil maps has identified several ancient shorelines, which previous studies in the region have identified as high probability areas for archaeological sites. An initial GIS model of site location predictions, generated using shoreline mapping and other data sets, will be useful for accurate archeological survey at PIRO by focusing efforts on components of the prehistoric landscape that actually have potential to contain intact evidence of early human occupation and use of the Lake Superior shore. When completed, this study will enable future archeological research in the Lakeshore to better understand and focus upon those specific areas of the Pictured Rocks that have actual potential to contain intact prehistoric data.

Keywords: geoarchaeology, paleoshorelines, remote sensing

Renata M. T. Andrade-Downs, PhD, University of California at Berkeley. Email: renataad@calmail.berkeley.edu; Fishing citizenship: Empowering fishing communities from Bairro Vermelho, São Francisco River, Northeast Brazil 1970-2002

Fishing communities living on the lower São Francisco River, Brazil have suffered physical and livelihood displacements since the construction of large water projects upstream their towns since the 1970s. This paper looks at how those changes challenged concepts of place, citizenship and identity for an artisanal fishing community living at the Bairro Vermelho in the town of Penedo, on the left bank of the river. The main argument of this paper is that this fishing

community, rather than creating a static and fixed relationship with the São Francisco river, is actually crafting fluid forms of relationships with its landscape to overcome environmental and social-economic struggles. This work presents an in-depth ethnographic examination of events and subjects involved in the formation of local leadership and representation around the fishing community movement for citizenship and environmental justice. The emergence of a local fisherfolk representation in the late 1970s in the Bairro Vermelho to fight for fisherfolk's rights illuminates how fisherfolk leaders have weaved an important cooperation and coalition network during and after the military regime. Those network strategies created new forms of identity formation on multiple scales of representation and of social mobilization. Those representations reiterated Bairro Vermelho fisherfolk leaders' claims of access to citizenship: social benefits rights and labor recognition; and to their fishing territories, with the creation of environmental protected swamps and campaigns to "save the river", as part of securing the ecology of the river estuary and their own cultural survival.

Keywords: Fisheries, access, energy, Brazil, Latin America, water resources, social movement

Valdez Andrew, National Park Service. Email: andrew_valdez@nps.gov;
Physical Processes that Control the Development of the Great Sand Dunes
Aeolian System, Colorado, USA and their role in the management of Great Sand Dunes National Park.

Great Sand Dunes, Colorado (GRSA) is a geographic wonderland with varied aeolian deposits that respond to modern processes and critical land management issues generated by the desire to protect natural processes. GRSA is the site of an aeolian system that transitions along a topographic gradient from a sabkha, to a sandsheet, to a dunefield, and ends in sand ramps juxtaposition to fault block mountains. Dune types also vary along that gradient. The variation in sand deposits and dune types result from the interaction of 5 geologic processes that are fundamental to the development of the aeolian system. These processes are: crustal rifting, sand transport related to wind regime, sand transport by stream flow, sand stabilization by vegetation growth and sand cementation by evaporite minerals. Rifting creates a depositional environment that allows sand to accumulate. Wind regime controls dune type and behavior. Streams modify the perimeter of the dunefield. Vegetation has stabilized surfaces. Other areas have been hardened by evaporite minerals. The National Park Service (NPS) has managed GRSA since 1932. Initially, the management focus was on visitor services, but a proposed water development project adjacent to the dunes exposed the lack of scientific knowledge. That began an effort to better understand the area's natural system, leading to the geologic process model described above. The NPS has used the geologic process model to interpret the dunes to visitors, evaluate potential threats, protect park resources, and to justify a boundary expansion to manage a larger portion of the aeolian system.

Keywords: Aeolian Geomorphology

Clinton J. Andrews, Ph.D., Rutgers Univ. Email: cja1@rci.rutgers.edu;
Governance as Discourse: Setting Energy Targets in New Jersey

This paper documents a process of analytic deliberation on the future of the energy economy of New Jersey. It describes the deliberative process and its associated analytics, and offers an evaluation of the project's success. The central question of the paper is whether possible to set meaningful performance targets in a policy domain where responsibility is widely distributed. The approach adopted to answer this question is a case study based on participant observation. In 2005, under the author's direction, the New Jersey Sustainable State Institute (NJSSI) launched a project to create long-term targets for the performance of New Jersey's energy sector. The targets were intended to provide a simple, credible way for New Jerseyans to understand their evolving patterns of energy consumption and production and whether the energy economy is likely to support their quality of life for the long term. To provide a rigorous framework for long-term projections and tradeoff analysis, the project employed an econometric model of the New Jersey economy. The scope of the analytic work encompassed the full New Jersey energy economy 30 years out, while acknowledging the state's myriad economic, social, and environmental interconnections with the outside world. Demand-side elements included transportation, buildings, and commercial/industrial energy uses, including expected technological improvements in efficiency and behavioral choices in conservation. Supply side elements included electricity and its associated primary energy sources (nuclear, coal, oil, natural gas, biomass, solar, wind), oil, natural gas, and the spectrum of renewables. This work successfully advanced public discourse on state-level energy policy.

Keywords: governance, energy, policy, planning, new jersey

Clio Andris, MS Candidate, University of South Carolina, Columbia.
Email: clio.andris@gmail.com; *The Marketable Identities of Major American Cities*

How do American cities give themselves a marketable character? Why is identity creation important for American cities? This paper explores why cities create a visible identity and processes and controversies involved in creating and marketing an identity. Studies in geography and destination marketing describe how a city can project an identity to attract visitors and differentiate a city from its urban peers. For this study, I looked at twenty-two cities in the continental United States within the population range of New York to Pittsburgh. I used Visitor's Convention Bureau literature, advertisements, neighborhood atmosphere observations, visits to highlighted tourist attractions, and cultural landscape accounts to extract tokens of marketable identity in these major American cities. My research concludes that cities use various tactics to create marketable identities where some are used in many cities, while others emphasize the culture of a specific city. My case study cities use lighting, waterfront revitalization, sports franchise infrastructure, historical attractions, masculinity, neighborhood character, cuisine, conference hosting, ethnic diversity, and commercialism as icons and images to represent themselves. These findings are significant not only because they illustrate place promotion, advertisement and destination marketing, but because they reflect the ways in which American cities differentiate themselves from one another through marketing identity.

Keywords: Urban Landscape, Identity Formation, Destination Marketing, Tourism

Sergei V. Andronikov, George Mason University. Email: sandroni@gmu.edu;
How Certain Are We With Geospatial Technology?

In the last decade Geographic Information Systems (GIS) technology has become a central element of modern spatial information and analysis system. While using Geospatial technology for modeling and analysis, the emerging geospatial analysis community acknowledged uncertainty and spatial errors as an inherent problem in spatial analysis. Uniqueness of geographic data, impossibility of reaching the accuracy of every feature at every location has to be recognized while using geographic data for spatial analysis and predictive modeling. Application spatially-error-overloaded geographic data for precise geospatial modeling can lead to improper results and conclusions. However, while spatial uncertainties are commonly accepted by the scientific community, the geospatial users' community still does not pay too much attention to the spatial uncertainties and errors analysis considering geographic data as free of errors and uncertainties, and using it "as it is" in various operations. In this presentation the importance of applying accurate, relevant datasets of high quality, as well as consideration of internal data uncertainties while doing spatial prediction and modeling is analyzed. The demonstration of how the uncertainties and errors can change the final model outcome is presented. The study is based on the application of GIS and its components that were incorporated into creating a complex analytical geospatial-modeling tool to predict the best route for autonomous navigation system at the "DARPA Challenge".

Keywords: Uncertainties, GIS, Geospatial Technology, Spatial Modeling

Max J. Andrucki, University of Leeds. Email: geomja@leeds.ac.uk;
Circuits of Whiteness: Emotional Geographies of Return Migration to South Africa

In this paper I examine the strategic deployment of emotion by voluntary sector organizations in South Africa encouraging the return migration of white expatriates living primarily in the UK. Drawing on recent literature highlighting the rise of emotivist regimes of governance, I look at the way in which expatriates' whiteness is, literally, mobilized through tropes of feeling, in order to achieve the ends of the neoliberalizing South African state problematically committed to a strategy of redistribution-through-growth, and thus reliant on the return of skilled white bodies to the country.

Keywords: South Africa, return migration, whiteness, emotion

Ann Angelheart, Ph.D., disaster consultant. Email: aglheart@bellsouth.net;
Community Recovery from Hurricanes

Recent hurricanes have emphasized the difficulties that communities face when recovering from a devastating event. However, there is limited research into how governments, infrastructural service providers (e.g., electricity, water/sewer, hospitals), and other community groups respond both to their own organization's problems as well as to the problems faced by the community as a whole. This talk will present an analysis of data collected among coastal communities south of Interstate-10 between Pensacola and New Orleans that focuses on the obstacles, priorities, and difficulties that these groups face during response and recovery activities.

Keywords: Hurricane Ivan, Dennis, Katrina, Florida, Alabama, Mississippi, Louisiana, disaster response, disaster recovery

Zlatina E Anguelova, San Diego State University. Email: zuziea@gmail.com; Integrating Fire Behavior and Pedestrian Trafficability Models to Assess Fire Danger Within the San Diego-Mexico Border Zone

The objective of this study is to develop tools and procedures for better assessing the danger of wildfire to pedestrians in rural areas. Furthermore, the main goal is to better understand the combined behavior of fire and pedestrian mobility in order to predict evacuation timing in wildland areas. The study involves the integration of a pedestrian trafficability and the Wildland Urban Interface Evacuation (WUIVAC) models to determine zones of high fire danger during extreme fire season weather conditions within the San Diego-Mexico border region. A three step analysis approach will be used to test two scenarios. The first scenario involves a person (e.g. illegal crosser) moving in a northward direction on a trail toward a major road. For the second scenario, a person (e.g. border patrol officer) will be located in thick vegetation, away from roads and safety zones walking toward an evacuation vehicle. The first step identifies areas furthest away from roads and safety zones. In the second step, estimates of travel time are calculated considering terrain and vegetation constraints to movement. In step three, Evacuation Trigger Buffers (ETB) are generated by WUIVAC based on the pedestrian travel paths. Preliminary results show that the evacuation travel times calculated by the trafficability model are highly effected by the terrain and vegetation characteristics of the study site, while the ETB extents are mostly influenced by the wind speed and direction parameters. The integrated models estimate a moderate fire danger to pedestrians in the most remote wildland locations of the study area.

Keywords: Key Words: wildfire, evacuation modeling, pedestrian movement, WUIVAC

Jonathan Shapiro Anjaria, UC Santa Cruz. Email: janjaria@ucsc.edu; On street life and urban disasters: Lessons from Mumbai

One month prior to Hurricane Katrina, the city of Mumbai, India, experienced similar unprecedented and disastrous flooding. Yet, in contrast to New Orleans, the aftermath of the Mumbai floods was not marked by stories of panic, social disorder, violence or looting but by stories of widespread acts of generosity, selflessness and kindness. This was especially remarkable considering the conventional rhetoric that constructs Mumbai as a paradigmatic dystopic Third World city, marked by underdevelopment, infrastructural failure, squalor and despair. In this paper, I argue that, paradoxically, it was the very resistance of Mumbai's open spaces to modernist ideals of city planning that prevented it from experiencing the chaos and social breakdown witnessed in New Orleans. This was, in part, due to the fact that during and following the Mumbai floods it was the 'unruly' crowds?those who, much to the frustration of city planners and civic activists, engage in multifarious uses of open spaces?who took on the social responsibility abdicated by the state. I propose that a study of the lived experience of cities in the global south, including the lived experience of urban disasters, outside developmentalist or apocalyptic narratives might serve to disrupt the continued one-way travel of urban theory by providing crucial lessons not only for the future of the Third World city, but for cities in the United States and Europe as well.

Keywords: Mumbai, India, Katrina, natural disaster

Luc Anselin, University of Illinois. Email: anselin@uiuc.edu; Spatial Econometrics, Retrospect and Prospect

This paper reviews the stages of development of spatial econometrics since its inception in the early 1970s and reflects on promising future directions. Spatial econometrics is situated as a subdiscipline of econometrics with great relevance to quantitative geography and spatial analysis. Its evolution is categorized into three distinct periods: the preconditions for growth (early 1970s to late 1980s), the take off (1990s) and the steady state (post 2000). Each of these is characterized by a change in focus of interest, an evolution of the disciplinary mix of scholars involved in the field, and a diversification of publication outlets. This brief historical overview is followed by some speculations about future directions in the field, organized around the four driving forces of theory, data, methods and computation.

Keywords: spatial econometrics, spatial analysis, geocomputation

Nicola Ansell, Brunel University. Email: nicola.ansell@brunel.ac.uk; Producing Interventions for AIDS-Affected Young People in Lesotho's Schools: Scalar Politics, Sectoral Blurring and the Role of AIDS Activists

Children and youth are the focus of many, often controversial, interventions aimed at addressing southern Africa's AIDS pandemic. These interventions are most frequently implemented through schools, and are often complex products of negotiation (or lack of negotiation) between a range of actors from national governments and international donors, to NGOs and local activist groups, to individual teachers and community members. Focusing in particular on the constraints and opportunities available to AIDS activists initiating, enacting or merely influencing interventions in Lesotho's schools, this paper examines

scalar politics and sectoral blurring in the production of new initiatives to address the needs of AIDS-affected young people.

Keywords: children, youth, AIDS, schools, activism, scale, policy, NGOs

Liisa Antilla, University of London (King's College London) and University of Washington. Email: liisa_antilla@hotmail.com; US Climate News: False Negative on Positive Feedbacks

Public perception of climate change as a problem for current society is shaped by media constructions of scientific knowledge. Prior research has "mapped" contrasting press representations of global warming found across cultures and time. Many US "hard news" outlets still confuse audiences by "balancing" climate stories with commentary from fringe contrarians and by dwelling on unknown factors. Outside this country, a distinctly different story is told. Non-US media have largely moved beyond abstract treatment of global warming as well as the phoney controversy manufactured by the climate countermovement. Reporters outside the US are much more likely to frame their stories as consensus-based and science-driven. What is more, non-US journalists are more prone to report on studies relating to positive feedback mechanisms (such as thawing tundra and melting Arctic ice) in the context of "tipping points." This paper is based on a content analysis of one year of media coverage on the non-political tipping points of global warming. Data was collected from the database LexisNexis and internet news sources. The sample was drawn from newspapers, wire services, and web-based stories. Results indicate that non-US news outlets, especially those in the United Kingdom, are at the forefront of the discourse on positive feedbacks. Poor US press coverage of these dangerous thresholds results in a "false negative." The failure to publicly recognize these self-reinforcing ecological dynamics leaves citizens and policymakers uninformed on this developing but critical knowledge.

Keywords: climate change, global warming, positive feedback, tipping point, media, framing

Camille Antinori, University Of California, Berkeley. Email: antinori@are.berkeley.edu; Chantal Ruppert, Albert-Ludwigs-Universität Freiburg Germany, Institute of Forestry Economics. Email: ch.ruppert@ife.uni-freiburg.de; A Comparative Analysis of Community Forestry Sectors: The Cases of Mexico and Germany

How should the institutional setting be arranged to manage community forests in a sustainable and efficient way that takes into account local needs? This question has become one of the focal points in the politics and economics of global environmental change. Both Germany and Mexico, distinct in location and culture, have had a tradition of community-owned forests and have strengthened the rights of local communities to exercise control over management of their forests. But while in Mexico the communities are predominantly autonomous in managing their forest, in Germany the state still controls most of the community forests. In addition to conservation, people in both countries recognize the potential role of forests in generating revenues? as a way to alleviate poverty in Mexico and as a way to reduce financial deficits in Germany. This paper has two aims. First, it defines and compares the community forestry sectors in each country. Second, it shows that, although large differences exist between the countries, each can learn from the other because of shared characteristics of resource use over time? like the high social value placed on forests - as well as the system of collective action at the local level. Agency theory provides a framework for assessing how each country has dealt with monitoring and accountability issues common to contracting with non-owner managers. We conclude by suggesting recommendations for better arrangements to diminish moral hazards in both countries - emphasizing contractual relations, control mechanisms, and the merging of responsibilities among the actors.

Keywords: Forestry, Mexico, Germany, agency theory, institutional analysis, common property

Maurizio Antoninetti, San Diego State University/UC Santa Barbara. Email: mantonin@mail.sdsu.edu; Mixing methodologies to understand everyday life in urban neighborhoods

The aim of my research was to produce a form of comprehensive knowledge useful in understanding the dynamic and coconstitutive relations existing between socio-physical characteristics of residential neighborhoods and the activities of everyday life of a group of recent retirees. For this, I employed an alternative approach based on fine-grained, subjective experiences within a framework of objective reality. I designed my study around a multi-methodological approach ('bricolage') that combines in-depth interviews with GIS-driven spatial explorations. What I have achieved is to understand the city through the experiences of its inhabitants and, equally, to understand the daily activities of a selected group of city dwellers as they navigate and cobuild the physical and social attributes of an urban environment.

Keywords: urban geography, neighborhoods, qualitative research, mixed methodology

Sirpa Anttila-Muila, University of Oulu. Email: sirant@cc.oulu.fi; Eila Kyllikki Jeronen, University of Oulu. Email: Eila.Jeronen@oulu.fi; Geography education, crossing borders, and eLearning: Cases from Finnish senior highschool and teacher education

This paper describes teaching, studying, and eLearning approaches in geography education in senior high school and teacher education. The discussion is based on case studies from the senior high school of Oulun Lyseon Lukio, and Department of Educational Sciences and Teacher Education in University of Oulu (UO). The topic starts with the following questions: Which kinds of conceptions do students and student teachers have about eLearning in general, eLearning's geographical content, learning methods, and evaluation? Which kinds of practical skills do students and student teachers have with eLearning equipment? Which kinds of readiness do students and student teachers expect teachers to have? What are the pros and cons of eLearning? How do the conceptions of students and student teachers differ from each other? How are the Finnish local and national curricula related to a common Nordic framework and to the framework of European Union? The first part of data is based on questionnaires; the second part on the texts of the Finnish national and local core curricula for senior high schools and the curricula for class-teacher and subject teacher education in the UO. The data are analyzed quantitatively and qualitatively using both deductive and inductive methods. In conclusion, conceptions of students and student teachers about eLearning relating to the statements in national and in local curricula, and eLearning guidelines in European Union are discussed. In addition, we present some suggestions on how teaching by eLearning could be developed using the thoughts of students and student teachers.

Keywords: distance education, geography curricula, distance education networks, senior high school students, class teacher education, geography teacher education

Yuko Aoyama, Clark University. Email: yaoyama@clarku.edu; Dominic J. Power, University of Uppsala. Email: dominic.power@kultgeog.uu.se; Consumption and Economic Geography

It is undeniable that in the past few decades the dominant theoretical frameworks in Economic Geography have been oriented toward production, while neglecting consumption. A decade after the alleged 'cultural turn', which contributed to a development of empirically-driven research on the consumer economy, we still lack analytical tools to begin conceptualizing and successfully incorporating consumption in the mainstream of economic geography. In this paper we seek to address how economic geographers can begin to engage with research on consumption, and focus on methodological and empirical issues the discipline may face in this quest. We explore how existing literature can be used as foundations to begin engaging with consumption and consumers, and develop research agenda that address economic/geographic dimensions of consumption.

Keywords: Consumption, Economic Geography

Philippe Apparicio, . Email: Philippe_Apparicio@ucs.inrs.ca; Anne-Marie Séguin, INRS-UCS (University of Quebec). Email: Anne-Marie_Seguin@ucs.inrs.ca; The quality of the urban environment around public housing buildings in Montréal, Canada: an approach based on GIS

The way in which public housing is embedded in the urban environment has often been studied, but more often from the perspective of the social, than of the physical environment. The accessibility of services and public amenities to public housing residents has rarely been a focus of interest. In order to qualify the immediate surroundings of Montréal's public housing buildings in its multidimensionality, we propose a GIS approach which combines data from a variety of sources: 1) individual Census records for the Montreal CMA in 2001; 2) satellite imagery; 3) land-use map; 4) information on the location of different services and public infrastructure. These data enable us to identify several combinations of characteristics of the urban environments in which public housing buildings are located, along three dimensions: 1) socio-economic environment; 2) physical environment; and 3) accessibility to services and amenities. Our results show that only a very small proportion (7 %) of public housing residents are located in "residual spaces", the less attractive areas of Montréal, which we define as areas combining a variety of handicaps: low grade physical environment, high level of social deprivation, and bad accessibility to amenities.

Keywords: Public housing, urban environment, urban quality of life, Montréal, GIS

Hannah Appel, Stanford University - CASA. Email: happel@stanford.edu; Crude Fictions: Regulation in the Shadow of Inaccessibility

Since its independence in 1968, Equatorial Guinea has been treated?literally and figuratively?as "inaccessible." Foreign governments, nongovernmental and multilateral organizations, private capital, media, academics, and many of the country's own citizens have stayed away or been kept away. But with large oil

deposits discovered offshore in the late 1990s, the micro-state sitting at the heart of the petroleum industry's 'new Persian Gulf' now boasts the fastest growing economy in the world, and is the third-largest oil exporter in Africa. Direct weekly flights from Houston to the capital city and an infamous thwarted coup attempt involving Mark Thatcher and novelist Frederick Forsyth suggest that the terrain of access has changed. Based on preliminary fieldwork in Equatorial Guinea, this paper explores the country's post-independence record of inaccessibility, and the implications and consequences of that history for the recent, drastic changes in economic and geopolitical interests in the region.

Keywords: oil, geopolitical economy, access, Africa

Lorna Z. Apper, McNair Scholar, Wasserman Scholar, UCLA. Email: lapper@ucla.edu; California Native Grass Cultivation, Restoration and Distribution in Los Angeles County

California native grasslands have long been an endangered ecosystem; finding ways to successfully cultivate and restore this biome is essential to its survival. This research tracks the cultivation and restoration of nine southern California native grass species planted at nine sites in Los Angeles County. The grasses were cultivated and restored over two growing seasons, from winter 2005 through winter 2007. During the first growing season four species were cultivated and during the second, five different species were added to total nine. The native grasses were restored from plugs and seeds. One ounce of seeds was planted for each species except in two cases where they were cultivated from two specimens each, due to the lack of a seed and plant bank. The current and past distributions of these grasslands in Los Angeles County are analyzed via Geographic Information Systems and Remote Sensing maps. Sites that are suitable for habitat restoration are mapped. An examination of why native grass cultivation is relevant to bioresource managers and policy makers is argued through an analysis of the policies that are governing California native grasslands today. Native grasses are useful for conservation and habitat restoration, oakland, woodland, prairie, rangeland, wetland and grassland management, post fire seeding, alternatives to non-native agricultural species, and as vegetation options for landscape architects. The nine species used were: *Achnatherum hymenoides*, *Elymus condensatus*, *Elymus glaucus*, *Elymus triticoides*, *Hordeum brachyantherum*, *Muhlenbergia rigens*, *Nassella cernua*, *Nassella lepida*, *Nassella pulchra*.

Keywords: California, natives, grasslands, rangelands, oaklands, post fire seeding, management, agriculture, conservation, restoration, distribution, habitats, policies, GIS, Remote Sensing

Seth Appiah-Opoku, University Of Alabama. Email: sappiah@bama.ua.edu; Ecotourism in Protected Areas: The Case of Kakum National Park in Ghana

The involuntary restriction of access to legally designated parks and protected areas often have adverse impacts on local livelihoods. This seems to be the situation in villages surrounding the Kakum National Park (KNP) in Ghana. The KNP project relied on the idea of a protected natural area as a context for ecotourism but failed to successfully incorporate local concerns and requirements. Yet, the need to incorporate local people's concerns and requirements in protected areas management and ecotourism has been recognized by governments, environmentalists, conservation NGOs, and international organizations. For instance, Agenda 21 of the Earth's Summit advocates that conservation of biodiversity should be linked with the quality of life of local people. This requires the incorporation of local people's expertise, hopes, fears and aspirations in protected areas management and ecotourism plans. The paper discusses avenues for local participation in the KNP project.

Keywords: Ecotourism, Protected Areas, local livelihoods

Michael Applegarth, Shippensburg University. Email: mtappl@ship.edu; Growth and Land Use Change in Mohave County, Arizona

Many cities in the western United States have experienced significant population increases and urban growth for decades. In particular, various cities within the desert southwest states of Arizona and Nevada grew significantly in population and size during the 1990s. This paper examines the development of one municipality, Kingman, Arizona, and its surroundings as an example of such growth for this region during the 1990s. Kingman is located in Mohave County in northwestern Arizona and is within the Las Vegas, Nevada and Phoenix, Arizona corridor placing it in a unique position in the state as well as the region. This paper indicates land use change and residential growth in the Arizona and southern Nevada region by using methods that employ satellite imagery from 1990 and 2000 to provide a small snapshot of regional change. Growth here has occurred in terms of population, residential development expansion, and accompanying infrastructure increases such as roads and highways. Moreover, growth in this area has continued since 2000 and indications suggest that this will continue. Results also further confirm that the use of moderate resolution

remotely-sensed data continues to be a valuable asset in monitoring and assessing land use change and urban development.

Keywords: Arizona, Land Use

Toby Applegate, Rutgers, The State University of New Jersey. Email: tapplega@eden.rutgers.edu; *Where are the renters? Developing a real estate market in post-socialist Slovenia*

Slovenia's post-socialist experience is typified by a slow, but steady acceptance of economic reforms in order to gain accession to the European Union. After the break up of the former Yugoslavia, "social housing," or housing owned by the government or state-run enterprises, went through a process of privatization that created real estate markets where, officially, there were none. Many occupants of flats in Ljubljana converted their homes from socialist housing regimes to private ownership, while other purchased flats that were not converted by occupants and became landlords. At the time of this conversion process, the Slovene government rendered it impossible, via regulation, for the Slovene Statistical Office to ask whether or not a property was rented, thereby creating it a statistical vacuum within their housing numbers. Statisticians cannot directly ask the data provided by Slovenia the question: "Who are the renters?" If Slovenia is to develop a contemporary real estate market, one component of that market should be a fully accounted rental segment. The effect of this situation is two-fold. Either regulatory schemes change to allow full accounting or the market develops, such as black-market rentals, in ways that do not fit into a classically defined real estate market. This poster presents preliminary findings from research conducted in Slovenia and examination of Slovene housing market data.

Keywords: European Union, Slovenia, real estate, post-socialist reform

Alan F. Arbogast, Michigan State. Email: dunes@msu.edu; *A Potential Classification System for Coastal Dunes Along Lake Michigan*

The sand dunes along the eastern shore of Lake Michigan may be the most impressive body of freshwater coastal dunes in the world. Many dunes are massive landforms that are up to 60-m high. In northwest Lower Michigan these large dunes tend to occur in isolated fields that mantle high bluffs. South of Manistee they cover topographically low lake planes and occur in semi-continuous fields that line the shore for many kilometers. Although the evolution of these dunes is now better understood, confusion remains with respect to their classification. The term perched dunes is usually associated with the more northerly dunes, whereas dunes to the south have been called a variety of things, including high dunes, cliffed dunes, and barrier dunes. Regardless of the terminology, all large dunes commonly share 1) a parabolic form, 2) transgression across older geomorphic surfaces, and 3) appear to have grown mostly during high lake stages as per the perched dune model. In an effort to simplify classification, all large dunes could be included within a single category of transgressive dunes that is further subdivided into two categories: 1) high perched dunes and 2) low perched dunes.

Keywords: Lake Michigan, sand dunes

Emma R. Archer, University of the Witwatersrand. Email: archere@geoarc.wits.ac.za; Mark A Tadross, Climate System Analysis Group, University of Cape Town. Email: mtadross@egs.uct.ac.za; *Climate change and its implications for livestock farming in a semi-arid environment, South Africa*

The semi-arid eastern Karoo, South Africa, has been the site of significant land use change in the past few decades, including changes to commercial stock farming systems. Such changes include major transformation in rangeland management (often inter-generational), new production and non-agricultural income earning options, and a switch to various types of game production. Climate stress may impact significantly on livestock, both directly (heat stress, water shortages) and indirectly (pests and pathogens). Climate change projections for this area show that certain types of climate stress of particular concern to livestock farming may increase in the future. Work undertaken elsewhere on climate change and agriculture shows that different farming systems can differ greatly in resilience under conditions of climate stress. This study, focusing on the Graaff Reinet district and surrounds, investigates the vulnerability of different farm systems and the extent to which they can or cannot adapt under climate change.

Keywords: Climate change, livestock, drylands, South Africa

John Clark Archer, University of Nebraska. Email: jarcher@unlserve.unl.edu; Stephen J Lavin, University of Nebraska. Email: ; Kenneth C Martis, West Virginia University. Email: ; Fred M Shelley, University of Oklahoma. Email: ; *Creating an Historical Atlas of Presidential Elections*

This poster presentation summarizes the stages involved in the preparation and production of the "Historical Atlas of U.S. Presidential Elections, 1788-

2004" (CQ Press, 2006). This is the first modern atlas to cartographically portray the county-level popular outcomes and state-level electoral college outcomes of every U.S. presidential election from the very first in 1788-89 to the most recent in 2004. Important issues addressed from early on in the production phase included the essential role of color and the need for an adequate scale of map reproduction. Major components of the final drafting phase included historical-geographical research on contemporary county, state and territorial boundaries at the time of each election, and historical-political research on county-level popular election outcomes involving overall voter participation and also voter support for every candidate who received at least 2% of the national popular vote. Preliminary maps drafted using Atlas*GIS were carefully examined for errors or omissions by all authors and several research assistants, often detecting mistakes and leading to additional historical-geographical boundary or election research. Final publication quality maps were created using Adobe Illustrator to refine the visually "rough" GIS maps and to meet the submission criteria required by the publisher. Many years of effort were finally rewarded by the publication of the "Historical Atlas of U.S. Presidential Elections, 1788-2004" in late 2006.

Keywords: Electoral geography, cartography, atlases, United States

Reginald S. Archer, University of California, Santa Barbara. Email: rarcher@umail.ucsb.edu; *Modeling the Impacts of Housing Policies on Affordable Housing for Poor Blacks in the Post-Katrina Tulane/Gravier Neighborhood*

Although many communities were affected by Hurricane Katrina, poor Blacks in the New Orleans, LA area were disproportionately impacted by the storm. In the wake of Katrina, the potential need to rapidly rebuild damaged communities may leave New Orleans at risk of losing over 50% of its black population due to lack of affordable housing. This study explores the use of geospatial information (GIS) and spatial modeling to analyze and interpret neighborhood housing data to determine the impacts of current policies on affordable housing in the Tulane-Gravier (TG) neighborhood. About 80% of TG residents rented their homes which were lost to flooding. Most of the properties in the area will not benefit from current state-funded recovery programs since they do not compensate rental property owners. In addition, initial research indicates that many of the neighborhood rentals are owned by black middle class New Orleanians who lost their primary homes during the flood. GIS will be used to examine the spatial relations among housing, population, income, and land use to identify at-risk properties. Spatial modeling techniques will be implemented to assess the impact of proposed development in TG and forecast spatial patterns of home ownership. The proposed results will provide a framework for equitable decision making based on current, accurate, and more complete information for long term planning. The forecasted model will apply spatial simulations based on neighborhood based strategies to promote homeownership for low income blacks in a mixed income neighborhood.

Keywords: katrina, GIS, geospatial, housing, new orleans

Raffael Argioli, Radboud University Nijmegen. Email: r.argioli@fm.ru.nl; Rob Van der Heijden, Professor, Radboud university Nijmegen. Email: r.vanderheijden@fm.ru.nl; Vincent Marchau, associate professor, TU Delft. Email: ; *ITS and office location preferences: a validation study*

This paper describes a validation study for a model about the effect of three Intelligent Transport Systems (ITS)-related transport concepts on location preferences of office-keeping organisations in urbanised areas. In past research a Stated Preference experiment was conducted, which showed that ITS concepts contributed significantly to the accessibility of office locations therewith influencing office location behaviour. Since the experiment was based on hypothetical locations an additional validation study was necessary. The validation of the outcomes of the Stated Preference study was performed by using four, more realistic, scenarios for two small cities in the Netherlands. One scenario focused on a status quo situation, the other three illustrated a possible implementation of an ITS transport concept. For each scenario office keeping organisations were asked to rate five different office locations, comparable to the descriptions of the office locations used in the Stated Preference study. Three aspects of validation were tested. At first the scores for the office locations were tested on significant differences as compared to the Stated Preference model predictions. Secondly, it was tested whether locations that lie close to an ITS concept were rated higher/lower than the same locations in the status quo situation. Thirdly, office keeping organisations were asked to rank the five locations in each scenario. Based on one hundred organisations it was concluded that, with difference in strength, all three validation tests show that implementation of ITS concepts change office location preferences in urbanized regions.

Keywords: Transport Geography, Intelligent Transport Systems, Office location preferences

Brittina A. Argow, PhD, Wellesley College. Email: bargow@wellesley.edu; Seasonal, latitudinal and geomorphic variation in suspended sediment deposition across three New England marshes.

Back-barrier salt marshes are among the first coastal environments to react to changes in relative sea level. Marshes geomorphologically respond to rising sea level through a complex interaction between tidal inundation and duration, bioproductivity, and mineral sediment influx. In many marshes, tidal deposition of suspended sediment is believed to be the dominant source of inorganic sedimentation. This study examines spatial and seasonal patterns of tidal sedimentation across three representative New England back-barrier salt marshes. Sedimentation is strongly seasonal, with maxima occurring during the summer and minima in the fall. Patterns of tidal sedimentation also have a spatial component: winter sedimentation is greatest in the back-marsh, while sedimentation in the summer and fall is more closely related to the proximity of tidal creeks and the leading edge of the marsh. Within the marsh, total annual tidal sedimentation is positively correlated to depth of tidal inundation; however when comparing mean net sedimentation and inundation between New England marshes a negative correlation is observed. Tidally deposited sediment is a key contributor to net vertical accretion on New England marshes, but this process alone can not account for measured marsh surface sediment, and the missing sediment input vector may be ice-rafting. Tidal inorganic sediment accumulation is not only a useful standard of comparison between salt marshes, but can also be used as a yardstick against which other sediment influxes can be measured.

Keywords: salt marsh, seasonal, sedimentation, New England, coastal

Eugenio Y. Arima, Dr., Hobart and William Smith Colleges. Email: arima@hws.edu; Robert T Walker, Dr., Michigan State University. Email: rwalker@msu.edu; Alex Pfaff, Columbia University. Email: ap196@columbia.edu; Deforestation in the Amazon: modeling the impact of policies

This paper implements a spatially explicit probit Bayesian regression model to estimate the probability of deforestation in the Brazilian Amazon. We innovate by using variables that enable policy relevant analysis such as the impact of road paving, cattle exports, soybean exports, and conservation area designation on deforestation. We discuss the results of the simulations in the development vs. environmental conservation context of President Lula's reelection.

Keywords: Amazonia, Bayesian regression, simulation, land cover change

Godwin Arku, Wilfrid Laurier University. Email: garku@wlu.ca; Catherine Oosterbaan, Department of Psychology, Wilfrid Laurier University, Waterloo, ON, Canada, N2L 3C5.. Email: oost1970@wlu.ca; Examining the Economic Development Strategies of three Cities: Kitchener, Waterloo, and Cambridge

In a competitive global economy, economic development more than ever before has become a major item on the policy agenda of cities. In this paper, we examine the economic development strategies and policies being pursued by three cities located within the Waterloo Region, namely Kitchener, Cambridge, and Waterloo. Specifically, we look at the economic strategies that are being adopted, the goals, the determinants, and outcomes of these policies. In addition to published documents, information has been collected primarily through interviews with city officials and high ranking managers of regional development institutions involved in the promotion of economic development in the three cities. Our findings indicate that four major strategies are currently being pursued; (i) the attraction of firms located elsewhere; (ii) the provision of infrastructure and land development incentives (e.g. industrial parks, serviced industrial lands); (iii) the attraction of labour; and (iv) the marketing and promotional activities (e.g. site promotion, trade shows, visits to businesses). Our findings also indicate that government restrictions on development as well as a lack of available land have compelled policymakers to pursue intensification and revitalization projects, especially in the city centers.

Keywords: Economic development strategies; policy; cities, Waterloo Region

Stacey Armstrong, Missouri State University. Email: stacey01@missouristate.edu; Human Transformation of a Karst Catchment in Springfield, Missouri

The Ward Branch Watershed on the southern edge of Springfield, Missouri has experienced rapid urbanization over the past decades. During this period one of its tributaries (2 km²) has encountered severe erosion and flooding causing concern by local property owners. Evidence for both stability and disturbance presently exists in the channel system. This study examines the influence of land use and related drainage network changes on stream morphology and stability in an urbanized Ozark tributary. Historical analysis is based on a government land ordinance survey in 1838 and historical aerial photography for 1936, 1953, 1975, 1982, 1990, 1996 and 2005. Field methods included using a total station,

GIS and differential GPS to collect a detailed longitudinal profile, cross-sectional profiles, pebble counts and fluvial disturbance indicators. In addition, interviews with local residents are used to provide personal accounts of geomorphic changes. Land use analysis from 1936-2005 indicates that the landscape has been transformed from pasture to urban. Preliminary results indicate that the upper portion of the catchment has been de-coupled from the middle and lower reaches by artificial means. Channel head-cutting in the middle reach is releasing sediment and destabilizing the channel. However, bedrock control limits the response of the lower reaches except where sedimentation is occurring when slope breaks at the confluence with the Ward Branch. Human actions increase the resistance of the channel to erosion through landscaping, sediment grading and local grade controls. A channel evolution model for the catchment is proposed and its implications for management discussed.

Keywords: environmental history, urbanization, geomorphic instability, and land use

BJ Arnold, Kent State University. Email: bjarnold@kent.edu; Using a GeoScape garden to teach an inquiry-based 8th grade earth science unit

As part of the NSF-funded GK-12 project, the GeoScape garden was developed in conjunction with Alliance Middle School, Stark Co., Ohio. It has been designed and installed as part of Kent State University's NEOGEO (Northeast Ohio Geoscience Educational Outreach) program. This collaborative project involves the creation of six outdoor stations at the school within an approximately 10-m² area and has brought together GK-12 fellows as well as Alliance Middle School students, teachers and administrators. The stations are framed, concrete slabs painted to depict normal, reverse and thrust faults, an anticline and syncline fold, as well as a geologic cross section. The GeoScape design is modular and scalable, which allows it to be replicated in parts, or as a whole in other schools/educational settings. Igneous, metamorphic, and sedimentary boulders donated by a local gravel quarry are also placed throughout the GeoScape garden. The GeoScape project is used in conjunction with a two-week inquiry-based curriculum aligned with the state of Ohio Academic Content Standards and is designed to help students in the comprehension and application of a variety of earth science concepts. These concepts include geologic time and relative dating techniques such as the principles of superposition, original horizontality, crosscutting relationships, inclusion and faunal succession. This unit also helps students to understand why relative dating and the sedimentary rock record are essential to the study of historical geology and also to develop such skills as observation, oral explanation, inference, sequencing, and interpretation.

Keywords: Inquiry, GeoScape, earth science, teaching

Dennis Arnold, PhD Candidate, University of North Carolina at Chapel Hill. Email: arnoldd@email.unc.edu; Burmese Migrant Workers in Thailand: Exploitation in Border Development

This paper examines the political-economy of mobile capital and labor migration. The focal point is migrant workers from Burma in Thailand who work for (Taiwanese) capital that is mobile and in search for more flexible labor, avoiding workers that are better positioned to assert their rights. The state often facilitates mobile capital while portraying itself as the nationalist protector of the Thai people, despite the social and economic reality that the Thai state encourages the exploitation of workers regardless of nationality. As Thailand and neighboring countries take further steps to increase border development, labor standards are being pushed down both directly for the migrant workers employed in border industries, and often for domestic workers who are often accepting lower standards rather than job loss.

Keywords: Labor migration, Burmese migrant worker, Border Development

Colin A Arrowsmith, RMIT University. Email: colin.arrowsmith@rmit.edu.au; David F Fraser, RMIT University. Email: david.fraser@rmit.edu.au; The International Field Work Experience: A Case Study In The South Pacific

Education for the 21st century needs to be global and relevant in its outlook as well as being exciting and engaging. This is particularly so for tertiary education in the geographical sciences where the very nature of what we study is global in context. At RMIT, geography is taught as a series of services courses within the geospatial science discipline. The university has stated as its core mission, to make RMIT global, urban, work relevant and focussed on excellence in research. As part of our undergraduate teaching in geospatial science students are expected to participate in one field trip in second year. This has traditionally been undertaken at various locations throughout Victoria, Australia. However this year a group of students undertook their field exercises in Fiji. The rationale behind this was to internationalise our undergraduate learning experiences by enabling them to undertake a series of field exercises in Fiji as well as participate in a joint seminar series with students from the University of the South Pacific in Suva, Fiji. This paper will present our objectives, rationale and approach to

internationalising our undergraduate fieldwork and will conclude with an overview of the outcomes and a model for incorporating international field work in the undergraduate curriculum.

Keywords: international field work, internationalisation, geospatial science, field work

Yasushi Asami, University of Tokyo. Email: asami@csis.u-tokyo.ac.jp; Yusuke Kataoka, Center for Spatial Information Science, University of Tokyo. Email: ukataoka@csis.u-tokyo.ac.jp; Yasushi Asari, Hirosaki University. Email: ; Kazuaki Koriyama, Emergency Medical Technical Kyushu Training Center. Email: ; *Optimal allocation of AED's by maximization of supply effect on demand density*

A probability density function of demand for automated external defibrillators (AED's), which is based on the distribution of demand points by kernel density estimation method, is estimated from the data on occurrences of cardiopulmonary arrests. The probability that someone can be saved by AED's is formulated using probability of survival to hospital discharge. "Supply effect" is expressed as demand density multiplied by this probability of saving, and the locations of AED's are optimized by maximizing supply effect in the entire region. The results show that optimal locations tend to cover the center of the city and that the supply effect is approximately proportional to the number of AED's.

Keywords: automated external defibrillator, density distribution, maximal covering, spatial pattern, probability of survival to hospital discharge

Sosina B Asfaw, University of Illinois. Email: basosna@gmail.com; Socio-spatial Dynamics of Herd Mobility in Booranaland, Southern Ethiopia

The Booran of southern Ethiopia in general divide their grazing areas into wet and dry season areas. The dry season grazing areas are located near clan managed deep wells, where villages and settlements are also found. In the 1960s, the Ethiopian government established a number of ponds in mainly wet season grazing areas in order to reduce heavy grazing around these deep wells. The availability of water in the form of big and small ponds altered the spatial organization of herd movements. The emergence of villages near ponds gradually changed the designation of grazing areas. Villages are also becoming more and more involved in the management of range resources. The paper examines the complex interplay between institutions and emerging influential groups in socio-spatial settings such as villages. It closely looks at the meshwork of institutions, actors, and influential groups that define and redefine the rules of access and use of range resources. Using data collected in one settlement, Did hara, the paper shows that the village becomes a contested socio-spatial unit whereby influential groups employ existing institutions and emerging meshworks to influence herd mobility and other land use practices. Understanding the politics of resource use provides an interesting socio-spatial dimension to the herd mobility paradigm.

Keywords: herd mobility, institutions, socio-spatial

Bjorn T. Asheim, Lund University, Sweden. Email: Bjorn.Asheim@keg.lu.se; F2F, Buzz and Proximity in Producer-User Interactions: A Knowledge Base Approach

Storper and Venables (2004) argue that face-to-face interactions represent the most fundamental aspect of proximity that favours urban concentrations and agglomerations. In contrast to this generalized argument, we shall maintain that the 'classical' face-to-face situation is found in 'user-producer' relationships in clusters of small and medium sized manufacturing firms building on a synthetic (engineering) knowledge base, where tacit knowledge plays an important role. Such activity does not favour urban locations and agglomerations per se. Of course buzz also exists in such environments as part of the informal interactions on and outside job situations. But in these contexts it is more a mode of information exchange instead of knowledge exchange for learning and innovation. Furthermore, it is reasonable to assume that in high-tech industries based on an analytical knowledge base knowledge is not exchanged in informal buzz situations. Here face-to-face interactions take place when (spatial and relational) proximity to the diversity of formal, codified knowledge and expertise of top researchers found in leading universities and research centres is exploited. Such facilities are most commonly found in city regions. The only group that may exchange knowledge in buzz situations (and not only information), are people employed in creative industries (media, film, advertisement, fashion etc.), which draw on a symbolic knowledge base. The highest concentration of such activities is found in the large city regions. In such occupations, as with jobs in research, knowledge is highly individualised, and, thus social capital and collective learning is of less importance.

Keywords: Knowledge Bases, F2F, Buzz, Proximity, Producer-User Interactions

Kiran Asher, Clark University, IDCE. Email: kasher@clarku.edu; Spatializing power by (re) ordering space: Ordenamiento Territorial (OT), territorial zoning in Colombia

Since its independence from Spain, the legitimacy of the Colombian state has been dubious and its credentials as a "modern" nation-state questionable. The former because large parts of the population are excluded from its oligarchical democratic politics and highly central bureaucratic institutions. The latter because it faces challenges from many sides - left-wing guerillas, drug-traffickers, counterinsurgent paramilitary forces. In 1991, Colombians adopted a new Constitution which aims to expand democratic participation, strengthen civil society, and promote socio-economic development to foster Colombia's status as modern nation. Among the many principles in the 1991 constitution was the notion of Ordenamiento Territorial (OT), territorial zoning, defined as "a state policy and planning instrument that allows for an appropriate political-administrative organization of the Nation, and the spatial projection of the social development, economic, environmental and cultural policies of [Colombian] society, [that] guarantees an adequate quality of life for the people and the conservation of the environment." This paper examines how the policies of OT create a new "order" by redefining and reclassifying national space (for exploration, conservation and economic production) and populations ("marginal", "indigenous", "traditional"). The authors argue that this technique serves to increase the presence and role of the state and functions as a mode of governmentality to define new terrains for the exercise of power.

Keywords: governmentality, development, Colombia, political geography

Kiran Asher, . Email: kasher@clarku.edu; Diana Ojeda, Clark University. Email: dojeda@clarku.edu; Spatializing power by (re) ordering space: Ordenamiento Territorial (OT), territorial zoning in Colombia

Since its independence from Spain, the legitimacy of the Colombian state has been dubious and its credentials as a "modern" nation-state questionable. The former because large parts of the population are excluded from its oligarchical democratic politics and highly central bureaucratic institutions. The latter because it faces challenges from many sides - left-wing guerillas, drug-traffickers, counterinsurgent paramilitary forces. In 1991, Colombians adopted a new Constitution which aims to expand democratic participation, strengthen civil society, and promote socio-economic development to foster Colombia's status as modern nation. Among the many principles in the 1991 constitution was the notion of Ordenamiento Territorial (OT), territorial zoning, defined as "a state policy and planning instrument that allows for an appropriate political-administrative organization of the Nation, and the spatial projection of the social development, economic, environmental and cultural policies of [Colombian] society, [that] guarantees an adequate quality of life for the people and the conservation of the environment." This paper examines how the policies of OT create a new "order" by redefining and reclassifying national space (for exploration, conservation and economic production) and populations ("marginal", "indigenous", "traditional"). The authors argue that this technique serves to increase the presence and role of the state and functions as a mode of governmentality to define new terrains for the exercise of power.

Keywords: governmentality, development, Colombia, political geography

Louise Emily Ashley, Postgraduate, University of Oxford. Email: lashley@ouce.ox.ac.uk; Work-Life Balance in the UK's Leading Law Firms: Delivering Diversity without Equality?

When considering London's position as a Global City, a number of theorists have pointed to the rapid expansion of high-status, well-paid jobs. Lawyers and partners at leading-edge, international law firms are key examples of the small number of increasingly affluent professionals working within the 'urban glamour zone' of the City (Sassen, 2001; 275). Today, more women than men enter the elite tiers of this profession at trainee level. However, optimism that these women would quickly experience more equal opportunities - and outcomes - compared to their male peers appears misplaced. The UK's top 100 law firms (by turnover) have on average just 17% female partners, and remain under significant pressure to improve their record in this respect. The difficulty of achieving an appropriate work-life balance (WLB) is the most common explanation for this imbalance. Part-time or flexible working arrangements have been introduced to facilitate change. Research conducted at five of the UK's leading law firms demonstrates that, whilst these policies have helped some workers ? usually female ? reconcile the conflicting demands of production and reproduction, many barriers to their widespread adoption remain. This paper examines those barriers, as well as the gendering of WLB policies, their impact on individual versus collective agency in the workplace, and their likely efficacy in the face of a new gender conservatism amongst younger professional women. It concludes by suggesting that whilst WLB policies and practices may allow for greater workplace diversity, their impact on gender equality appears limited.

Keywords: Worklife Balance, Diversity, Equality

Sharon Ashley, Northern Illinois University. Email: sashley@niu.edu; *Flood Casualties in the United States*

This study compiles a nationwide database of flood fatalities and injuries for all contiguous states of the U.S. from 1959-2005. Such information as location of casualty, age and gender of victim, activity and/or location of casualty, and type of flood event is included for each casualty report. Analysis of the data reveals that the majority of fatalities are caused by flash floods. People between the ages of 10-29 and the elderly (> 60 years old) are found to be more vulnerable to floods. A large percentage of children (< 13 years old) perish in floods while either playing in-and-around the flood waters or when they are driven into the flood waters by their guardian or parent. Findings suggest that human behavior is integral in causing flood fatalities. These results also reveal that future structural modifications of flood control designs (e.g., culverts and bridges) may not reduce the number of fatalities nationwide. Spatially, flood casualties are distributed across the U.S. with clusters of high fatalities observable along the Interstate 95 corridor in the Northeast, in the Ohio River Valley, and along the Balcones Escarpment in south-central Texas. These distributions are likely driven by both physical vulnerabilities to flooding (e.g., high vertical relief from topography, close proximity to flood control structure) as well as the social vulnerabilities (percent males, age).

Keywords: Geography, Flood, Deaths, Injuries, Warnings

Walker S. Ashley, Northern Illinois University. Email: washley@niu.edu; *The Geography of Tornado Fatalities in the United States*

This study assesses, both spatially and temporally, the fatalities produced by tornadoes in the U.S. since 1880. Results highlight the particular vulnerabilities and impacts associated with killer tornadoes that have affected the nation over this 126-year period. Specifically, analyses evaluate the unique distribution of killer tornadoes that tend to focus on the southern-tier of the U.S. - outside of traditional "tornado alley." The study examines the specific causes for this distribution, including mobile home density, population density, land cover type, event frequency, seasonality, and time of day. In addition, results reveal a unique vulnerability to both the middle age and elderly. A more complete analysis of the geographic patterns associated with tornado fatalities is essential to improving education and mitigation efforts concerning these deadly hazards.

Keywords: climatology, hazards, tornado, windstorms, United States

Ishan Ashutosh, Syracuse University. Email: iashutos@maxwell.syr.edu; *Representing the "Other" in "our" midst: Post- September 11th National Security Hysteria*

The representations of Muslim migrants in the aftermath of September 11th were possible only through tropes that utilized the imaginative geographies of U.S. geopolitical interests that existed before the "war on terror." While the mediascapes of this current war perpetuate notions of "the Arab street," "the Muslim world," and the more recent "Islamic fascist," these discourses are re-inscribed onto the Muslim migrant. Migration programs instituted after the shift to the Department of Homeland Security, targeted migrants from "select countries" that allegedly present a national security concern to the United States. Given the long tradition of Orientalist images of "the Muslim World" it is perhaps unsurprising that these designated countries are, with the exception of North Korea, majority Muslim nation-states. In recasting these images onto the migrant, claims are not only made on belonging to the nation-state, but that simultaneously prohibit affiliations that encompass "Other" forms of belonging. In doing so, the heterogeneous transnational ties and affiliations of Muslims are homogenized until the individual can be recast as a Muslim terrorist. Post-September 11th migration policy therefore not only extends established representations of Muslims, but views the maintained transnational connections of Muslim migrants as a threat to U.S. national security policy. I consider how the recent discursive constructions of the Muslim migrant reflect the nation-state's attempt to restrict transnational forms of belonging that are central to the lives of migrants.

Keywords: transnationalism, national security, representation, muslims

Louise Askew, University of Newcastle, Australia. Email: louise.askew@studentmail.newcastle.edu.au; *Enacting interagency human service programmes: the importance of institutional practices and politics in state agencies*

Interagency working is commonly understood as an established technique of current social governing: as part of a post-neoliberal, or recent 'roll-out' form of neoliberalism (Peck and Tickell 2002, Larner and Craig 2005). Much geographical research reveals the ways in which interagency working has been rescripted under this form of neoliberal social governing as a means of achieving both increased efficiency of service delivery (eg cost-effectiveness through pooling of agency resources), and the effectiveness of services (eg 'joined-up working for joined-up problems'). Whilst this approach exposes recent governmental shifts, there is a tendency to situate interagency working as solely neoliberal, thus

reinforcing notions of an all-conquering neoliberal project. I suggest that such accounts may be enhanced through an open and contingent perspective of interagency working: allowing for distinct, enduring and productive possibilities of social governing that may be other-than-neoliberal. The paper focuses on the enactments of state workers in an Australian interagency social service programme who describe a range of more influential understandings and practices than that of post-neoliberalism. For example, workers within the programme frequently associated the performances of interagencies with institutional practices inherent to state structures and cultures (eg shifting political motivations, expedient programmatic responses, and short election cycles). The aim of the paper is to expose the influence of state institutional practices by adopting an ethnographic perspective of an interagency setting, exposing post-neoliberalism as a never solitary rationality that is understood, translated and frequently absent in the institutions in which state workers are engaged.

Keywords: Interagency, state, institutions, neoliberalism

Kye Askins, Northumbria University. Email: kye.asksins@unn.ac.uk; *Towards new negotiations: rethinking nationality, ethnicity and belonging in England.*

Drawing on my PhD research exploring the perceptions and use of the English countryside among people of Asian and African Caribbean backgrounds, and thinking through current longitudinal research with African refugees in inner city Newcastle, this paper evaluates the potential of taking an agonistic approach to reconceptualising ethnic inclusions/exclusions as caught up in notions of national identity and citizenship. Agonistic politics acknowledge the aim of consensus within democratic debate but without the expectation of ultimate agreement or of a universal value system - placing an emphasis on always working towards accord/compromise while recognising discord may also remain (Mouffe, 1993). Such an approach can be developed, I argue, within a 'sustainable multiculturalism', drawing on theory that works with a model of society as a rights-based political community (after Parekh, 2000), while also mindful that ethnic, cultural and religious communities who adopt a range of territory restricting and restrictive discourses - play a strong role in identity construction. 'Sustainable multiculturalism', then, should constantly be a process of negotiation around 'integration', national identity, citizenship, etc., that endeavours to move beyond the pitfalls of fixed/essentialising ideologies and 'norms' but crucially, at the same time, working with the ways in which such ideologies play out in everyday spaces and lives.

Keywords: ethnicity, multiculturalism, national identity, belonging

Nurcan Atalan-Helicke, Ohio State University. Email: atalan-helicke.1@osu.edu; *Anti-GMOs Movement in Turkey: Links to Global Agrarian Development*

This paper addresses the development of the anti-GMOs (genetically modified organisms) movement in Turkey by considering the conditions under which social movements have rallied against GMOs, methods of anti-GMOs activism, and the limits of such movements. The agricultural sector in Turkey has been transforming parallel to changes in the global economy, in particular response to neoliberal pressures to open markets to seeds, crops, and food. Turkey's failure to adopt legislation conforming to the Cartagena Biosafety Protocol gave rise to the reaction of an autonomous, pluralistic movement: the No to GMOs Platform. An analysis of the Platform's declaration, its members, and its campaign reveals similarities with other social movements in the developing world in terms of its demands and its organization. The Platform's discourse is also similar to that of anti-corporate movements and consumer protests. However, it also differs significantly in that, like other environmental movements in Turkey, it links its priorities to the development agenda of the state and follows a populist discourse. Rather than merely emphasizing the need to conserve biodiversity, the Platform has become successful in creating awareness and disseminating information on the risks of GMOs to a wider audience. However, the movement has had limited success in bringing about biosafety legislation in Turkey.

Keywords: social movements, genetically modified organisms, Turkey

D. Odwa Atari, PhD Student, University of Western Ontario. Email: datari@uwo.ca; Isaac N. Luginaah, University of Western Ontario. Email: iluginaa@uwo.ca; Iris Xu, University of Windsor. Email: xxu@uwindsor.ca; Karen Fung, University of Windsor. Email: kfung@uwindsor.ca; Kevin Gorey, University of Western Ontario. Email: gorey@uwindsor.ca; E. Maticka-Tyndale, University of Western Ontario. Email: maticka@uwindsor.ca; *Spatial Variability of Ambient SO₂ and NO₂ in Sarnia, Ontario*

The study identifies the determinants of intra-urban variation in ambient concentrations of sulphur dioxide (SO₂) and nitrogen dioxide (NO₂) and develops a model to predict SO₂ and NO₂ in the city Sarnia, Ontario, Canada. With one of the largest concentration of chemical industries in Canada, Sarnia is one of the

highly polluted areas in the Great Lakes and it is generally known as the 'Chemical Valley'. Recently, Health Canada has called Sarnia and other regions along the St. Clare River as 'Areas of Concern' based on a hypothesis that environmental pollution negatively affects health. As part of a larger research program to study the environmental health determinants in designated 'Area of concern', we monitored 39 locations for SO₂ and NO₂ for 2 weeks. This presentation discusses the results of land use regression (LUR) modeling to determine intra-urban variation of ambient SO₂ and NO₂. The results from this analysis will be spatially related to surveyed data of the larger health study. Multivariate analysis will be used to determine the relationship of the estimated air pollution and self reported environmental health concerns and perceived risks.

Keywords: Spatial variability, sulphur dioxide, Nitrogen dioxide, Land use regression, exposure, GIS, Sarnia, Ontario, 'Chemical Valley', 'Area of Concern'

Stephen Atherton, University of Wales: Aberystwyth. Email: sja01@aber.ac.uk; *Domesticating Masculinity: Place, Performance and the Negotiation of Identity*

This paper analyses the particular domestication of masculinity that occurs within the armed forces in the UK, and the transitions that take place upon re-entry into civilian life. Through interviews and oral accounts this paper highlights how these men renegotiate their identity within the 'home' and within 'society' and seeks to add to the debate on how we analyse a cultural repertoire of masculinities that are appropriate to particular places and particular contexts. In particular, I draw out: (1) how a domesticated body fit for the purpose is created and maintained with the armed forces; (2) how and with what effect an embodied routine and self-discipline is transferred into a home environment; (3) the inculcation of domestic skills and emotional attachment to people and place suitable for home making; and (4) the re-imaging of home life through the performance of these masculine identities.

Keywords: Masculinity, Place, Identity

Mona Atia, University of Washington. Email: atia@u.washington.edu; *Spaces of Solidarity: Islamic Charitable Practices in Cairo*

As Egypt embarks on another era of neoliberal development, civil society organizations fill much of the void left by the dismantled welfare state. Islamic religious obligations to care for the poor are a driving force behind a great deal of the associations that provide social services to needy Cairenes. These organizations take various forms and are tied up in issues of profound geo/political, economic and developmental significance. This paper explores these forms and the relationship between Islamic charity, community space, and political movements. Charity in this context exemplifies the rising visual manifestations of religiosity in a nation-state threatened by its existence but legitimized and stabilized by it as well. Several case studies illustrate the various sites, spaces and networks that constitute the daily embodiment of Islamic charitable practices.

Keywords: neoliberalism, charity, Islam, poverty alleviation

Carol Atkinson-Palombo, Arizona State University. Email: carol.palombo@asu.edu; *Location Theory for the Contemporary City*

In this paper, I present a hybrid theoretical framework and theory of location in contemporary cities that allows investigation of how economic factors and the political economy of place intersect to create neighborhood change. The research has been motivated by a mismatch that currently exists between our understanding of the processes by which new urbanist policies such as Light-Rail Transit (LRT) create neighborhood change, and the traditional theories of location and transportation that are used to measure its impact on market conditions and land use. LRT is implemented alongside a battery of supportive public policies such as density waivers, overlay zoning, and financial incentives that change market conditions and land use possibilities. Traditional theories suggest that any change in market conditions and land use around station areas results from change in accessibility, and ignore the influence of additional policies that affect market conditions, and the fact that places are "re-imagineered" to provide an amenity-rich urban lifestyle. In this hybrid theoretical framework, accessibility and public policies act in concert to change market conditions and land use in different spatial submarkets. Location decisions are a trade-off between a location's status, based on lifestyle, and building quality. Locations with existing amenities attract more amenities because of forces of agglomeration, those seeking an amenity-rich urban lifestyle, and highly mobile knowledge sector capital. The framework offers a forum for quantifying how various factors shape uneven development and a way to foreground the critical social issues associated with uneven development in quantitative analysis.

Keywords: hybrid geography, competitive cities, new urbanism

Hauge Atle, Uppsala University. Email: atle.hauge@kultgeog.uu.se; *The Production of Cool*

Fashion has both a material and immaterial dimension: it relates to clothing, design, textile and quality, but also to consumers' subjective feelings and attitudes towards the clothes and their brands. This paper argues that both the material and immaterial dimensions of fashion are governed by systemic production processes; i.e. processes rooted in systems of interrelated actors within specific socio-institutional contexts. One often neglected and overlooked, but nevertheless vital actor in this production process is the consumer. Fashion is both a result of economic actors' conscious work to try to shape our consumption patterns, but also a result of individual consumers cognisant fashion choices. In other words fashion is not produced by corporate forces alone, but is socially negotiated through reciprocal, socially embedded processes. This paper analyses a segment of the fashion market where the companies' competitive resources are associated with their sense of "cool". The paper focuses on some of the mechanisms behind the production processes of immateriality, how these mechanisms materialise, and what the socio-economic relations behind the production of cool are. The production of cool is analysed in terms of relationships between fashion companies and other key actors. The paper challenges the idea that consumers are mere recipients of fashion and shows how user/consumer-led innovation is a key feature of the fashion industry. The paper ends by suggesting that the importance of such relationships have important implications for how we understand and analyse innovation geographies.

Keywords: Economic geography, fashion industry, consumer, innovation

Roger F. Auch, United States Geological Survey (SAIC, contractor to USGS EROS). Email: auch@edcmail.cr.usgs.gov; *Land Cover and Land Use Change in the Northern Glaciated Plains Ecoregion, 1973-2000*

The U.S. Geological Survey's Land Cover Trends project is documenting land cover and land use change that occurred in the conterminous United States between 1973 and 2000. We are using the U.S. Environmental Protection Agency's Level III (1999) ecoregions as the spatial framework of inquiry. Our methodology uses random probability sampling, in which a pre-determined number of 10 x 10 kilometer blocks are selected. Land cover and land use within the sample blocks are interpreted from remotely sensed imagery for five dates to detect change. Analysis has been completed for the Northern Glaciated Plains ecoregion, which includes north-central and eastern North Dakota (excluding the Lake Agassiz Plain), eastern South Dakota, and parts of west-central Minnesota. Land cover and land use change was moderate and had low variability across the ecoregion until the 1992 to 2000 time interval, when sub-regional flooding caused an expansion of persistent water and wetland. Change was slower during the first two time intervals (1973 to 1980 and 1980 to 1986, with approximately 0.2 percent annual change) than during the later intervals (1986 to 1992 and 1992 to 2000, with approximately 0.4 percent and 0.5 percent annual change respectively). Leading types of land cover change were related to cyclic wetland and water fluxes, with more water present in 2000, and flooded agricultural land changing to either wetland or water. Other leading changes included shifts between agricultural and grassland covers types, that were encouraged by the 1985 Conservation Reserve Program and other changes in agricultural policy and production.

Keywords: land use land cover change, Northern Glaciated Plains, cyclic wetland change, Conservation Reserve Program

Babette Audant, CUNY Graduate Center. Email: baudant@kingsborough.edu; *Urban Grazing: The Politics of Food, Identity and Public Space*

Urban parks are both constitutive of and constituted by their users and producers, dynamic landscapes that reflect social relations outside their bounds; they also provide spaces in which those relations can be redefined, however temporarily. This multi-sited ethnography focuses on two sites in New York City: the Red Hook Park food stalls, and the Union Square Greenmarket. Each of these sites is a regularly occurring, seasonal event at which food plays either a central, or a strongly supportive role. Food draws lines between outsiders and insiders; the ability and willingness to traverse those bounds is often steeped in neo-colonialist adventuring and a search for the "authentic." It also provides opportunities for the "other" to translate—or not—their cultural practices. The scale of identity produced in these spaces ranges from the local (neighborhood) to the national (re-inscribing a rural-to-urban narrative at the Greenmarket) to the international (a pan-Latino identity in Red Hook). Various city agencies regulate and define these public spaces—how are they institutionalized, formalized, valued and protected? Although each space has at least three decades' history, only the Greenmarket has achieved iconic status. In contrast, the Red Hook food stalls were "discovered" by the mainstream press several years ago, spurring the issuing of permits—a turn that appears to have been welcomed by vendors weary of

operating informally. Whether gentrification will challenge the Latino claim to the park as an extension of their neighborhood remains to be seen.

Keywords: food, ethnicity, New York City, urban parks

Andrew Augustine, Louisiana State University. Email:

aaugus4@lsu.edu; *Diurnal Variation of Tropospheric Ozone: A Case Study*

During the spring of 2006, a series of ozonesondes was launched over Baton Rouge, Louisiana. The purpose was to assess the vertical distribution of tropospheric ozone within the vicinity. The diurnal variation of the vertical distribution was identified by launching ozonesondes in the afternoon and morning on consecutive days. Results from this preliminary investigation suggest that a strong subsidence inversion with abundant ozone above it may lead to enhanced mixing of tropospheric ozone between the surface and the base of the inversion. If the subsidence inversion layer is weak enough, strong updrafts may allow for the layer to be punctured and mix with higher-level ozone. This relationship could enhance the ability to forecast days when a federal ozone exceedance may occur.

Keywords: ozone, air pollution, air quality

José Antonio Ávalos-Lozano, Student. Email:

pm_jaal_04_a@yahoo.com.mx; Miguel Aguilar-Robledo, Dr., Member. Email: aguilar_m@uaslp.mx; *"Reconstructing the Environmental History of Colonial Mining: the Real del Catorce Mining District, 18th to 19th centuries"*.

Based on industrial archaeology, archival research and fieldwork, this paper attempts to reconstruct the environmental history of the mining district of Real del Catorce, in northern San Luis Potosí State, Mexico, from the 18th to the 19th century. To do so, this paper takes into account technological change, "industrial metabolism" -financial, materials, energy and information flows-, and the influence of these factors on the environmental transformation of this mining district. Industrial archaeological research allowed reconstructing the inputs-outputs of the whole mining process, which includes chemical materials involved, tailing composition, spatial location of mining facilities, raw materials and energy supply networks, and local environmental impact patterns. Further, fieldwork validated archival and ethnohistorical accounts and added more details to environmental history reconstruction. In addition, preliminary findings suggest that mining operations concurred with severe droughts and intense rainfall periods that somehow gave rise or worsened preexisting environmental problems. Mining and metallurgic enterprises got adapted to diverse physical and socioeconomic conditions and formed a complex fabric woven with social, economic and political factors that defined their specific profile. Finally, the paper shows that during the studied period regional ecosystems were highly disturbed and environmental problems worsened: pollution, deforestation, soil erosion, and biodiversity loss, problems that outlived the colonial stage and survive until these days.

Keywords: Environmental History, Real del Catorce Mining District, Mexico, 18th-19th centuries.

Clare Averill, BSci, Raytheon / Jet Propulsion Laboratory. Email: caverill@sdsio.jpl.nasa.gov; *Geography as unifier in the effort to perform triple-bottom-line analysis of global change: the Australian climate*

Although in 2006 the Australian Government had not ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change, a good effort to account for Australia's carbon emissions and to cost potential carbon savings has begun. These efforts include quantification of fossil fuel emissions and potential savings from the electricity, transportation and housing sectors, estimation of vegetative carbon storage (through remote sensing and on-ground measurements), and appraisal of the economic aspects and cultural context associated with emissions trading. Opportunities and challenges presented by the economic and cultural climate of Australia will be reviewed. Since these analyses take place within individual disciplines, and must also expand across mainstream communication channels, a strategy for geographers to bring the leading strands and important details from the various efforts into synthesis will be presented for discussion.

Keywords: carbon accounting, remote sensing, geographic analysis

Katia R. Avilés-Vázquez, University of Texas - Austin. Email: kr.avivaz@gmail.com; *Migratory trends in Puerto Rico as a way to analyze differentiated "social" mobility of the Dominican diaspora*

Dominican migration to Puerto Rico started as a bridge to move onwards to New York. However, Dominicans started staying in Puerto Rico, using established migratory networks that have led to further increase in migration, both because of the many obstacles to continuing the voyage to the United States, as well as the benefits of staying in an area with the same language, similar cultural traditions and semi-peripheral economic conditions. The increased migration and concentration of Dominican migrants, and the "presumed" similarities among the two island cultures have led to discriminatory practices to curb the

cultural influence of Dominicans in Puerto Rico. Because the Puerto Rican economy serves as a semi-periphery for the US, reasons for migration to Puerto Rico, and labor opportunities that are geographically separated within the island offer distinct social mobility to migrants. In this paper I will present a brief overview of current migration laws, how they are enforced in Puerto Rico, and how the island's economy and geographical economic differentiation influence the Dominican migrant's social mobility. Preliminary analysis of published studies and census data seem to suggest that labor location plays a significant role for Dominicans and their incorporation process into Puerto Rico's economy, showing a significant role of place in the assimilation trajectory for Dominicans in Puerto Rico.

Keywords: Puerto Rico, Dominicans, Migration, Agriculture

April Avnayim, U.S. Bureau Of the Census. Email:

april.l.avnayim@census.gov; Michael Ratcliffe, U.S. Bureau Of the Census. Email: michael.r.ratcliffe@census.gov; *Census Designated Places and Their Role in Data Tabulation, Analysis, and Place-Based Programs*

Census Designated Places (CDPs) provide place-level statistics for locally known, unincorporated communities. The numbers and distribution of CDPs varies from state-to-state depending on laws governing incorporation and annexation, as well as local communities' attitudes regarding the need for and importance of municipal incorporation. Since the 1950 decennial census, CDPs have been the statistical equivalents of incorporated places, but because of they lacked legally described boundaries and governmental functions, they have been something of a statistical stepchild, brought out for some tabulation programs, but generally kept in the shadows. Published studies highlighting large CDPs (see for instance Lang and Dhavale, 2003); plans to tabulate American Community Survey data for CDPs; and the inclusion of CDPs in various federal agency place-based programs have brought these statistical places out of the shadows and into greater prominence. As such, geographers need to be more aware of the existence and nature of CDPs and the way in which they represent communities statistically. In this presentation, we discuss the nature of CDPs and unincorporated communities in general; the numbers and distribution of CDPs; and plans for defining and updating CDPs for Census 2010 and beyond.

Keywords: Census Designated Places, Census 2010, Place Concepts

Shiri Avnery, B.S., University of Texas - Austin. Email:

savnery@mail.utexas.edu; Robert Dull, Ph.D., University of Texas - Austin. Email: robdull@mail.utexas.edu; Timothy Keitt, Ph.D., University of Texas - Austin. Email: tkeitt@mail.utexas.edu; *Multiproxy Evidence of Natural and Anthropogenic Sources of Environmental Change over the past 1400 years on Ometepe Island, Lake Nicaragua*

This project examines the relationship between short-term climate variability, paleo-fires, and anthropogenic sources of environmental change over the past 1400 years on Ometepe Island, located within the largest freshwater lake in Central America (Lake Nicaragua). Macroscopic charcoal, loss-on-ignition (LOI), and magnetic susceptibility (MS) records were reconstructed from lake sediment cores extracted from two lacustrine sites. Statistical wavelet analyses were performed on the proxy records to extricate natural from anthropogenic sources of environmental change evidenced in the time series data. Periods of high wavelet power at decadal and sub-decadal scales throughout each core suggest natural forcing mechanisms (e.g., El Niño and sunspot cycles), while periods of low wavelet power coincident with significant fluctuations in the time series data may indicate anthropogenic sources of landscape modification. The paleoenvironmental histories from each core are expected to demonstrate varying degrees of natural versus human-induced environmental change due to the historically different microclimates and land use practices present at each study site.

Keywords: charcoal, fire history, paleoenvironmental change, wavelets

Gillian AvRuskin, BioMedware, Inc.. Email: avruskin@biomedware.com; Jaymie Meliker, BioMedware, Inc.. Email: meliker@biomedware.com; *Validation of self reported proximity to a farm in a bladder cancer case-control study.*

Exposure misclassification is a major concern in epidemiologic studies. The opportunity for misclassification becomes even more sensitive when participants are asked to recall historical information. Yet, historical information is especially important in cancer studies where the disease often has a long latency period. Self-reported proximity to a farm is a common exposure metric in environmental epidemiologic studies, however accuracy of recall has not been validated. Geographic Information Systems (GIS) have the potential to shed light on the accuracy of this exposure metric, and therefore reduce exposure misclassification. As part of a large bladder cancer case-control study in Michigan, participants were asked whether they lived on a farm, or within a distance of 0.25 miles, 0.25-1 miles, 1-5 miles, or greater than 5 miles from a farm for each residence, over their entire lives. Responses from 531 participants over three time periods -

1978, 1991, and 2001 ? were investigated. Self reported proximity to farm was compared against a 'gold standard' derived from Michigan land cover files for the same three time periods. We investigated differential reporting by gender, age, length of time at residence, education, and cancer status. Kappa statistics and correlation coefficients were calculated and results will be presented.

Keywords: gis, cancer, recall,

Augustine Avwunudiogba, Oklahoma State University, Stillwater OK. Email: avwunud@okstate.edu; Paul F Hudson, Department of Geography, University of Texas, Austin TX. Email: pfhudson@mail.utexas.edu; Rainfall events, Land Cover, and Soil erosion under Slash-and-Burn cultivation, Sierra Madre Oriental, eastern Mexico

This study investigates soil erosion response to rainfall events, and land cover types on hillslopes used for traditional slash-and-burn agriculture in the Sierra Madre Oriental, eastern Mexico. The study was designed to achieve two main objectives: (1) quantify soil erosion for different land cover types associated with slash-and-burn agriculture, and (2) assess the role of rainfall (events and quantities) on the dynamics of soil erosion for the different land cover types. Soil erosion and runoff were monitored for different land use cover associated with slash-and-burn cultivation over two wet seasons using bounded runoff plots. Rainfall (event sequence and quantities such as intensity) was monitored with a rain gauge connected to a data logger through out the duration of the study.

Keywords: Slash-and-burn, soil erosion, Rainfall, Mexico

Louis Awanyo, University of Regina. Email: louis.awanyo@uregina.ca; Exploring the connections in Ghana: land tenure and biodiversity

The goal of assisting farmers in rehabilitating forest biodiversity remains elusive in a world biodiversity hotspot in the Gyamfiase-Adenya-Obom cluster of villages in Ghana. This paper provides a nuanced understanding of the local social and ecological conditions which are shaping local farmers' participation in the practices of tree biodiversity rehabilitation. The discussion specifically focuses on two themes. First, it outlines the little explored effects of social institutions and social processes of land tenure on tree biodiversity-friendly practices by socially-differentiated farmers. Second, it demonstrates how the effects of land tenure security on biodiversity rehabilitation are obfuscated by the agency of local ecological conditions, of which a central player is the *Chromolaena odorata* herbaceous species. The discussion concludes by reiterating the symmetrical agency of humans/society and ecology/nature in nature-society relations, which in this study is centered on human-assisted biodiversity rehabilitation.

Keywords: Ghana, biodiversity rehabilitation, political ecology, land tenure security, social and ecological research

Yasser M. Ayad, Ph.D., Clarion University of Pennsylvania. Email: yayad@clarion.edu; Patrick McGreevy, Ph.D., American University of Beirut. Email: pm07@aub.edu.lb; Methods for Manipulating GIS Data for Historical Representations

In order to reconstruct the historical topography of a site that was later greatly altered by human action, one must make a number of assumptions. This paper, a collaboration between a geographic information scientist and a historical geographer, reports on methods that were used to create such a reconstructed landscape. This was the first step necessary in order to create a series of maps showing later alterations. The site was the crucial Deep Cut section of the Erie Canal, the last and most difficult part of the canal which was completed between 1821 and 1825. A Digital Elevation Model (DEM) of the study area was altered in order to reflect the state before the excavation of the canal. Also historical maps were geo-referenced to fit a current topographic map and then overlaid with the altered DEM in order to facilitate the positioning of the construction lines during different periods of excavation.

Keywords: GIS, cartography, historical geography

Alexander Aylett, PhD Candidate, UBC. Email: alexander.aylett@mail.mcgill.ca; Inter-Urban Environmental Coalitions and the Re-Scaling of Climate Change and Climate Change Policy

Transnational urban environmental organizations are circumventing the gridlock of international Climate Change policy and enabling member cities to develop and implement programs that far exceed the Kyoto Protocol's emissions reduction targets. Representing the early stages of a larger project into the role of cities in addressing climate change, this paper will use a qualitative analysis of policy documents and case studies produced by the International Council for Local Environmental Initiatives (ICLEI) and the International Coalition for Sustainable Cities (ICSC) to ground a reexamination of the place of locality within models of national and international political power. It will interrogate the tactics and processes through which cities use membership in these organization to mobilize multi-scalar support for local, regional and federal climate change policy. In so doing it will look at the ways in which urban governance must be re-

theorized to include these trans-urban coalitions. Coalitions that do not fit the circumscribed hierarchies and networks of exchange established by the accepted discourses of "world cities" and globalization. It will elaborate on the ways that this collaborative linking of diverse local practices - separated by social, cultural and political boundaries - prompts a re-imagining of accepted definitions of "power," "agency," "local" and "global." A re-imagining that blurs accepted visions of climate change and climate change policy, proposes new ways of articulating them with issues of national sovereignty, trans-national collaboration, economic growth and environmental responsibility, and makes room for notions of a situated cosmopolitanism with the potential to promote international respect and collaboration.

Keywords: Climate Change, Global Warming, Urbanization, Transnational, Inter-urban, Environmental Policy, Networks, Coalitions, Scale

Bharati Ayyalasomayajula. Email: bharatiayyala@yahoo.com; Modeling Monsoon Rainfall

This research attempts to predict the rainfall pattern in India by using onset dates of the southwest monsoon. Onset dates of 21 major cities over the past 30 years are the main input parameters. This study will also depict the spatial and geographical distribution of rainfall patterns in India. The model proposed in this study will forecast the rainfall pattern for the entire country and will provide a general idea of how much annual rainfall is expected. Wet monsoon annual rainfall data set is used for all analysis. The rainfall figures predicted at each major station are used to predict the rainfall pattern for the entire country using spatial interpolation technique such as Kriging.

Keywords: Monsoon, Rainfall, India, Hazards

Maoz Azaryahu, Professor, Haifa University, Israel. Email: azaryahu@geo.haifa.ac.il; Stanley Waterman, Professor, Haifa University, Israel. Email: waterman@geo.haifa.ac.il; Memory and Place: The Case of Anniversaries

When celebrated as public events, anniversary commemorations integrate cyclic notions of time into the texture of communal life, transforming history into collective memory. Common but non-obligatory, anniversaries adopting an institutionalized celebration of the founding of a place invest the foundation with an aura of 'sacred history' and evince a sense of historical continuity that affirms the place as an independent entity that transcends changes over the course of history. In their commemorative capacity, place-anniversaries conflate history and contemporary contingencies. Though celebrating the past and often offering future projection, they are expressive of current needs and the interests of local and national elites. Though speaking the language of unity, they clearly demonstrate political and geographical hierarchies. Their official rhetoric conveys the notion of place as a project shared by its past and present residents. However the politics of place-anniversaries also evince power relations and structures of authority within local, national and global reference frameworks. Local and national elites in both democratic and totalitarian contexts use place-anniversaries to assert the ideological underpinnings of the ruling order. This paper examines several different and differing issues of place-anniversaries celebrated by cities, including their character, the political dimensions and propaganda, publicity and marketing values assigned to them, differences between totalitarian celebrations and festivities in free societies, and the positioning of the celebrations and celebrant cities within their local, national and international contexts. Among examples examined are Berlin, Moscow, St. Petersburg, Tel Aviv, Jerusalem and Dublin, some of which have celebrated their foundation more than once.

Keywords: memory, place, politics, anniversaries, history

Victoria Maclean Babbit, MA, University of Washington. Email: vmb2@u.washington.edu; Sex and the Citizen: Morality and deviance in Sweden

In recent years, European countries have witnessed a large influx of immigrant populations transforming the cultural, political and economic landscape. Of all the Scandinavian countries, immigrant populations have demographically transformed Sweden to the greatest degree with foreign born residents representing 12% of the entire population. Concurrently, many national and international NGO's and government officials have drawn attention to the rising human trafficking crisis. In the context of Sweden, the government has dedicated substantial resources and attention to the issue, bringing together both conservative political actors and feminist. Much of the discourse on trafficking can be traced back to the 1998 Kvinnofrid legislation which criminalized the procurement of sex while decriminalizing the actual act of providing sexual services. This paper attempts to bring together these various elements to look at how a state-led initiative-the campaign against prostitution and trafficking-works as a catalyst for exclusionary practices and discourses towards immigrant populations. Specifically, I am interested in untangling the discourses of gender equality, multiculturalism and deviance which are operational in the

criminalization of immigrant groups. The product of these campaigns is not necessarily a decline in prostitution or trafficking, but rather the construction of moral borders within the nation built upon the notion of Sweden as the progressive, egalitarian state. Yet it is at the nexus between political project and transforming cultural landscape that the progressive increasingly become the conservative, constrictive, and exclusionary.

Keywords: Trafficking, prostitution, Sweden, immigration, morality, governance

Andrew Bach, Western Washington University. Email: Andy.Bach@wwu.edu; Dwight Barry, Peninsula College. Email: DwightB@pcadmin.ctc.edu; Jodi Minion, Texas A&M University. Email: jodiminion@neo.tamu.edu; Brad Smith, Western Washington University. Email: bfs@wwu.edu; Jerry Freilich, Olympic National Park. Email: Jerry_Freilich@nps.gov; Bill Eaton, Peninsula College. Email: bille@pcadmin.ctc.edu; Anne Shaffer, Washington Department of Fish and Wildlife. Email: shaffjas@dfw.wa.gov; Large Dam Removal and Ecosystem Restoration: The Elwha River Project

After more than ten years of planning, the removal of two dams on the Elwha River is scheduled to begin in 2009. With \$182 million of federal funds committed, the Elwha River Restoration Project is the largest dam removal and river restoration project ever attempted. When the dams are removed, 10 anadromous fish stocks are expected to return to 70 miles of river from which they've been excluded for a century. Dam removals are increasingly viewed as a means of restoring riverine ecosystems. The Elwha dams will not only be the largest ones ever removed, but due to the protection of the watershed in Olympic National Park, this case provides a study site for testing hypotheses related to river restoration under ideal conditions. If the trajectories of ecosystem effects after dam removal are beneficial here, they could be applied in other similar cases. If salmon restoration is unsuccessful under these ideal conditions, the implications for other rivers are dire. Individuals from a wide variety of organizations are collaborating through the Elwha River Consortium to help ensure that research and education efforts associated with the Elwha River Restoration Project are efficient and productive, and in hopes of combining or linking projects to gain additional value-added support or new grant funding. The overall goal of these efforts will be to answer questions central to river restoration and management while providing scientific training opportunities for students and educational opportunities for the general public.

Keywords: ecosystem restoration, dams, Elwha River, Washington

Robin Bachin, University of Miami. Email: rbachin@miami.edu; Radicalism Revisited: The Haymarket Martyrs Monument in History and Memory

This paper will address the process of designating the Haymarket Martyrs Monument as a National Historic Landmark. Historians consider Haymarket one of the seminal events in the history of American labor. On May 4, 1886, a meeting organized to protest police brutality in Chicago ended with an unknown assailant throwing a bomb into the crowd, killing and wounding several police officers and protesters. Police apprehended eight anarchists on charges of conspiracy to commit murder. All were tried and convicted although no evidence linked them to the bomb. The trial and subsequent execution of four of the defendants became an example for many supporters of labor of the injustices of American capitalism at the end of the nineteenth century. The event also became a rallying point for labor and radical groups worldwide, who used the event as a vehicle for organizing. The National Park Service Labor History Theme Study that dedicated the Haymarket site helped negotiate the terrain between preservation, memory, labor history, and public space. It also exposed some of the limitations in traditional notions of what is worthy of preserving, and what kinds of spaces can best commemorate tragic moments in American history. The attempt to find a suitable site in Chicago for recognizing the national significance of the Haymarket incident offers an instructive example of the difficulties in bridging this gap, but also in how doing so may help us broaden our understanding of memory, history, and authenticity.

Keywords: memory; labor history; radicalism; public space; commemoration

Kevin Backe, US Army Topographic Engineering Center. Email: kevin.backe@erdc.usace.army.mil; Spatial-Temporal Societal Networks

Understanding Army Spatial, Temporal, and Social Network Research Needs The National Academy of Sciences / National Research Council (2005) book Network Science outlines a discovery discipline spanning the sciences addressing rules and principles underlying systems exhibiting networking behavior. Network Science covers complex behaviors including cellular communications, biological organisms, physical phenomena, and the highest level social networks. The Army intends to leverage Network Science in network-centric operations. The Social Network layers offer tremendous synergistic opportunities between Geographic Information Science and Network Science. The Army seeks to understand

GIScience and Network Sciences interactions: -Conceptual representation structures capturing inked spatial, temporal, and social interaction -Detect critical properties and behaviors suggesting goals and intents of actors with metrics predicting robustness or susceptibility to interruption for a desired effect. -Organize spatial, temporal and social attribution to observe and shape how local level networks form and subsist under governance and constraints of individual or group movement and activity. -Significant objects for information sharing and decision making. -Propagation within and across multiple types of spatial, temporal, and social networks modeled where abstract features are recognized and linked. -METT-TC (Mission, Enemy, Terrain, Troops, Time, and Civilian) adaptations Relevant research objectives will address: -Geographic cultural patterns for a society and how it relates to infrastructure, population, physical geography -Key factors that influence responses in the network -Effects of stressing the patterns of society norms -Moving shared information moves within and across levels of physical and social networks -Discovering new knowledge from information sharing patterns and relationships -Efficient language descriptions of the underlying phenomena -Relevant mathematical frameworks

Keywords: spatial, temporal, cultural geography, GIS, social networks

Michael Bacon, RTI International. Email: mbacon@rti.org; Crime Mapping and Spatial Statistics: Taking the Next Step

Law enforcement agencies have adopted many methods of illuminating spatial trends in arrest and incident data, including basic GIS mapping techniques as well as some hot spot analysis and other basic spatial statistics. More advanced spatial statistical techniques developed in the past decade may provide additional tools for finding spatial and temporal trends within data already available to law enforcement agencies. However, many of these techniques have considerable data preparation requirements, or may require advanced knowledge to implement. We examine a range of techniques recently developed within geography as well as epidemiology, including LISA and scan statistics. We attempt firstly to identify those which may produce results most useful to law enforcement personnel, and secondly to establish a set of best practices for implementing these statistics using incident and arrest data.

Keywords: crime, spatial statistics, cluster detection

Dominique Badariotti, Pau University - SET laboratory / France. Email: dominique.badariotti@univ-pau.fr; Vincent Laperrière, Pau University - SET laboratory / France. Email: vincent_laperriere@yahoo.fr; Humans, rats and fleas : agent-based approach of the transmission and diffusion of plague in Madagascar

Today the world has to face up to a new threat : emerging and re-emerging infectious diseases. Indeed, the World Health Organization (WHO, 2006) estimates that one billion people are affected by 13 such "neglected" diseases. Some of these diseases (such as tuberculosis, cholera or plague) were thought to be under control but are reappearing in long-forgotten places : Madagascar is among them. Many emerging or re-emerging diseases are vector-borne, as for plague. Since European settlers brought plague to Madagascar, research on this particular epidemiologic case has been focusing upon this disease's transmission process-between the main host, rats, and the secondary one, humans, via a vector, fleas. Epidemiologists' research based on experimental method has achieved a fair knowledge of the transmission process. However, because of the complexity of spatio-temporal patterns at the population level, the question of the control and reduction of plague is far from being solved. For vector-borne diseases as plague, transmission hinges on complex relationships between vectors, hosts and their environment. Indeed, the daily routines of human groups, the vectors' and hosts' behavior and the pathogen's characteristics, all related to environmental/spatial/geographic conditions, combine to create the conditions under which a disease might emerge or re-emerge. Nowadays, research aims to a better control of plague, studying its behavior by the way it reappears, remains and spreads in its environment. This new purpose may be fulfilled with agent based approaches. This paper introduces SIMPEST, a prototype developed under the platform NetLogo, and exposes and discusses some preliminary results.

Keywords: Agent-based modeling, complex pathogenic system, Madagascar, Netlogo, plague, vector-borne diseases

Medea Badashvili, Tbilisi State University. Email: mbadashvili@yahoo.com; Medea Givi Badashvili, Tbilisi State University. Email: mbadashvili@yahoo.com; "Gender relations in family of multiethnic society" (case study - Georgia)

Extensive socio-economic transformation experienced by Georgia over the last fifteen years has substantially affected not only the structure of economy and living standards of the population, but also prevailing role and meaning of gender as in the society, so in family. Collapse of the old system has to a considerable degree affected families and gender relations, and it has affected men and women differently. Gender inequality in a number of areas in a problem,

family is one of them. Families are important everywhere, regardless of family living arrangements and differences. Families all over the globe are facing many similar changes and difficulties as they attempt to adjust to the forces of modern life. The society in Georgia places an extremely high value on family, and it presses women in particular to get married. The majority of families are extended, comprising several generations, in urban areas this to certain extent strengthened by the scarcity of accommodation options and the childcare facilities. The Caucasian tradition calls for a woman to leave her place of residence and move to with her husband's parental house upon marriage. In my article I would like to concentrate on the research conducted by me in different regions of Georgia, in urban and rural areas, studying families belonging to different religions and having different customs and traditions. The existing situation shows how gender roles in families have been changing over the last decade. Patriarchal family structure remains the dominant paradigm.

Keywords: medo

Gruia Badescu. Email: gbadescu@middlebury.edu; *Post Second World War City Reconstruction and Germany's Shifting Identities*

Its cities devastated by the Allied bombing and its conscience shattered by Nazism, post Second World War Germany had to rebuild itself on all levels. Most major German cities have lost more than fifty percent of their buildings as a result of the war and policy makers were faced with the choice between exact reconstruction of prewar architecture and starting anew. However, rebuilding in the traditional way in the context of Germany's tortuous confrontation with the past proved to be problematic. This paper will explore the connections between Germany's post-Second World War city reconstruction and the shifts of the discourse on national identity. What is the place of urban planning and city architecture in rebuilding identities? What are the repercussions of urban reconstruction on the sense of place of city dwellers and their identities? By deconstructing the city reconstruction plans of the late 1940s and early 1950s we will explore the intricate connections between these aspects. The attitudes on reconstruction depended on local factors but also on the symbolic meaning of places. However, several cities have found their identities completely transformed and the senses of places alienated as a result of this process.

Keywords: Germany, city reconstruction, national identity, urban planning

Anna Badia, Universitat Autònoma De Barcelona. Email: anna.badia@uab.es; Ana Vera, Universitat Autònoma de Barcelona. Email: ana.vera@uab.es; Montserrat Pallares, Universitat Autònoma de Barcelona. Email: montserrat.pallares@uab.es; Jordi Cristobal, Universitat Autònoma de Barcelona. Email: jordi.cristobal@uab.es; Antoni F. Tulla, Universitat Autònoma de Barcelona. Email: Antoni.Tulla@uab.es; *Logistic regression and forest fires risk prediction. A method to prevent forest fires in wildland urban interface.*

Forest fires phenomenon affects many Mediterranean climate regions. This problem has been aggravated by the acceleration of the urbanization process in the Wildland Urban Interface (WUI). This new model of urban growth forces to reframe the forest fires prevention policies. With this intention the objective of this article is: to define a forest fire model that allows making future diagnosis. This model can be useful to prioritize specific prevention policies in places where has been possible to hierarchize risk of fire. Although it is not possible to predict fires in absolute way, there are some techniques that allow predicting with a probability margin, when, where and how a fire appears and develops. A method that has been effective in the determination of the ignition probability has been the logistic regression model. This method, combined with the spatial analysis tools that offer GIS, allows us to determine the fire occurrence from the presence or absence of each fire location. In this sense, we have three specific objectives: a) to prevent those fires that are originated for avoidable causes, b) to prepare the forest surroundings to make difficult to begin and propagate fires, c) to plan a fire detection system that allows arriving quickly at the place of the fire. This research has been developed in an area with an important growth of urbanization in WUI: it is the area of influence of an important natural park located near the metropolitan area of Barcelona (Catalonia).

Keywords: forest fire risk, wildland urban interface, logistic regression model, GIS, territorial planning.

Christopher A. Badurek, Appalachian State University. Email: badurekca@appstate.edu; Jeffrey D. Colby, Appalachian State University. Email: colbyj@appstate.edu; Lauren A. Hunter, Appalachian State University. Email: lh47603@appstate.edu; *Towards Expert Systems to Support Viticulture in Western North Carolina.*

Scientific assessment of terroir has been undertaken in many states in order to more rapidly close the knowledge gap between viticultural practice and wine quality. For example, the environmental component of terroir can be scientifically assessed based on the physical characteristics of a region through development of geospatial models that identify ideal locations for vineyards. The

western region of North Carolina has recently developed a rapidly expanding viticulture industry led by the Yadkin Valley AVA. An overview of three primary areas the GIScience component of the Appalachian State Enology Group is currently working on to enhance viticulture in the region is provided: site-suitability modeling of Surry County in the Yadkin Valley to support vineyard development, the development of an expert system model to enhance productivity at a large vineyard in Buncombe County, and analysis of the potential of mountain and steep-slope viticulture in Avery and Ashe Counties, including microscale climatic variability due to thermal belts. We conclude with a review of how expert systems comprised of GIS, customized weather forecast data, a vineyard weather station, and 'smart dust' sensors can be effectively utilized in a region of North Carolina where high altitude viticulture is more susceptible to regional weather conditions.

Keywords: GIS, viticulture, wine, vineyards, terroir, North Carolina, enology, models, expert systems

Guy Baeten, University of Lund. Email: guy.baeten@keg.lu.se; *The Injustice of Sustainability*

This paper argues that 'sustainability' has become a hegemonic discourse that supports the narrow interests of a white western elite. The starting point is that the hegemonic nature of sustainability rhetoric has generated a 'political closure' in mainstream environmental debate, and inserted environmental debate in the sphere of the 'post-political'. The paper will try to lay bare the mechanisms behind the depoliticization of environmental injustice and the repoliticization of environmental issues through the hegemonic discourse of 'sustainability'. Six mechanisms will be explored: the unification of humankind across class, gender, racial and ethnic divides against the threat of imminent environmental apocalypse; the focus on intergenerational rather than intragenerational environmental solidarity; changing class relations in the post-industrial world; the appropriation of the environmental agenda by global elites; the ecological turn of capitalism; and the compliance of fund-seeking academics. The paper stresses the need for unraveling the class politics behind 'sustainability' as well as the need to repoliticize nature through alternative frames of thought.

Keywords: sustainability, environmental justice

Thomas Baginski, Lawrence Livermore National Laboratory. Email: baginski3@llnl.gov; *Developing a Web-GIS Tool for Renewable Resource Analysis in California*

Promoting the use of renewable resources has tremendous environmental and economic benefit. However if the resources are not properly integrated in the energy system, they can have adverse impacts. A consolidated platform to access the latest renewable resource information, to track development trends, and to perform analysis of various renewable resources is needed to help the California Energy Commission, the renewable energy industry, and other decision makers. We are developing an interactive web-based capability that consolidates available renewable energy data and allows integrated renewable energy siting and planning analysis within California. A pilot project produced a web GIS that consolidated wind energy data and provided the capability to extract data for wind energy resource planning, siting, and repowering needs. Our current effort expands on the pilot project to include other renewable resources. The project will create an analytical, web-GIS decision tool to evaluate critical resource issues in the areas of wind, geothermal, biomass, solar and hydro-power resources. Our goal is to provide a one-stop decision tool for developers, industry, and decision makers to analyze data and issues related to renewable energy in California. The presentation will provide an overview of the web-GIS capability, review our experience building the tools, and discuss our current and future efforts.

Keywords: web-gis, renewable resource, California

Azmi A Baharom, Student. Email: azmiabaharom@gmail.com; *Hazard preparedness in Malaysia via telegeoinformation system*

Natural hazards occur with limit sign within the community affected. In the last several years, Malaysia has experienced several natural hazards at limited scales inclusive of slope failure and atmospheric turbulence. Indian Ocean tsunami in December 2004, is the biggest shock to Malaysian population who hardly hear and understand the danger of tectonic. Several other earthquakes in the following years increase concern among the population. Use of telecommunication system to detect underwater and surface water movement and vibration has been identified the best possible source for surveillance system. However, the relay mechanism within the system reduce the warning system to the lesser impact of the actual potential population exposed to the danger. Using integrated surveillance and early warning system, various clusters of coastal population can be alerted. Data collected through this system in the ocean via the satellite communication system will be passed to various agencies involved in early warning and later for search and rescue operation. However, geographical locations within the coastal areas limit the actual action for warning and rescue

activities. In this paper the discussion will discuss increasing tectonic activities within the eastern Indian Ocean plate require greater dissemination of the danger among the coastal population.

Keywords: Malaysia,

Ian Bailey, Ba Hons, MSc, PhD, School of Geography, University of Plymouth. Email: ibailey@plymouth.ac.uk; Rob Hopkins, Ba, Msc, School of Geography, University of Plymouth. Email: rhopkins@plymouth.ac.uk; *Rethinking the Seven Wedges for Peak Oil*

The 'Seven Wedges' have gained considerable notoriety in recent years as a way of conceptualising the actions needed to stabilise atmospheric greenhouse gases. For some they offer an acknowledgment that no single 'silver bullet' exists to mitigate global climate change; for others, they perpetuate a misplaced faith in technological solutions to environmental and social problems. But how do these wedges assist (and hinder) understandings of the sister challenge to climate change, the hypothesised peaking of world oil production in the early twenty-first century and its consequences for carbon-dependent economies? This paper examines the translation of the seven wedges to peak oil and explores their capacity to inform the future transitions in social and economic organisation needed to cope with diminishing supplies of fossil fuels.

Keywords: climate change, peak oil, seven wedges, technocentrism, relocation

Joshua Bailey, Texas State University - San Marcos. Email: jlbailey@txstate.edu; *Rock Glacier Inventory and Analysis in the Douglas Mountain Area of Montana*

Determining the exact locations of rock glaciers is important to studies of permafrost, treeline, hydrology, and other alpine topics. These lithological structures are an alpine feature of rock and soil debris coalesced into a formation by an internal ice structure and exhibit gradual, down slope deformation. Simple classification of rock glaciers is difficult, as they typically do not significantly differ in surface material from the surrounding rock. This research predicts and identifies rock glacier locations in the central Rocky Mountains of Montana utilizing aerial imagery, elevation, climatological, and hydrological data. An object oriented classification technique allows detecting the characteristics of the flow lobes, vegetation impact, spatial parameters, and hydrological contribution of rock glaciers. Once identified, the locations are integrated in a GIS with 1/3 arc-second USGS National Elevation Dataset, USGS land cover, and meteorological data from NOAA, NRCS, and Montana Natural Resource Information Service. A logistic regression of variables at sites selected by random point sampling verifies the validity of the observation and allows predicting additional rock glacier activities.

Keywords: rock glacier, cryosphere, gis, remote sensing, rocky mountain, alpine

Keiron Bailey, University of Arizona. Email: kbailey@email.arizona.edu; "Double Anchorage, Double Newark" and the "Denpasar Turn": ethnographic reflections on an actor-network investigation of the geographies of mileage runners

My research employs an actor-network framework (Callon 1985, Latour 1987) to characterize the remarkable geographies of a subset of elite frequent fliers, mileage and segment runners, and to understand how these and geographies are imagined, understood and produced. Earlier work (Bailey 2006) shows how these dialectical interactions produce unanticipated and unique geographies of business and leisure travel in locations all over the world including Iceland, Singapore, Anchorage, Bali and Fiji. In this presentation I reflect on three years of ethnography among these communities, including participant observation and interviews with actors including operations staff, flight crews, reservation agents and elite tier fliers. This ethnography investigates the role of expert internet sites such as Flyertalk forums on webflyer.com, the yield and revenue management departments of major airlines, informal secret societies and elite flier lounge meetings and expert knowledge production through seminars. This ethnography reveals how actors triangulate their activities including mileage and segment runs and exploitation of no-cost fares through their knowledge and production of cyber-hybridspaces, their creation and use of expert knowledge and Internet resources, and through subterranean networks and privileged expert knowledge dissemination. I discuss how such nonconventional research requires negotiation of ethnographic refusal and data gathering challenges, including the secrecy of major airline yield and revenue management departments, consideration of informant confidentiality, initiation knowledge barriers, and a host of other ethical and practical matters.

Keywords: mileage run, frequent flier program, actor-network, cyberhybridspace, ethnography

Robert G. Bailey, US Forest Service. Email: rgbailey@fs.fed.us; *A Genetic Approach to Mapping Ecosystems*

Criteria for delineating ecosystems on a scale-related basis are presented, based on the processes that operate to cause the spatial distribution of ecosystems from the regional scale (ecoregion) to the local, site scale. The units derived from this approach are termed genetic, in that they are predicated upon an understanding of the causal processes that control the pattern of ecosystems. Understanding spatial relationships between causal mechanisms and resultant patterns is a key to understanding ecosystem dynamics and how they respond to management.

Keywords: ecosystem mapping, ecosystem geography, ecosystem dynamics, patterns, genetic, scale

Robert Bailis, Yale University. Email: robert.bailis@yale.edu; *This is Not a Forest: the Political Ecology of Charcoal Production in Narok, Kenya*

This paper explores the political-ecological conditions that have converged to make Narok district one of Kenya's primary charcoal production areas. In Kenya, charcoal production accounts for nearly 40 percent of the nation's primary energy supply and constitutes one of the country's largest uses of harvested wood. Consequently, the perceived threat of charcoal production to the nation's forests is an important driver of environmental policy. However, current policies reflect neither the biophysical potential of the nation's woodlands to supply charcoal nor the demand for charcoal among consumers. Rather, regulations have been arbitrary attempts to limit production in certain localities and have been undermined by weak enforcement and outright corruption. Narok's charcoal trade emerged recently, enabled by a series of changes in land tenure rooted in the early years of colonial rule and leading to the privatization of huge tracts of formerly communal grazing lands. Across this newly privatized landscape, charcoal production has contributed to the loss of forest cover, but not in the forested highlands that regulations attempt to preserve. This reflects a disconnect between policy and practice. In this paper I explore the interrelationships between land tenure change and the charcoal trade as well as the contribution of each to diversified livelihoods and environmental change in Narok. I also examine the disparity between the complex social-ecological forces and the popular discourses of deforestation that form the basis of the country's environmental policies.

Keywords: Political Ecology; Africa; Kenya; Land use change; Woodfuels; Energy

Alison L. Bain, York University. Email: abain@yorku.ca; *The new creative edge: contemporary cultural production in Canadian suburbs*

This paper argues that the rapidly expanding suburban periphery has been largely neglected in scholarly studies of urban cultural practice, which focus predominantly on city centres. In public and private imagination, artistic creativity is often associated with the energy and intensity of 'authentic' places in the centres of large cities. Yet, as scholarly studies and reports commissioned by arts organizations document, the process of gentrification is steadily erasing spaces of cultural production and displacing artists from downtown artistic neighbourhoods to suburban locations. However, these same studies offer minimal discussion of how artists function as cultural workers on the suburban periphery. Traditionally, as some geographers have documented, the suburbs have been seen by cultural workers as too standardized, homogeneous, conformist, patriarchal, and heterosexual. However, in-depth, semi-structured interviews with arts practitioners and arts administrators in the Toronto suburbs of Etobicoke and Mississauga demonstrate that many cultural workers value the creative possibilities of the suburbs as uncharted, untamed cultural territory awaiting discovery. This paper critically examines how Canadian suburban cultural workers relate to the suburbs as place, but also as expressions of lifestyle and values.

Keywords: artists, cultural production, creativity, suburbs, Canada

Timothy D. Baird, University of North Carolina - Chapel Hill. Email: tbaird@unc.edu; *The effect of conservation on local risk perception and behavioral response*

During the past 20 years, land-use outside Tarangire National Park in northern Tanzania has changed dramatically. Driven by population increase, environmental variability, and land-use restrictions indigenous groups now farm to mitigate the risks associated with strict herding. This situation threatens both the integrity of the Tarangire ecosystem and the economic viability of nearby households. The purpose of this study is to examine the effect that the park has on local indigenous perceptions of risk and how these perceptions inform behavioral responses. Data were collected through household surveys (n=240) and Participatory Risk Mapping (PRM) in 8 villages on Tarangire's eastern border in 2004-05. By identifying and rank-ordering respondents' perceived risks, PRM enhances understanding of the nature and variation of risks faced within a population by distinguishing between the incidence and severity of subjective risk perceptions. Standard survey techniques were used to collect economic, demo-

graphic and behavioral response information. In addition to PRM, simple multivariate statistics are utilized to examine the effects of household size, wealth, wealth composition, and village location on risk perception. Results indicate that proximity to the park has a strong effect on the type and severity of perceived risks. Within villages close to the park, however, behavioral response to perceived risks varies considerably. This study sheds light on how behavioral response to environmental and socio-economic factors is mediated through human perception.

Keywords: Africa, cultural ecology, indigenous groups, environmental perception, conservation

Andrew James Baker, University of Tennessee. Email: andybaker79@hotmail.com; *Urban Realms in Metropolitan Knoxville, Tennessee: An Analysis of Intra-Metropolitan Commuting Patterns*

During the late 20th Century, residents and jobs moved out of the Knoxville central city into multiple centers in suburban areas. This paper provides support for James Vance's "urban realms" model of urban form and structure, arguing that metropolitan Knoxville is comprised of self-sufficient regions or realms with residents commuting to nearby employment centers rather than workplaces downtown or scattered in other areas of the region. Simple statistics and visual interpretation of choropleth maps show a distance-decay function between a commuter's residence and workplace. This analysis utilizes the Census Transportation Planning Package 3, which shows place-of-residence based, journey-to-work data at the traffic analysis zone and block group levels for all counties in census-defined, metropolitan Knoxville.

Keywords: urban form, commuting, urban realms

J. Mark Baker, Humboldt State University. Email: j.mark.baker@humboldt.edu; *The Kuhls of Kangra: A Critical Analysis of Enduring Community-Based Irrigation Regimes in the Western Himalaya*

In the Kangra Valley of India's western Himalaya, farmers have for centuries relied on community-managed kuhl systems - intricate networks of collectively built and maintained irrigation channels for their rice and wheat farming. Over the years, earthquakes and floods have repeatedly destroyed villagers' kuhls. More recently, increasing nonfarm employment has drawn labor away from kuhl maintenance and from farming itself. Under these circumstances, and contrary to prevailing theories of common property resource management, most kuhl regimes have transformed and remain in active use. Understanding the durability of the kuhls of Kangra involves interrogating the ways in which they constitute sites for the consolidation of political authority and for creating and contesting community through the mutual constitution of landscape and culture. It also entails investigation of the ways in which kuhl regimes reflect and reproduce key characteristics of regionality, and how networks of interdependence contribute to regime resilience and persistence. This situated analysis of enduring community-based natural resource regimes under conditions of recurring environmental shocks and socio-economic change identifies key themes of general significance concerning currently proliferating programs and policies promoting community natural resource management. Some of these themes include the relevance of statemaking processes, the effects of regionality, the ways in which landscapes encode culture, and the constituent elements of regime resilience. Taken together, these themes identify a theoretical landscape on which to place and through which to understand community natural resource management.

Keywords: community-based natural resource management, irrigation, India, common property, statemaking, regionality, resilience

Jay Baker, Florida State. Email: jbakker@garnet.acns.fsu.edu; *Disaster Preparedness by Florida Households*

Telephone interviews were conducted with 1200 Florida residents in April of 2006 about their level of current household preparedness for disasters and their level of preparedness for recent hurricanes that affected the state. Most preparedness indicators were related to having at least three days of various supplies such as water, food, medicine, and batteries. Current preparedness was related to the following variables in order of importance: income, home ownership, race, age, type of housing, education, region of state, children in the household, living alone, and years lived in current home. Current preparedness was not related to living in an evacuation zone, years lived in Florida, or gender. Preparedness for recent hurricanes was related to age, income, type of housing, race, home ownership, living alone, education, years lived in Florida, and region of the state. Preparedness for recent hurricanes was not related to living in an evacuation zone, years lived in current home, children in the home, or gender. Forty-three percent of respondents said it would be reasonable to expect disaster relief within 24 hours of a hurricane, but only 11% said they expected it that quickly. Almost half said they would prepare better if they knew for certain that government assistance would not arrive for at least three days.

Keywords: hurricane, disaster, Florida

Ruth E. Baker, Doctoral Candidate, University of Minnesota - Minneapolis. Email: ruth_e_baker@hotmail.com; Kurt F. Kipfmuehler, Assistant Professor, University of Minnesota - Minneapolis. Email: kurt@umn.edu; *Snow Season Length in the Upper Midwestern US, 1948-2000*.

We examined snow season characteristics for the Upper Midwestern U.S. from 1948-2000. We used daily snowfall records from 142 stations obtained from the National Climatic Data Center's Historical Climatology Network (HCN). We defined the snowfall season begin and end dates by the first and last day with 2.54 cm of snowfall in each winter season. Trend analysis reveals a slight decrease in snow season length, however, multidecadal variations in snow season length persist for the most of the record. Preliminary results indicate a shift in the snow season since the late 20th century that has a distinct spatial pattern. Season end occurs earlier in the season while the beginning of the snow season is occurring later. This has an overall effect of significantly shortening the total snow season length over the past few decades. Comparison between teleconnection patterns and the characteristics of the snow season using a PCA approach is used to elucidate the spatial patterns and identify important modulators. It is probable that both multidecadal oscillations related to teleconnection patterns and seasonal temperature shifts are responsible for altering snow patterns.

Keywords: snow, daily data, Midwest, PCA

Karen J Bakker, Associate Professor, University of British Columbia. Email: bakker@geog.ubc.ca; *The 'Commons' versus the 'Commodity': 'Alter'-globalization, privatization, and the struggle for the human right to water*

The struggle for the human right to water has emerged in recent years as a focal point of anti-privatization and 'alter'-globalization movements in many countries. Calls for a human right to water are frequently rooted in the assertion that water is a 'commons', positioned as a rejection of the commodification of water enacted through processes of 'green neoliberalism'. Some of these interventions offer deliberately non-dualistic, non-deterministic visions of the co-production of sociocultures, conjoined with unusually broad political alliances between organized labour, environmental groups, women's groups, indigenous groups, and anti-globalization activists, to name just a few. This paper will explore the conceptual possibilities opened up and foreclosed by this debate. I will document the production and mobilization of discourses of a 'human right to water' by both pro- and anti-privatization camps (private sector companies, NGOs, multilaterals, the United Nations, unions, environmental groups), linked to an excavation of the differing conceptualizations of water — commons or commodity — which underpin these competing discourses. The paper will explore the conceptual and political limitations of 'rights talk', and argue that these different visions of water rest on distinct (and at times incommensurable) understandings of water's biophysical characteristics, economic role, and social identity, which are in turn shaping important elements of the political struggle over control for water in many places. These insights will be brought to bear on recent debates in geography on the 'neoliberalization of nature', in an attempt to contribute to ongoing conceptual debates on the production/construction of 'sociocultures.'

Keywords: water, human rights, property rights, neoliberalization, social movements, socioculture

Faiza Shaheen Baksh, University of Manchester. Email: faizabaksh@yahoo.co.uk; *Understanding Neighbourhood Decline: Measuring Deprivation in England, 1971-2001*

To date area decline has been depicted in models of change developed on the basis of observations of urban areas, such as the invasion-succession model (Parks, 1952; Duncan & Duncan, 1957; Taeuber & Taeuber, 1965), life-cycle theory (Hoover, 1959), and the lettings-spiral social housing theory in the UK (Power, 1997). Despite the development of these theories there exists a gap in knowledge of where and why area decline has taken place at the national level. This paper uses a longitudinal Townsend deprivation dataset derived from the 1971, 1981, 1991 and 2001 censuses with GIS mapping tools to explore the geography of deprivation change. Regression analyses, as well as the Office of National Statistics area 'type' classification (e.g. inner-city metropolitan), are used to investigate the area characteristics associated with decline. The analysis results in a telling picture of economic and demographic features providing fertile ground for area decline. The paper concludes that there are three key factors associated with sharp decline including growth in unemployment (dictated largely by national labour market shifts), social housing builds and an influx of immigration. Furthermore there have been specific types of area that have been more vulnerable to decline, such as transitional economic and multi-cultural areas. Findings confirm the significance of population succession and the role of the housing market, but also demonstrate that neighbourhood change cannot be looked at in isolation from national economic and labour market shifts.

Keywords: Deprivation, area decline, models, England

Parthasarathy Balaji, ICICI Assistant Professor, International Institute of Information Technology, Bangalore, India. Email: pbalaji@iiitb.ac.in; Regional development and import substitution industrialization: The telecommunications equipment manufacturing industry in Bangalore, India

This paper explains why, even as the software industry in Bangalore, India, became globally competitive in the 1990s, ITI (formerly Indian Telephone Industries), the region's older telecommunications equipment manufacturer, struggled. This struggle was significant for two reasons. First, ITI's main product was electronic switching systems, whose costs and functions are largely determined by software. Second, in independent India's public sector-led import substitution strategy (ISI), ITI was the first public sector enterprise, with a monopoly over domestic switching equipment production until 1991. The contrasting fortunes of the software industry and ITI raises the following empirical question: why did a nearly half century old monopoly producer of switches have to struggle despite its critical input, software, becoming a source of prosperity in the same region for an independent industry which barely existed before 1985? Since the growth of the software industry coincided with India's move away from an autarkic ISI-led economic model to one emphasizing greater ties to the global economy, the empirical question also raises a theoretical question. Why is there differential performance in economic sectors when regions shift from ISI to a more liberal economic model? As many regions navigate this transition with varying degrees of success, the significance of the question extends beyond Bangalore. By examining how the policies shaping telecommunications equipment production affected ITI's relationship to the state, this paper will contribute to our understanding of the process of regional economic change in newly industrializing countries.

Keywords: Import-substitution industrialization, Telecommunications equipment, India

John Baldridge, University of Arizona. Email: wrkrcoop@email.arizona.edu; Producing Sin Patrón: Emerging Cooperative Institutions and Socio-spatial Transformation in Argentina's Recovered Businesses

Since Argentina's economic crisis of December 2001, nearly 200 formerly bankrupted businesses have been "recovered" by their workers, and now operate as democratic worker-owned cooperatives. In this presentation, I examine the collective action strategies these recovered businesses use to ensure survival and growth, and consequent transformations of work, the workplace, and the workers themselves.

Keywords:

Argentina, Cooperatives, expropriation, marxism, neoliberal, empresas recuperadas, recovered, latin america, south america, southern cone, community economy, solidarity economy

Andrew Baldwin, Queen's University. Email: baldwina@post.queensu.ca; Carbon-nation: the relational ontology of carbon scarcity in Canada's boreal forest

In Canada, the climate change debate is neatly divided along ideological lines. Conceptualizing the climate change debate in such stark terms, however, obscures much of what is at stake in the climate change furor. Building on insights from postcolonial geography, this paper argues that geographies of race, nature and national identity are central to discourses of forest carbon management as they pertain to climate change mitigation and adaptation strategies in Canada. It is argued that as the boreal forest of northern Canada is fetishized as a carbon reservoir and materialized through a narrative of carbon scarcity, such a discourse effects a resettlement of numerous identifications. This paper focuses on the relational ontology of Canadian national identity and one of its included exclusions, a flattened, homogeneous aboriginal subjectivity performed through the carbon scarcity narrative.

Keywords: boreal forest, climate change, relational ontology, national identity

Jeff Baldwin, Ph.D., Willamette University. Email: jbbaldwin@willamette.edu; Towards a Biospheric Political Economy

The human-nature dichotomies native to modern/liberalist ideologies have constructed non-human beings as objects without agency. As a result, non-human beings are excluded from social science generally and from political economic analysis specifically. The science of ecology has allowed politics among non-human beings but only through the Darwinian imposition of a competitive and atomistic analog to liberalist epistemes. This paper aims to reformulate political economy so as to include non-human beings. In his critique of political economy, Marx observed that there are two forms of social power: a competitive and coercive power-over others, and a cooperative mutually beneficial power-with others. Marx, though, argued that non-human beings were not historically affective because they were not purposeful. Until very recently, even post-constructionalists such as similarly excluded non-humans from politics. The

paper refers to work by environmental ethicists to argue that non-human beings are intentful and so are also historically effective. "Nature" then has always been part of political economies. Drawing upon coastal ecology the paper observes that on co-evolutionary time scales, biospheric politics are not well characterized by coercive power regimes, but tend towards mutualism which enhances use value objectified in environments. The paper observes that socio-ecologies which seek to build power-over biospheric others decreases use values invested in environments and require imports of value from and exports of waste to some dismissed there and then. The paper concludes that human histories illustrate the value of building power with biospheric others, a strategy which moves socio-ecologies towards increased coherence and reliability.

Keywords: Environmetnal ethics, Marxist ecology, human-environment relations, political economy

Heidi L. Ballard, Ph.D., University of California, Davis. Email: hballard@ucdavis.edu; A Nexus for Integrating Knowledge and Improving Forest Stewardship: Non-timber Forest Products Harvesters and Community-Based Forestry in the United States

While the majority of people in the United States who gather non-timber forest products (NTFPs) do so for personal use, commercial NTFP harvesters can play an important role in forest management and rural community development. Commercial harvesters of products such as floral greenery, edible mushrooms and medicinals possesses extensive local ecological knowledge of the species and ecosystems in which they work. They also have the incentive to manage and continue to learn about the resources on which their livelihood depends. This untapped resource for improved forest stewardship has recently become connected to the community-based forestry movement in the United States. NTFP harvesters are emerging as a nexus for learning about forests and forest management that involves local community groups, public and private forest managers and scientists. This paper examines the efforts of community-based forestry and harvester organizations to integrate multiple knowledge sources in order to improve understanding and management of forests and equitable access to NTFPs. The three components — community-based organizations, NTFP harvesters and conventional scientists — constitute learning networks in which knowledge is exchanged and applied through activities such as inventory and monitoring. Harvesters learn formal scientific data collection techniques while managers and scientists learn from the experiential and livelihood knowledge of the harvesters to better inform management and understanding of ecosystems. These learning networks have the potential to institutionalize the best aspects of civil science, whereby marginalized communities work in collaborative partnership with university and agency scientists to co-produce knowledge in an authentic and equitable way.

Keywords: nontimber forest products, forest management, local ecological knowledge, community forestry, civil science

Richard Ballard, School of Development Studies, University of KwaZulu-Natal. Email: Ballardr@ukzn.ac.za; Gareth Jones, London School of Economics. Email: G.A.Jones@lse.ac.uk; From 'Brittany' to 'Champagne' in Five Minutes: Producing and Consuming Gated Communities in Durban, South Africa

Gated communities have become a prominent feature on the edge of cities in South Africa. Each has a bill board conveying a marketing niche: 'Natal Colonial', 'Tuscan', 'Tudor', 'Cotswold', 'country' 'eco estate', 'equestrian estate', 'golf estate' and 'game estate'. There is no doubt that there is an element of geographical escapism playing out. Yet interviews with residents suggested the architectural and other symbolism which makes up the menu of choices often takes on an ultimately arbitrary character. Residents are frequently indifferent to the architectural style of their community. The majority of residents do not play golf on golf estates or ride horses on equestrian estates. And while most cite security as a major motivation for moving there, only a minority have ever experienced crime. Some residents even express surprise that they ended up living in a gated community at all. The success of this sector depends on a confluence of factors. Developers have capitalized on a particular juncture where surplus investment money exists to bankroll developments, there is a high demand for home purchasing, and changes in South African cities have resulted in a certain appeal for privatized associational living of this kind. This paper attempts to explore the symbolic and political economies of gated communities. It argues that the relationship between the production and consumption of these spaces is not linear.

Keywords: Gated communities, identity, South Africa, segregation

Clint Ballinger, . Email: cjb89@cam.ac.uk; Economics' "Primacy of Institutions or Geography in Development" Debate: A Fatal Flaw in Acemoglu, Johnson, and Robinson's (2002) "Reversal of Fortune" Argument

The "reversal of fortune" argument (Acemoglu, Johnson, and Robinson 2002) has been highly influential among political economists and economic historians in the debate on the causal relations between institutions and geographic factors in long-term development (this argument is in part responsible for Acemoglu winning the prestigious John Bates Clark Medal in economics). The reversal of fortune argument ingeniously attempts to use the abrupt changes in institutions due to colonization as a natural experiment to understand the complex relation of geographic factors and institutional development in long-term economic development. We show that, unfortunately for their highly creative attempt to gain analytical leverage from a natural experiment, the reversal of fortune argument is undermined by what historian Alfred Crosby has termed the "Columbian Exchange." Methodologically, the presentation illustrates how the creative use of descriptive statistics (following recent suggestions by the comparative political economist Michael Shalev) can partially overcome inherent problems of spatial autocorrelation in comparative and econometric political economy.

Keywords: development, economic history, colonization, biogeography, spatial autocorrelation

Myra Bambacus, NASA Geosciences Interoperability Office. Email: cyang3@gmu.edu; Interoperability and Spatial Web Portal

This presentation introduces an interoperable architecture supporting the sharing of geospatial data and information for different decision support tools. First, standards and specifications, defined by ISO, FGDC, and OGC, are introduced in an interoperable architecture to support geospatial portals. Second, the NASA Earth Science Gateway (ESG) is introduced as a geospatial portal prototype leveraging the interoperable architecture for the discovery, integration, sharing, and reuse of legacy and future components of NASA earth observations and earth system modeling simulations. Finally, an example of applying the interoperable architecture and ESG is introduced in connecting NASA DAACs' data holdings, services, to NASA partner agencies' decision support tools, such as Air Quality forecasting hosted by EPA and NOAA.

Keywords: Interoperability, Web Services, Spatial Web Portal

Matthew Bampton, University Of Southern Maine. Email: bampton@usm.maine.edu; Cathleen McAnneny, University of Maine, Farmington. Email: McAnneny@maine.edu; Measuring Conceptual Understanding in Undergraduate GIS Education: Developing an Instrument and Creating a Baseline

The Maine Geospatial Curriculum Project (MGCP6), comprised of 6 University of Maine System Campuses has successfully developed a statewide outcomes based multidisciplinary GIS curriculum. After five years of implementation it has become apparent that we must develop a core-concept based assessment tool to measure student learning. Using techniques developed by education researchers in other fields, most notably physics, chemistry, geology, and biology we are now developing a web-based measurement tool. The central underpinning of our project is the notion of misconceptions: the idea that in many areas of STEM education there are fundamental barriers to learning, derived from student's faulty "common sense" understandings of the world. Identifying these misconceptions is an essential prelude to developing interventions that will overturn them. Using a Latent Semantic Analysis (LSA) we will test a sample of GIS and non-GIS students to build a geospatial concept inventory, and a concept map. This concept map will form the foundation on which a prototype two-dimensional assessment instrument will be built. In the second stage the assessment instrument will be used to pre- and post-test student conceptions and misconceptions in undergraduate GIS courses on all MGCP6 campuses over three semesters. Periodic interviews with a sample of students will be conducted to validate the instrument. Test results will be subjected to statistical analysis to measure for variations in score against three control groups, and for variations by campus and demographic variables.

Keywords: GIS, Education, Measurement, Misconceptions

Hyowon Ban, Ohio State University. Email: ban.11@osu.edu; Visualizing Difference and Similarity between Definitions of Exurban Areas

Recently, exurban areas have received attention because of fast growth. There are a number of suggested terms of exurbanization, however most of them are separate. These existing definitions of exurban areas lack of consensus so the exurban boundaries are uncertain. In this work, the ontological comparison of existing definitions of exurban areas are made spatially explicit. Difference and similarity between these definitions are visualized and compared with graded fuzzy membership functions instead of traditional crisp memberships. Therefore the heterogeneity of being exurban in each location of traditional exurban areas is revealed. With an empirical experiment using GIS data and 3D geovisualization

techniques, the utility of visualizing the uncertainty of exurban areas is demonstrated. The 3D geovisualization clearly presents the similarity and difference between the two definitions. This suggests new possibilities to explore the semantic relationships between different concepts about the same theme. This work can be extended with a weighted fuzzy membership function to help decision making for land-use and a 3D animated map to visualize time-dependent change of exurban boundaries.

Keywords: urban ontology, uncertainty, geovisualization, fuzzy membership, exurbanization

Yifang Ban, Professor, Royal Institute of Technology. Email: yifang@infra.kth.se; Hongtao Hu, Ph.D. Candidate, Royal Institute of Technology. Email: hongtaoh@infra.kth.se; Liang Gao, Ph.D. Candidate, Royal Institute of Technology. Email: liangg@infra.kth.se; Jiesheng Wang, Professor, Remote Sensing Satellite Ground Station, Chinese Academy of Sciences. Email: ; Zhijun Chen, Ph.D., Remote Sensing Satellite Ground Station, Chinese Academy of Sciences. Email: ; Satellite Monitoring of Urbanization in China

The unprecedented combination of economic and population growth since the early 1980s has led to dramatic changes in China's landscape. China is in transition from a largely rural society to a predominantly urban one. Two decades ago, fewer than 20% of China's people lived in urban areas; today it is 40% including in 46 megacities of 10 million or more; and by 2020 it is expected to be 60% (i.e., another 300 million people will move to urban areas in the next 20 years). Therefore, monitoring and analysis the spatial-temporal patterns of urbanization are of critical importance for urban planning & sustainable development in China. The objective of this research is to monitor and analyze spatial-temporal patterns of urbanization in China using satellite images acquired in mid-80s, mid-90s and present. Remote sensing provides a systematic, synoptic view necessary to map urban forms and their changes over time at regular intervals, thus provide excellent opportunity for monitoring the pace of urbanization. Three study areas that experienced rapid urbanizations are selected for the research, one in Jing-Jin-Ji (Beijing, Tianjin and Hebei) in Northern China, one in Yangtze River Delta (Shanghai-Nanjing) in Eastern China, and one in Pearl River Delta in Southern China. Two areas that experienced slower-pace urbanization in western china are also selected as comparisons. The spatial-temporal patterns of urbanization during mid-1980s to mid-1990s are being analyzed and compared with those of mid-1990s to present. The urbanizations in coastal areas are being compared with urbanizations in the interior China.

Keywords: Satellite, Monitoring, Urbanization, China

Shawn M. Banasick, Kent State University. Email: sbanasic@kent.edu; Dugong v. Donald Rumsfeld: Cultural Properties, Legal Spaces and the Conflict over US Military Bases in Okinawa, Japan.

US military forces stationed in Japan are a major component of the US strategy to promote regional stability in East Asia. However, approximately half of the US military personnel are based in Okinawa prefecture. The extreme concentration of US Forces Japan in Okinawa has had a strong impact on Okinawan development, and a variety of anti-base protest movements have emerged since the end of the Second World War. In this paper I adopt a legal geography perspective to examine the struggle to stop the construction of a new US military base in the northern area of the main Okinawan island. The anti-base protest centered on the possible impact of the base on the Dugong, a sea mammal similar to a manatee. The Dugong has been of significant cultural value to indigenous Okinawans, and the proposed base might result in significant damage to its main breeding grounds. Much of the legal struggle was focused on assessing the cultural significance not only of the Dugong themselves, but also of the Dugong's habitat. The legal decision hinges on whether US participation in the World Heritage Convention means that the Japanese government's protection of the Dugong requires an equivalent US government protection of Dugong habitat in accordance with the US National Register of Historic Places. The Dugong case suggests that the struggle to incorporate Okinawan perspectives into the dominant legal discourses could significantly affect the US military presence in the region.

Keywords: indigenous, legal geography, Okinawa, Japan.

Tawan Banchuen, Student. Email: txb213@psu.edu; The Geographical Analog Engine: Weighted Euclidean and Semantic Similarity Measures for US Cities

In today's information age, geographers are overwhelmed with data to analyze. This paper presents a semi-automatic tool that helps geographers weed out irrelevant information and navigate the information space when locating similar places, arguably one of our longstanding main tasks. The tool measures similarity of places based on numerical as well as textual descriptions. It employs Euclidean distance to measure numerical similarity and various semantic measures for textual descriptions. The latter measures include taxonomy-based measure,

set-based measure, corpus-based measure, and expert judgment. As a test case, the paper uses statistical data from the County and City Databook, which contains, for example, population, household income, labor, crime, manufacturing, trade, government finances, and climate data. For textual descriptions, information is gathered from various Web sources, including Wikipedia, City-Data.com, and usmayors.org. To aid data exploration, the tool displays raw data and analysis results in forms of maps, parallel coordinate plots, table views, concept graphs, and annotated text.

Keywords: analog, semantic, similarity, semi-automated method, data mining, visualization

Sutapa Bandyopadhyay, graduate student, University of Denver. Email: sbandyop@du.edu; Connecting India: Spatial Inequality in the distribution of Cellular Phone Network in India

Cellular phones have been enormously popular in India, and have set the market on fire since the beginning of the 21st century. The reduction in overall price of the handsets and increase in number of service providers are some of the reasons behind the massive expansion of the industry. The expansion has however not taken place in a uniform manner. The more urbanized, industrialized and more affluent states have put up a far better performance in comparison to the backward states. While the largest number of subscribers is concentrated in Maharashtra, Gujarat, Andhra Pradesh and Punjab, the smallest number of them is in North-East, Assam and Jammu & Kashmir. The large metropolitan areas are the main pockets of concentration by virtue of their tertiary and quaternary sectors. Very few subscribers are found in the rural areas. The infrastructures available in the cities help in the establishment of the cellular phone network and hence lead to the concentration of users. However, now BSNL is trying to spread the network to rural India as well. But still the major portion of Indian population living in rural areas is outside the purview of cellular networks. The cellular phone industry is increasing by leaps and bounds and is expected to serve the entire country very soon adding a new dimension to the changing world of communication.

Keywords: distribution, cellular phone network

Abhijit Banerjee, University of Delaware. Email: abanerje@udel.edu; An Evaluation of the Potential and Limitations of Ecotourism as a Vehicle for Conservation and Sustainable Development in India

Although ecotourism has been conceived as a responsible form of travel that benefits both conservation and local communities, in practice it has often been abused. This paper offers a critical evaluation of ecotourism in protected areas (PAs) in India, using a representative sample for analysis. Data was collected on their tourism trends, impacts and management which was then evaluated against the four established principles of ecotourism: environmental impact, benefits to local communities, contribution to conservation, and visitor education. The study revealed certain trends: other than restricting certain areas and activities there was little concern about ecological design or pollution with increasing tourism taking a heavy toll on the environment; local people got only menial jobs while tour operators made significant profits; meager amounts were generated for conservation compared to visitor numbers; and visitor education efforts were negligible with most tourists solely interested in "wildlife sighting". This study concludes that ecotourism in sensitive areas cannot be conducted as a purely business venture and offers the following policy recommendations: PA managers should partner with local communities and NGOs to integrate ecotourism with sustainable livelihoods; experts should be consulted on the design of low-impact infrastructure and undesirable amenities and activities should be avoided; costs should be modest to balance conservation and community development against access to ordinary citizens; and visitor education should be an integral component to improve visitor experience as well as to reduce undesirable behavior.

Keywords: ecotourism, India, protected areas, conservation

Aniruddha Banerjee, PhD, Prevention Research Center, Berkeley. Email: aniruddha.banerjee@gmail.com; Modifiable Areal Unit Not A Problem (MAUNAP): Effects of Scale and the COSP in Autoregressive Models

Autoregressive models that manifest as space and time series have become increasingly popular. Ever since Box and Jenkins showed autoregressive models (time series) are better at prediction (than ordinary structural econometric models), it has become one of the cornerstones of modern economic theory. The statistical relationship between variables at a given scale, frequently used to measure relationships, is dependent on the choice of size and shape of the geographic units. This is due to a change of support that occurs when individual level data is grouped. The effects of change of support are known as the change of support problem (or COSP) and defines the family of associated problems like the modifiable areal unit problem (or MAUP) and ecological fallacy. This paper identifies the links between COSP and autoregressive theories. Examples of conflicting theories arise when multiple correlation peaks (or cycles) occur and

are indicative of some serious problems in the conceptualization of these sorts of models. Hence, it is difficult to develop universal space-time models. However, to reach the goal, the need is to evaluate the mathematical primitives of space-time models that are often used without careful interpretation. I formulate a theory based on the concept of 'length scales', 'mixing measures', 'mixing under multiple processes', markov random fields, manifolds and the Hammersley-Clifford theorem to re-evaluate the mathematical primitives that trigger COSP. Such a re-evaluation suggests that interpretation is invalid without a theory and that theories can be developed when concepts like 'length scales' and 'mixing' are thoroughly understood.

Keywords: COSP, MAUP, length scales, mixing measures, mixing under multiple processes, markov random fields, manifolds and the Hammersley-Clifford theorem

Jeff Banister, University of Arizona. Email: banister@email.arizona.edu; The Cultural Politics of Water and State-Formation on Mexico's Mayo and Yaqui Rivers, 1926-1992

Contemporary Mexican water politics evinces a critical tension between the long history of State centralization around hydraulic resources, and recent federal policies that would altogether devolve irrigation management to water-users. Analysts studying the effects of these reforms remain constricted by a dearth of historical research on State-led irrigation development, particularly since the implementation of the 1926 Federal Law of National Waters, which marked the beginning of the heaviest government involvement in the country's hydrology. This paper examines the changing roles of the Mexican State as it constructed a bureaucratic, scientific knowledge-base from which to develop and manage agricultural water resources in Sonora's Mayo and Yaqui Valley Irrigation Districts, from 1926 to 1992. This was a period during which the federal government amassed then lost unprecedented political and economic power around the control of northwest Mexico's hydrology. The State's political authority, built on an edifice of hydro-power, could rarely if ever function as a top-down imposition, but instead accrued through the manifold interlinked projects?cultural, economic, political, spatial?that radically reshaped the northwest's landscapes. The paper concludes by making a case for re-conceptualizing political power in post-revolutionary Mexico, calling for a more robust theoretical and methodological approach the State than scholars have thus far employed.

Keywords: Mexico, political geography, the state, cultural politics, irrigation

Shuming Bao, University of Michigan. Email: sbao@umich.edu; Daniel Brown, University of Michigan. Email: danbrown@umich.edu; An Integrated Analysis of Flooding, Landscape Changes, Migration, and Regional Development in the Poyang Lake Region

Many environmental and economic problems require an understanding of the interactions of coupled natural and human systems, including: human communities, land use/cover patterns, hydrogeology, and floral and faunal communities. Environmental changes in any given region are driven by processes internal to that region (such as planning, local economics, migration, and spatial distribution of resources), as well as external processes (such as climate change, regional and global economy). In this presentation, we'll give an introduction to our research work on the region around Poyang Lake, Jiangxi Province, China, which combines the considerable wealth of data, models and analytical tools to assess its current status and future changes. We present an approach aimed at understanding the interrelationships between flooding, land-cover and land-use change (LCLUC), human welfare, migration, and regional development. We are developing a system of coupled models, including models of the natural and social systems at multiple scales, that will be used to perform environmental assessment and to improve our understanding of the human and ecological consequences of hydrological variability. This presentation will describe the models and how the coupled models may be used by a variety of agencies and stakeholders as a decision tool to explore the various management options and to understand the trends and dynamics occurring across the region.

Keywords: Poyang Lake, Migration, Land Use, Regional Development, Environment

Jayson Barangan, BA - Environmental Studies, University of Nevada, Las Vegas. Email: jaysonbarangan@yahoo.com; Green Cancer: A Synopsis of Miconia's Invasion and Mitigation Efforts in Maui County, Hawaii

Non-indigenous species are an urgent dilemma in the Pacific Islands because of their ability to disrupt ecosystem functions. Introduced through the import of goods, the nursery and pet trades, and the effortlessness of which persons can travel between countries, the dissemination of these species is a detrimental global phenomenon. This unremitting assault has had an overwhelming impact on myriad ecosystems and continues to jeopardize the few pristine natural areas left in the Pacific. As such, invasive species are a pervasive ecological threat. Owing to its geographic isolation, the Hawaiian archipelago has been particularly

susceptible to the invasion of non-indigenous plants and animals. Endemic flora and fauna that have evolved in Hawaii are directly impacted via competition for resources and reduced habitat quality. Amid hordes of non-indigenous species that currently occur in Hawaii, the highly invasive plant *Miconia* (*Miconia calvescens*) is the most ecologically harmful and a priority for control, largely due to the absence of natural enemies and its prolific reproductive cycle. With its displacement of native vegetation and wildlife, *Miconia* has decimated nearly 70% of Tahiti's rainforests. On the basis of parallels in habitat structure in Hawaii, alarm is clearly warranted. Precious biological resources are at stake, so containment of this species is paramount. Maui is the island in Hawaii where efforts for controlling *Miconia* were first mobilized. This poster provides a synopsis of *Miconia*'s phenology and impacts, also illustrating how increased public awareness and the use of Geographic Information Systems (GIS) have been instrumental in this ongoing battle.

Keywords: *Miconia*, Non-indigenous species, Control efforts, GIS

Jarrett J Barber, University of Wyoming. Email: jbarber8@uwyo.edu; Statistical Modeling for Map Positional Error

Map positional error has typically received attention from within the field of Geographic Information Science (GIS) while largely being ignored by the statistical community. This presentation gives the views of a spatial statistician toward the map positional error problem and the use of statistical models for characterizing map positional error for the purpose of producing improved predictions of true locations along with measures of uncertainty. A simple statistical model of positional error that incorporates information on the linearity of features is presented and illustrated using a small residential road network. The resulting predictions of true location are of a form that facilitates the characterization of uncertainty of practically any functions of position, hence facilitating the study of error propagation.

Keywords: Bayesian statistical modeling, linear map features

Hunter Barcello, University of Idaho. Email: hbarcello@gmail.com; Eric Delmelle, University of Idaho. Email: delmelle@uidaho.edu; Migration Patterns in Idaho from 1995 to 2005: Spatiotemporal Analysis

Idaho has been experiencing a significant population increase within the last fifteen years; growing at roughly twice the rate of the United States as a whole. This increase is the most pronounced in fast growing urban areas (such as Boise and Coeur d'Alene). What are the major driving forces behind this period of extended growth? Do migrants from outside Idaho have different destination preferences than intra-state migrants? In the paper, we present a spatial predictive model of migration from 1995 to 2005. The model is original as it uses IRS statistics of income data at the county level, along with various socio-economic data sets such as median house sale value and unemployment rate as well as data on natural amenities (such as National Forests and ski areas).

Keywords: Spatial Migration, Temporal Variation, Multiple Regression, Spatial Regression, Causal Attracting and Departing Factors., Amenities and Migration

Holly R Barcus, Macalester College. Email: barcus@macalester.edu; Migration Decision-Making, Culture, and Trans-National Identities: A Case Study of the Mongolian Kazakh Diaspora

In the early 1990s almost 60,000 Mongolian-Kazakhs migrated from Mongolia to Kazakhstan. The opening of borders and relocation programs to attract the diasporic Kazakh community back to Kazakhstan seemed viable reasons for this migration. However, nearly one-third of the migrants returned to Mongolia within five years despite the depressed economic conditions and isolated location of this region. This paper 1) explores the motivations and consequences of international migration for Mongolian-Kazakhs, focusing specifically on the decision to migrate and the importance of cultural and social factors in this decision; 2) examines the use and importance of social networks in facilitating the initial migration event and in its success or failure. Data was collected via semi-structured interviews with return and non-migrants in Hovd and Bayan-Ulgii aimags in Mongolia during the summer of 2006. Preliminary findings suggest the emergence of several migration strategies and a distinctive mover-stayer profile.

Keywords: Kazakh, Mongolia, Migration

Christopher S Barkan, M.A. student, University of Illinois at Chicago. Email: cbarka2@uic.edu; Foucault, Agamben and Violence

Neither Foucault nor Agamben place violence explicitly at the center of their paradigms of thought. To be sure, what we commonly think of as violence is featured so prominently in Foucault's *Discipline and Punish* and Agamben's *Homo Sacer* that one might be incredulous at this claim. But, as it will be shown, these texts, along with *The History of Sexuality*, in which "biopolitics" first appears and through which these two influential theorists are directly linked, actually do not successfully articulate a definition of violence and may not,

devoid of such a definition, situate it in the right relationship with or sufficiently close to the inaugural tropes? power for Foucault and sovereignty for Agamben? that most powerfully motivate and guide their thought. Hence we can surmise at this point that it is unlikely that the problem of violence? violence qua violence? could ever be brought to light, adjudicated and "solved" within the framework and, therefore, the lexicon of their systems of thought, unless, by chance, violence qua violence actually turns out to be synonymous with the terms of their discourses.

Keywords: Michel Foucault, Giorgio Agamben, biopolitics, camp, prison, violence

David Barker. Email: david.barker@uwimona.edu.jm; Clinton Beckford, Faculty of Education, University of Windsor, Canada. Email: clinton@uwindsor.ca; Agricultural Intensification in Jamaican small-scale farming systems: vulnerability, sustainability and global change.

The paper contrasts two regions of intensive small-scale farming in Jamaica, a fruit and vegetable area in southern St Elizabeth and a yam growing region in southern Trelawny. The former is the island's principal domestic food supply area while the latter is Jamaica's main yam export region. Yet, the relative success of these regions may have come at the price of increased vulnerability in the face of global change. The regions are located in different topographical and environmental settings and both farming systems represent successful adaptations by small farmers to local conditions. In one case, Guinea Grass mulch is used to compensate for low rainfall while, in the other case, sticks from local woodlands and forests are used to stake yam hills. The intensification and commercialization of production over the last 30 years has created local scarcities of farm inputs (mulch and yam sticks) which has led to higher production costs. The paper explores the dimensions of sustainability and vulnerability in these locally important food producing regions, in the context of local natural resources, the effects of trade liberalization and food imports, and the recent hurricane and drought impacts in Jamaica.

Keywords: Small farming, vulnerability, agricultural intensification, Jamaica

Jeffrey Barnes, MA Geography Student, Carleton University. Email: jbarnes3@connect.carleton.ca; Functional in situ conservation of cacao

There has been a renewed focus on the in situ conservation of agricultural systems and specific crops in agro-biodiversity research and its applications. This paper illuminates some fundamental barriers to in situ crop conservation among indigenous groups through a discussion of the difficulties encountered by the Kuna, a Central American indigenous community, in their attempts to revitalize production of *Theobroma cacao*. Regional variations in the success of cacao cultivation have led to concerns about the loss of related ethnobotanical knowledge among Kuna elders and civil society in San Blas, Panama. My research took place in 2005 as part of a larger project aimed at revitalizing the local production of cacao in light of decreasing cacao yields. The revitalization project overemphasized technical knowledge at the expense of ethnobotanical knowledge, causing cacao cultivators to become disinterested in the project. Although, cultivators gained an intimate technical knowledge of how to successfully grow cacao, they had little understanding of why one would continue its cultivation. Based on participant observation and in-depth interviews with shamans and elders, I found that this plant plays a significant role in cultural reproduction among the Kuna. When ethnobotanical research was shared with local cultivators, they expressed a sense of regret at not having consulted with local traditional authorities in concert with international technical expertise. In situ agrobiodiversity conservation projects tend to focus on technical methods of maintaining diversity, and could improve by paying more attention to cultural resources already present within communities, which have shaped current agrobiodiversity since time-immemorial.

Keywords: Agro-biodiversity, indigenous knowledge, cacao, cocoa, culture, ethnobotany, Kuna, San Blas, Ukupseni, plant, neo-tropical, Panama, siagua, Central America, crop

Jessica R Barnes, Undergraduate, University of Wisconsin-Platteville. Email: barnesj@uwplatt.edu; Constraints on Mobility: Gendered Perceptions of Fear and in Oz Park, Chicago

Understanding people's perceptions of fear in public spaces is an important consideration for the creation and maintenance of public spaces that offer equal access and mobility for all. Examining how people move through these spaces can expose the societal cues that differentially impact people. This research project examines spatial perceptions of fear in urban public spaces for different genders. Specifically, are women's patterns of travel after dark effected by a perceived threat of violent crime and what about a place makes it threatening? To address these problems, I conducted research and analysis on people's perceptions of the threat to their safety in urban streets and park spaces during the day and at night, and how people traverse those spaces. One hundred ninety surveys were completed by daytime users of Oz Park in Chicago, obtaining

information on demographics, travel patterns, and perceptions of threat. Simple descriptive statistics were used to examine responses and reveal general behavior patterns. Women perceive a higher level of threat that is more spatially generalized and men perceive a lower level of threat that is more locationally specific. In addition, the respondents gave suggestions for improving the safety of public spaces. These suggestions may be used to facilitate greater equality in mobility through both the design of public spaces and by providing information for people to make informed critiques of their safety in the public spaces.

Keywords: mobility, gender, public space, safety, fear, women, feminist geography

Trevor J. Barnes, University Of British Columbia. Email: tbarnes@geog.ubc.ca; *The discipline that came in from the cold: how the US military-industrial complex changed geography*

WWII marked an epochal change in the relation of geographers to war and the military. The military had long utilised the skills of geographers, but from WWII the relation changed at least in the United States, and the military began less drawing upon existing geographical knowledge then directing a new kind that was increasingly formal, instrumental, team-based, and model driven. This trend continued even more strongly through the Cold War period, and further propelled by the interests of a new, collective assemblage, the military-industrial complex. The purposes of the paper are to examine the process by which geography within the United States became enfolded within this cyborg entity, and the character of the disciplinary knowledge regime that eventuated. The argument is pursued by following three individuals key to the new disciplinary regime through their travels within the military industrial complex: Waldo Tobler a pioneer of GIS whose first job is at RAND working on SAGE, the project to develop an early warning system for nuclear attack; Edward Ullman who is recruited into military intelligence during the Second World War, and maintains contacts afterwards first as a professor of geography at Harvard and later at the University of Washington; and Arthur Strahler, a geologist at Columbia University, who through his links to the US Office of Naval Research, funds and directs a set of students who later enter physical geography utterly transforming it to meet the dictates of the new regime.

Keywords: US military-industrial complex, geography

Ashley J. Barnett, University of Nebraska-Lincoln. Email: ashleybarnett@juno.com; *Nationalism and Archaeology in Israel*

The archaeological community now widely acknowledges that archaeology has been used in many ways and by many states and political organizations to influence public opinion. Since the formation of the State of Israel in 1948, Israel has had to continually reinforce its right to exist. This paper explores the manners in which the State of Israel has employed archaeology to support the state's *raison d'être* by investigating the designation of archaeological sites as Jewish. The paper analyzes and explores the artifacts, iconography, and other sources which are considered evidence of past Jewish populations; it also introduces various alternative interpretations of these artifacts. The author offers a statistical analysis of sites considered to have had Jewish populations, as well as a statistical comparison of sites in the Occupied Territories and the State of Israel proper. The results suggest there may be reason to debate the authenticity number of Israeli archaeological sites regarded as 'Jewish.'

Keywords: archaeology, Israel, Jewish, nationalism, Zionism

Elizabeth Barnett, PhD, MSPH, University of South Florida. Email: ebarnett@health.usf.edu; *Economic exclusion, uneven development, and disability among African Americans*

This study is grounded in theories of uneven development (from the critical geography literature), social environmental impacts on health (from the social epidemiology literature), and economic exclusion (from the sociology and political economy literature). The marriage of disparate disciplinary perspectives creates the possibility of a new paradigm to understand the pervasive health disadvantages experienced by blacks in the United States. This new paradigm views poverty, low educational attainment, and residential segregation as derivative - i.e. as consequences, not causes ? of more fundamental economic forces. The main hypothesis of this study was that health outcomes among African Americans would be more adverse in geographic areas characterized by economic underdevelopment and the exclusion of blacks from occupational opportunities. Using detailed race-specific socioeconomic, family, and housing data from the Public Use Microdata Sample of the Census of Population and Housing, I examined prevalence of disability among African Americans as a consequence of economic exclusion (measured by black male unemployment and occupational segregation between blacks and whites), and uneven economic development (measured by manufacturing employment; finance, insurance, and real estate employment; new housing units; and black in-migration). Results showed a strong association of disability prevalence with all measures of

economic exclusion and uneven development. Mainstream explanations of African American health experiences often invoke "poverty" and "low socioeconomic status" as causes. The results of this study contribute to a provocative re-framing of health policy debates about the causes and potential remedies of persistent racial health disparities in the United States.

Keywords: African Americans, health, disability, unemployment, uneven development, segregation

Keith D Barney, Ph.D. Candidate, York University. Email: kbarney@yorku.ca; *Laos and the Making of a Resource Frontier*

With the greatest extent of intact forest cover in mainland Southeast Asia, post-socialist Laos is a last 'resource frontier' in Asia. Laos is a frontier of tropical timber harvesting, of sustainable village forestry co-management, of 'unused degraded forest-land' for tree plantations, and a frontier for forest conservation, eco-tourism and endangered species preservation. While realising that nature and people in upland Laos have long been integrated into global commodity relations, this paper will develop the usefulness of considering certain upland spaces of Laos through the metaphor of the resource frontier. Recent extensions of international resource capital and donor/state led territorializing processes in contemporary Laos are producing a complex and overlapping spatial patchwork: closely mapped spaces of co-managed protected areas and certified-sustainable village forestry are situated next to zones of rapacious state-sanctioned, over-quota logging. These places in turn are not far removed from surveyed land reform zones, creating 'degraded forest' which is cleared for industrial plantations of eucalyptus, rubber and oil palm. It will be argued in this paper that the complexity of social-natural landscapes emerging in contemporary Laos should be considered less as functionally distinct issues, places, socio-natures and events, but rather as contradictory expressions of a networked, resource frontier, which is producing a range of new global commodities. The creation of a resource frontier in spaces in Laos reflects regional forces of uneven development, and is constitutive of a partial, tenuous neo-liberalism in Southeast Asia.

Keywords: frontier, resources, territory, Laos, neoliberalism

Shaunna Barnhart, The Pennsylvania State University. Email: slb442@psu.edu; *"We're the crap capital of the country": A political ecology of biosolids fertilizer in Franklin County, Pennsylvania*

Sewage sludge is the solid waste produced from the treatment of commercial, industrial, and municipal wastewater; when applied to land for beneficial purposes, it is often called biosolids. The land application of this substance is an intensely debated issue with supporters arguing that applying biosolids to land is a sound recycling practice with environmental and financial benefits, while opponents argue that it is detrimental to both human and environmental health. This research explores the contentious nature surrounding the use of sewage sludge fertilizer in Franklin County, Pennsylvania. It traces how corporate controlled sewage sludge land application has become an issue for local control and democratic expression. Specifically, this research seeks to answer how local citizens and local government at the township level respond to and attempt to shape local and state level policy regarding sewage sludge (biosolids) application as a farmland fertilizer. A political ecology approach is used as its emphasis on the role of knowledge, discourse, and politics of scale provides a rich research perspective in understanding the contentious use of biosolids fertilizer. Interviews, primary documents, meeting records, newspaper articles, and secondary studies are employed in exploring the politics and discourses surrounding biosolids fertilizers.

Keywords: political ecology, biosolids, sewage sludge, Pennsylvania

Robert Barr, The University of Manchester. Email: robert.barr@manchester.ac.uk; *Seeing nothing from nowhere - Google Earth and the illusion of information*

Google Earth has transformed the lay person's view of geographic information by providing high resolution (or, more accurately, variable resolution imagery) of the entire earth's surface. It also offers the facility to overlay points, lines and areas as well as simple, or rendered, three dimensional objects on the surface of the image. However, apart from some street mapping, points of interest (often linked to Google advertising) and some boundaries and infrastructure, the image remains just that, an image. This view of the Earth, as a picture on which other primitive spatial objects can be superimposed harks back to the age of conventional cartography and the period when the store of geographic information contained in published maps was being digitised. Yet the world is moving on from this cartocentric view. The Alexandria project to create a spatially referenced digital library introduced the concept of the geographic information bearing object (GIBO), a spatial object characterised not only by its geometric form, but also by its place in an ontology which in turn determines the attributes that that type of object may have. This paper will explore the inherent

conflict between a cartographic and an information object based view of the world.

Keywords: geographic information, cartography, Google

Linda R. Barrett, University of Akron. Email: barrett@uakron.edu; *Tracing Spatial Patterns of Forest Cover in Northeastern Ohio Across Two Centuries, 1800 - 2000*

In broad outline, the history of forest cover in the state of Ohio is well known. What was essentially unbroken forest cover when first encountered by Euro-American settlers in the early 1800s soon became cleared farm fields, with a peak in cleared land within a century of the first settlers' arrival. Through the twentieth century, forest cover in some parts of the state has steadily rebounded. Previous studies have suggested that by 1850, the earliest date for which county-level summary statistics were published, Summit County in northeastern Ohio was among the most heavily deforested counties in the state, with less than 20% of the county remaining forested at the time. The objective of this study was to trace the detailed spatial patterns of the change from forest to farm field and beyond in two townships of Summit County. Nineteenth century records, including plat maps, tax records, and the manuscript censuses of population and of agriculture, as well as twentieth century forest survey maps and historical aerial photographs, were used to reconstruct the spatial patterns of deforestation and reforestation with as much spatial detail as possible. The results are helpful in interpreting the county-level summary statistics on which much of our previous information about the historical spatial patterns of forest cover in the state have been based.

Keywords: Ohio-northeastern, historical ecology, deforestation

Kenneth A. Barrick, Associate Professor, University of Alaska Fairbanks. Email: ffkab@uaf.edu; *Resurrecting New Zealand's Extinct Geysers: Environmental Management and the Use of Historic Photographs*

Geysers are exceptionally rare natural phenomena that represent increasingly important amenity, recreation, scientific, and economic assets. Geyser basins harbor many interesting hydrothermal features, including hot springs, mud pots and fumaroles. The sustainability of all geyser basins depends on a rather delicate balance of geologic conditions, which are easily impacted by development activities. The irreversible decline and extinction of about 100 geysers on the North Island of New Zealand from various forms of energy development offers important lessons for the environmental management of the world's remaining geyser basins. The continued viability of the world's remaining geysers requires proactive preservation regulations that prevent consumption of geothermal water or heat within the area supplying the geyser basin. Effective new regulations are dependent upon wide public support. The communication of historic photographs of New Zealand's long extinct geysers provides a potentially important mechanism to educate the public about what was lost when geysers were extinguished due to past development activities. The purpose of this paper is to summarize ongoing efforts to raise scientific and public awareness of the potential for environmental impacts in geyser basins using an internet based site, including case studies and historic photographs.

Keywords: environmental management, geyser, geothermal energy

Almar Barry, Dr., University College Dublin. Email: almar.barry@ucd.ie; *Drama And Geography: An Active Learning Approach In Small And Large Group Teaching*

Active learning encourages students to become independent, critical and autonomous thinkers which is necessary for an effective labour force in the modern knowledge economy. However, despite its perceived benefits, active learning remains an elusive notion in higher education. To date, there has been no empirical research completed assessing how active learning using Drama in Education enhances the learning experience for students. Furthermore, there is a perceived myth in universities that active learning using Drama in Education is difficult to achieve in a large group teaching context. The purpose of this paper is to analyse the reactions of students to active learning using Drama in Education in the teaching of economic geography in a large group teaching context. The analysis is based on results from questionnaires and interviews with 150 Third Year Geography students in UCD (2005-2006) and focuses, in particular, on their perceptions of active learning using a Drama in Education approach before and after it has been implemented in class. The intention of this research was to mine these students' perspectives on active learning as a method of teaching and learning using a Drama in Education approach. In doing so, this paper provides lecturers with a practical guide on how to effectively implement active learning in a large group teaching context using DIE. While the focus of this research was on teaching methodology in geography specifically, the findings reported also have wider application for teaching and learning in other disciplines across the university sector.

Keywords: Geography and education, active learning, Drama in Education, Large Group Teaching

James A. Barsimantov, University of California, Santa Cruz. Email: barjs@gmail.com; *Who Governs Mexico's Pine-Oak Forests? Nested Institutions and Forest Cover Change in Common Property Forestry*

Forest loss and rural poverty remain persistent in developing countries. Community forestry offers the potential for creating socioeconomic benefits while maintaining ecosystem services. Mexico has extensive experience with communal landholdings and community forestry, offering a unique opportunity to analyze the importance of nested institutions in creating effective forestry programs. I focus on the interaction between three levels of influence: community governance, external government and non-governmental actors, and markets for crops that compete with natural forest cover. I compared 12 communities with varying strengths of internal governance in the states of Oaxaca and Michoacan. In these states (a) effects of the changes in Article 27 of the Mexican Constitution on forests and land tenure have been dramatically different, (b) increased avocado production following changes in international trade agreements has caused widespread land use change in Michoacan but not in Oaxaca, and (c) internationally certified forestry programs in Oaxaca contrast sharply with a corrupt forestry establishment and widespread illegal logging in Michoacan. In each community, I conducted a land use change analysis, surveys in a 25% random sample of households, and interviews with community members and external actors. Results show that strong community governance does reduce land use change in regions where pressure to convert to avocado production exists. In weaker communities, reforms that opened the Mexican economy in the early 1990's resulted in a chain reaction of fractured ejido governance structures, illegal logging, land sales, and eventual land use change. The importance of government support of common property tenure is highlighted.

Keywords: community forestry, common property, mexico, land use change

Patrick J. Bartlein, University of Oregon. Email: bartlein@uoregon.edu; *Detection and attribution of cycles in paleoclimatic time series*

Many paleoclimatic time series exhibit variations that appear at first glance to be cyclic, quasi-periodic, or oscillatory in nature. For example, in Holocene records, a 1500-year "Bond cycle" has often been detected, and has been used to explain a number of things, including why, despite all evidence to the contrary, 20th century warming is not anthropogenic in origin. Once detected, cycles in time series naturally point toward explanations that could produce such variations, for example, via the propagation through the climate system of fundamental cycles in an external control of the climate system, usually the sun. However, identification of cycles in a paleoclimatic time series, followed by their attribution to some kind of external mechanism, in effect makes it unnecessary to further consider the large class of alternative explanations for quasi-periodic variations in climate (or in the environmental systems that produce paleoclimatic records) that arise from the nature of the system itself. In essence, once cycles are detected, thinking stops. Because cyclic-appearing or quasi-periodic behavior in time series can arise from sources that are not intrinsically cyclic (such as steps in data analytical procedures, or from processes that exhibit short- or long-term memory), and because it is natural to seek order when viewing highly variable time series, very stringent criteria for declaring the presence of cycles in paleoclimatic time series should be applied.

Keywords: paleoclimatology, climate system

Catherine E Bartoli, Information Technology and Society Research Group. Email: cbartoli@temple.edu; *Neighborhood Food Systems: Urban Issues and Implications*

Food security is defined as "access by all people at all times to enough food for an active, healthy life". This includes the ability to attain "nutritionally adequate, safe and acceptable foods in socially acceptable ways". This paper explores the significance of food access and security for Philadelphia families. It focuses on neighborhood food systems and looks deeper into community knowledge and potential barriers to obtaining healthy, quality foods. Philadelphia, reporting the second lowest number of grocery stores per capita of any U.S. city, must continue to seek alternative solutions to this issue. This paper looks at multiple facets of the current system and sheds light on possibilities for filling access gaps. Individuals tend to have ready access to unhealthy, unsustainable food options as opposed to high quality alternatives. Barriers to healthy food access are better understood through survey implementation among families throughout Philadelphia.

Keywords: Food Security, Food Systems, Access

James H Barton, Professor, Thiel College. Email: jbarton@thiel.edu; *Measuring the Impact of Small Businesses on Employment Structure Using Locally Produced Business and Industrial Directories: The Case of Mercer County, Pennsylvania*

Since the dramatic decline of large industrial employers in Western Pennsylvania in the 1980s, local economic development professionals have been

particularly interested in the contribution of small firms to the economy of the region. Though publicly accessible data is available through governmental sources, its suitability for analyzing the growth of small firms and particularly the emergence of new firms is limited. However, locally produced industrial directories, generally updated on an annual or semiannual basis, have proved to be a valuable adjunct to government publications in identifying the emergence, size changes, and geographic location of specific firms and groups of firms over time. This presentation illustrates the use of local industrial directory data in Mercer County, Pennsylvania, as a means of tracking and analyzing the contribution of small firms to the changing economic geography of the area over a period of two decades.

Keywords: Employment, Industrial Development

Thomas Barton, Royal Holloway, University of London. Email: t.barton@rhul.ac.uk; *Music, memory, place and the reproduction of the nation - a discussion of John Adams' On the Transmigration of Souls*

In this paper, I consider the role of music and its relationship to a place of memory in the reproduction of the nation. I build upon the debates within geography in which the reproduction of the nation is explored and explained through a nation's relationship to the past - through the creation of a 'national memory' - and how such a relationship is articulated and contested in and through place. I argue that as part of this historically-oriented enquiry into the process of place-making and national identity formation music needs to be considered. First, due to its distinctive ability to critically and affectively represent the places and events of a nation's past, I suggest that music can significantly reinterpret the understanding of a designated place of national memory, and thus intervene in the reproduction of the nation. Second, it is often through its performance that music is able to reach a national audience, and I explore the impact of such a performance on a (place of) national memory. The paper centres on one particular place of national memory? Ground Zero in New York? to consider the role that one particular piece of music? John Adams' *On the Transmigration of Souls*? and its first performance plays in the wider creation of a national memory of the events of September 11th 2001, and how such a memory is implicated in the reproduction the nation.

Keywords: music, memory, place, the nation

Ann E. Bartos, University of Washington. Email: abartos@u.washington.edu; *"Future generations" and place-based environmental education*

Despite the fact that young people are a "future generation," few studies are conducted with young people to understand the tensions between the futures adults strive to promote and protect and the futures children envision and create. One way to understand these tensions is through ethnographic research of place-based environmental education programs. As field sites, these programs provide perspective into some of the structural influences shaping children's environmental concerns. Ethnographic research will help explore how children use and adapt the experiences and knowledges gained through environmental education programs into their everyday engagements with their peers, community and broader environment. These structural influences and children's everyday engagements contribute to how children imagine a future for themselves. Longitudinal ethnographic techniques will help unpack how these visions change over time and the implications these visions have for the development of environmentally driven political subjectivities. In this paper, I review the literature on place-based environmental education programs and propose a methodology to unpack the tensions between young people's and their educators' visions of the future. Researching with young people engaged in these programs contributes to understanding how young people come to know, relate to, and (re)present their current landscapes. By examining the ways younger generations interpret, contest, and rework visions of the future taught in their environmental education programs we will better understand the role today's imaginaries of the future play in creating the landscapes of tomorrow.

Keywords: youth; environmental education; environmental knowledges, children's knowledges, ethnography

Japji Anna Bas, MA, York University. Email: japji@yorku.ca; *Participatory Food Costing as a Redesign strategy*

Despite both sufficient foodstuffs to feed the planets existing population and commitments from 187 UN member nations to reduce hunger, hunger remains a growing problem. In fact, as a result of the erosion of the social welfare state, hunger is a growing problem in affluent nations like Canada and the U.S. To date, survival strategies like food banks and community kitchens have dominated efforts at increasing food security. While these approaches do provide essential services, they fail to address the structural causes of food insecurity. By contrast, redesign strategies seek to address underlying issues of inequality. An example of such a strategy is found in the Nova Scotia Food Security Projects' (NSFSP) Participatory Food Costing (PFC) initiative begun in 2000. In this initiative,

participants who experience food insecurity engaged in an empowering food costing project, the results of which have already led to an increase in the food allowance for recipients of social assistance in Nova Scotia. The NSFSP is currently working towards other policy changes, such as an increase in Nova Scotia's minimum wage. The NSFSP demonstrates that grassroots initiatives can engender policy changes which positively impact food security on a structural level.

Keywords: food security, food policy, equity, empowerment

Begum Basdas, University of California, Los Angeles UCLA. Email: bbasdas@ucla.edu; *Participatory research methods and dilemmas in writing up activism*

My paper has two voices that emphasize the negotiations about being both a committed happy queer activist in Istanbul and a graduate student who wants to graduate in LA. I did an ethnographic research in Istanbul for my dissertation with women from different activist groups such as Amargi grassroots feminist organization, Istanbul Women's Platform, and LambdaIstanbul LGBTTT solidarity association - where I still continue to volunteer. My research included methods such as participant observation, interviews, and focus groups with participatory and action-oriented techniques however; my main access to field information was my active participation in these organizations as a queer woman activist. Majority of the work I do in LambdaIstanbul has no relevance to my dissertation research. Thus, the arguments and problems that are to be discussed in my dissertation have become a collaborative project between the issues I am particularly curious about and the experiences of women that have shared their everyday activism and urban life with me since 2004. This paper will then discuss my empirical work on the different processes of my participatory research and examine the dilemmas I confront when I decide to go back to LA and write up different chapters of my dissertation away from both the field and the experiences of the women I worked with.

Keywords: Activism, sexuality, queer, women, Istanbul, Turkey, qualitative methods

Fozia Bashir, California State University Northridge. Email: foziabashir2002@yahoo.com; *Forecasting Impacts of Urban Development on Natural Habitats of Merced County*

Urbanization is one of the largest-scale, most pervasive, and inevitable ecological processes on Earth. As a result of Urbanization almost all major cities are increasingly plagued by environmental problems. Habitat loss and subsequent fragmentation due to urban development are part of larger suite of anthropogenic impacts on biodiversity, but they now rank among the principal causes of species endangerment in the United States. The steady advance of ecological theory and increased interest in environmental conservation coupled with the advent of GIS and the increasing availability of data has promoted the development of many models which characterize the form and quality of ecological resources. This project will utilize the UPLAN (Urban Planning) model with a series of GIS data layers to explore the likely impacts of different land development scenarios on the natural lands of the Merced County in the future. Each developmental model incorporated different constraints on development and the extent to which the natural habitat was affected. Out of the three scenarios two offered a varying degree of protection to the environmentally sensitive land. While one scenario allowed no constraints on development. The three resulting UPLAN development maps generated as a result of three different scenarios were intersected with the habitat layer from Gap data. The areas of overlap were quantified to compare the affect of each scenario on various habitats. Under the three different policy scenarios the most extreme example of development will be observed if all the land is open for residential and commercial development.

Keywords: UPLAN, Projected Urban Development, Geographic Information System, Habitat loss.

Robert Baskin, U.S. Geological Survey / University of Utah. Email: rbaskin@usgs.gov; *Mapping benthic substrates using single beam and side-scan sonar in Great Salt Lake, Utah*

The U.S. Geological Survey, in cooperation with the State of Utah, collected bathymetric data for Great Salt Lake during 2002-06 using a high-definition fathometer and real-time differential global positioning system. About 12.8 million depth measurements were collected along more than 2,728 kilometers of transects. Byproducts of the bathymetric investigations include detailed analog and digital acoustic records of the benthic zone through most of Great Salt Lake. These data show a wide variation in the acoustic characteristics of the bottom materials and are inferred to indicate varying benthic substrates throughout the lake. Direct observation of benthic substrates and environments throughout the lake show the existence of microbial mats, fine muds, oolitic sands, tufas, cemented "hard grounds," and domal/columnal stromatolitic forms. Successful use of a 1,200 kHz high-frequency side-scan sonar in Great Salt Lake demonstrates that the use of side-scan sonar in defining the surficial characteristics of

benthic environments is possible even in highly variable hypersaline waters. The use of side-scan or multi-beam technologies in waters of varying salinity, such as the waters of Great Salt Lake, must include corrections for ranging errors due to variations in acoustic velocities. By combining data available from the bathymetric surveys, correcting for variations in sound velocities, and using side-scan sonar images of the benthic zone of the lake as ground-truth, accurate benthic substrate maps can be constructed. These maps could provide a quantitative benchmark for tracking future changes due to either natural or human disturbances and can provide accurate substrate maps for use in other investigations.

Keywords: Great Salt Lake, Bathymetry, sonar, mapping

William M. Bass, Houston-Galveston Area Council. Email: william.bass@h-gac.com; *Using GIS to Integrate Environmental Analysis into Regional Transportation and Land Use Planning*

Protection and enhancement of the environment is a major provision of the 2005 federal transportation legislation known as SAFETEA-LU (Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users). Furthermore, the need for environmentally responsible growth and development was affirmed by the people of the eight-county Houston metro region during the 2005 Envision Houston workshops, where citizens developed a collective vision of the region's future. The 2035 Regional Transportation Plan, developed by the Houston-Galveston Area Council (Houston's MPO), includes for the first time an analysis of environmental resources facing the greatest risk from both natural hazards and development. The project utilized a charrette (Delphi) approach in conjunction with land use data to identifying ecological systems most at risk from development, species habitat degradation, and fragmentation. The result of the analysis was an "Areas of Concern" layer which includes area most valuable from an ecological perspective. This layer was then augmented with the environmental resources information to produce an Undeveloped Environmental Resources geographic information system, which can be used to examine alternative planning scenarios, policy initiatives, and transportation investments. This information system is intended to facilitate detailed analysis of environmental aspects of long-range planning in the Houston metro region.

Keywords: houston, texas, environmental analysis, planning, gis, land use, environmental geography, safetela-lu

Thomas J. Bassett, University of Illinois, Urbana-Champaign. Email: bassett@uiuc.edu; *Locating Hunger: The Hunger Vulnerability Index*

The first goal of the United Nations' Millennium Development Goals is to cut hunger in half by 2015. Yet our knowledge of where the hungry are located is inadequate. Conventional indicators such as national food supply or underweight children underestimate the incidence of hunger and are subject to measurement errors. This paper presents an alternative indicator of hunger that combines food availability, household access, and nutritional outcomes. This composite index provides a summary measure of hunger vulnerability while diminishing the effect of measurement errors in each element of the index. The appeal of using this indicator is that it can provide a summary impression of the hunger situation, which is not always reflected in the individual measures. This composite index is also useful for identifying a problem. Understanding the problem can begin with examination of the components of the index, but must also include consideration of the many causal factors generating hunger. In contrast to the FAO measure of undernourishment, this index does not purport to measure the number of hungry people. It can, however, indicate how the hunger problem differs across countries and how it is changing over time.

Keywords: hunger vulnerability, hunger indicators, food security

Ludger Basten, Ruhr-University Bochum, Department of Geography. Email: ludger.basten@rub.de; *Between Time and Place: Ups and Downs in Potsdam*

While academic and political debates and theories of urban development have long held an inherent bias towards perspectives of growth rather than decline, in particular in North America, Germany has recently experienced a rather dramatic change in societal, political and academic discourse on urban development. Journalists and politicians alike have painted horror scenarios of urban decline in vivid colours, referring to a growing literature of empirical research by academics and planners for whom "shrinking cities" have become the latest topical theme. The speed and intensity with which the topic has taken centre stage is astounding, but while empirical research on the processes and management of decline continues, reflections of the theoretical bases for and implications of empirical research remain somewhat scarce. Thus, this paper first sets out some theoretical reflections before turning to empirical analyses of developments in the formerly East German city of Potsdam. On the theoretical level, the interconnectedness of discourse and "realities" is being discussed, showing the need for a more systematic conceptualization of the temporal and spatial scales of empirical inquiry. This is illustrated by focussing on the fate of

Potsdam's large-scale housing projects since unification, drawing on municipal documents, statistical and interview data. A spatially and temporally differentiated pattern of ups and downs emerges, which is interconnected with perceptions and discourses at other spatial and temporal scales. This reveals how complex and selective processes of growth and decline are, not least requiring highly varied policy approaches.

Keywords: Growth and Decline of Cities, Shrinking Cities, Urban Theory, Germany, Housing

Pratyusha Basu, University of South Florida, Tampa. Email: pbasu@cas.usf.edu; *Information Technologies and Agricultural Livelihoods: The Role of Cybercenters in Rural India*

While new information and communication technologies (ICTs) are increasingly being promoted in the rural Third World as crucial to better governance and more timely market information, the role of rural participants in shaping the initial entry and subsequent presence of these new technologies has yet to be considered. This paper focuses on two internationally celebrated ICT programs in central India: 'Gyandoot,' initiated by a local government agency, and 'E-choupal,' established by the agricultural trading division of a prominent private sector company. Both programs work through the setting up of village cybercenters operated by individual entrepreneurs. The aim of this paper is to compare cybercenters established by these two programs in order to situate individual experiences of the work of cybercenters within wider neo-liberal policies which are currently transforming agricultural livelihoods in India. In the process, the paper will examine questions related to the policies of the two programs and the nature of their reception in rural contexts. Thus, it will consider whether ICT initiatives adopt similar strategies in their promotion of cybercenters, and whether the persuasiveness of these strategies are evaluated by rural cybercenter owners on the basis of the institutional framework from which they emanate. More broadly, it will reflect on the extent to which cybercenters provide a way for small-scale farmers to remain competitive in the global economy, or serve instead to more efficiently direct rural resources towards multinational agricultural interests.

Keywords: information technology, rural geography, India

Ranu Basu, York University. Email: ranubasu@yorku.ca; *Phronesis through GIS: Exploring Political Spaces of Education*

Distilling the different ways that neoliberal regimes have impacted the governance of public policy and planning is as much a political maneuvering exercise as it is a scholarly endeavour. The process of empirical research that attempts to uncover such impacts is from the very beginning fraught with numerous problems - sifting through rhetorical ambiguities, dealing with agenda-makers and data gate-keepers, and navigating through complex bureaucratic layers of regulations - all in a concerted effort to maintain and protect the interests of the rational state model. This frustration, though not uncommon in increasingly controlling and risk-adverse regimes, further necessitates that researchers draw upon an alternative repertoire of skills and understandings. Flyvbjerg's argument towards critical social science advocating a phronetic approach? an Aristotelian value laden concept highlighting the importance of 'practical wisdom, practical judgement, common sense and prudence'; balanced by Foucault's power-knowledge relations? provides a useful framework in navigating through these procedural hurdles. Reflecting on the process of research exploring various impacts of the neoliberalization of education in Ontario, this paper argues that using a hybrid form of phronesis - engaged in reflexive practices, hidden knowledge and unorthodox sources - combined with the contextual dimensionality of GIS, is useful to better understand the structural barriers in place and to develop a sensitivity to the political and ethical implications involved in exploring the conflicting spaces of education.

Keywords: gis, phronesis, power, governance, education

Jeremy Bateman, University of Memphis. Email: jbatenman@memphis.edu; Arleen A Hill, University of Memphis. Email: aahill@memphis.edu; Mitch M Withers, Center for Earthquake Research and Information. Email: mwithers@memphis.edu; *Communicating Ground Motion in Mid-America: ShakeMap Users Survey*

In Mid-America quantifying and communicating strong ground motion in real-time has its challenges. These challenges are arguably equaled by the challenge of disseminating information about that ground motion in real-time. The USGS ShakeMap product seeks to accomplish both tasks, simultaneously. This work investigates the use and understanding of the USGS product ShakeMap for the central United States. A survey of emergency management personnel, public information officers, engineers, and the general public was developed to identify cognition, perception and behavior of the users of ShakeMap. Multivariate statistical techniques were used to analyze survey responses and to compare variations of responses based on control variables and study audience. Data collected here provides a baseline of data on the information needs and uses for

specific ShakeMap consumers. Hazard cognition and map interpretation are explored in a preliminary sense.

Keywords: Hazard Communication, Perception, Behavior

Matt Batina, Department of Geography, Geology, and the Environment, Slippery Rock University of Pennsylvania. Email: matt.batina@gmail.com; Examining Changes in Demographics to aid Private Lands Planning in the Greater Yellowstone Ecosystem

As open space on private land in the Greater Yellowstone Ecosystem (GYE) continues to be developed it is important to examine the demographics of the GYE towns and rural communities within the region to plan for development accordingly. These demographics can serve as indicators of the type of population change that is expected in and around gateway communities, i.e. communities adjacent to public lands. This study compares changes in Cody, Wyoming's population, age groups, housing values and income levels from 2000 to 2004. Market-based incentives for managing growth and conserving open space are also examined to demonstrate options available to resort communities experiencing challenges accompanying growth.

Keywords: planning, yellowstone, demographics

Simon P J Batterbury, Dr, University of Melbourne. Email: simonpjb@unimelb.edu.au; The strange process of scholarly practice: towards engagement in political ecology

The paper forms part of a project with Leah Horowitz and several others (including Piers Blaikie, who is not attending) to understand how the divide between the production of "research, theory and explanations", the task of most academic geographers, and "advocacy, policymaking, and direct interventions" - generally the task of those working for organizations elsewhere than in universities - has arisen, and how it may be overcome. I argue, following several scholars with varied political views, that relevance and engagement matter hugely for scholars, and specifically for 'critical political ecology' of human-environment relationships. The frequent claim that teaching and research must form the bulk of a scholar's life, says little about direct relevance. Nor does it illuminate how so many scholars, many presenting in our sessions, come to have 'actually existing' relevant contributions to environmental work or policy. At a time when the world is hugely concerned about the environmental and social impacts of local and planetary change, critical and radical analyses of the links between economies, politics and environments work best when coupled to outreach and media work, policy, solution-building, and the presentation of alternatives. To do this does not imply technocratic managerialism, but rather, it follows through on the sentiments of political ecologists and radical scholars. I illustrate these points with my own and other's work from West Africa, the UK, and Asia-Pacific.

Keywords: political ecology, applied geography, geographical ethics, relevance, East Timor, Burkina Faso

Carl J Bauer, U. of Arizona. Email: cjbauer@email.arizona.edu; Rivers and Power in Chilean Patagonia

Large-scale hydroelectric power development is looming over Chilean Patagonia, the rainy, rugged, and remote land at the southern end of the Americas. Government and corporate plans for new dams have been driven by demands for energy. Other water uses and other values in water management, including environmental flows, have been secondary and advocates for them have been on the defensive. In this research I look at the relationship between Chilean electricity law and water law in governing hydropower, focusing on the different property rights to water that the two laws recognize. In Chile the laws and policies governing the electricity and water sectors share general free-market principles, but their specific structure and content are quite different, especially as they apply to water as a physical substance. The two sectors use water for different purposes and define property rights and duties in different and sometimes contradictory ways. Water's unique physical properties have always made it a slippery resource to control in legal, political, and economic terms. Electricity is a physical substance that is arguably even more peculiar than water. Hydropower, as the physical nexus between water and energy, presents thorny problems for water governance and sustainability.

Keywords: Chile, Patagonia, water, hydropower, property, governance, electricity

John T. Bauer, University of Nebraska at Kearney. Email: bauerjt@unk.edu; Stability and Change in United States Religious Regions, 1952 - 2000

Religious affiliation in the United States exhibits strong regional character, forming patterns that identify and characterize the societal context in which individual religious communities function. Building upon work of other geographers, this paper presents three religious regionalizations of the American population, one each for 1980, 1990, and 2000. It then compares them to the religious regions delineated by earlier geographers who used different methods and

criteria. The results show that religious adherents in the United States still exhibit the same basic regional patterns that they did in the 1950s. Individual regions, however, vary in their stability. Some, such as those of evangelical Protestants, have spatially stable borders that do not expand or contract. Contrary to popular media perceptions, evangelical Protestants are not "taking over" the country. Most of their growth has been internal within the region. In contrast, the Roman Catholic region has dynamic borders that are quickly expanding into new areas. This growth was most dramatic in the American West, mirroring similar growth among the Hispanic population. The 1980, 1990, and 2000 Religious Congregations and Membership Surveys compiled by the Glenmary Research Center provide my basic data. I improved on their inclusiveness by interpolating missing adherents including secular citizens, and thereby created the most complete religious adherence dataset yet assembled. A combination of hierarchical and k-means clustering was used to aggregate this dataset into regions.

Keywords: geography of religions; regions; United States

Whitney A Bauman, PhD Candidate, Graduate Theological Union. Email: whitneyabauman@mac.com; The Death of God and the Death of Nature: Religious Grounds for Earth-healing in an Era of Climate Change

Contemporary environmentalists and post-Nietzschean theologians have something in common: both have lost the foundational justification for their epistemological claims. Theologians since Nietzsche's famous declaration of "The Death of God" have been struggling to understand what the symbol "God" means in a world where a personal, transcendent omni-God no longer makes sense. These theologians who seriously engage the "Death of God" have become more serious about constructing theologies of earth-healing, rather than theologies that support human exceptionalism. They have earned the name "eco-theologians." I contend that environmentalists have a lot to learn from these theologians in an era where we can pronounce the "Death of Nature." Though environmental thinkers such as Bill McKibben and Carolyn Merchant have suggested that "nature" as "pure", "pristine", "wilderness" no longer (if it ever did) exists, the reality that the climate is changing makes their work prophetic and their arguments key to contemporary environmental discourse. "Nature" for many environmental activists and ethicists serves the same function as "God" for theologians prior to the "Death of God" theologies of the 19th and 20th centuries. What will it mean to work toward "saving nature" when nature is inevitably going to change? There are some post-foundational environmental ethicists and philosophers who are beginning to think in this direction such as Donna Haraway and Bruno Latour. In this brief presentation, I will bring them into dialogue with eco-theologians to address how popular environmental discourse might move beyond foundational claims of what is "natural."

Keywords: Religion and Ecology; Postfoundationalism; Environmental Ethics

Rupert Bäumler, Institute of Geography, University of Erlangen. Email: baeumler@geographie.uni-erlangen.de; Andic properties in non-volcanic materials - an accidental variety of soil formation?

An increasing number of soils are described having andic and spodic properties that have developed in non-volcanic materials, and lacking typical Spodosol eluvial and illuvial horizons. They cover different parent materials under different climatic regimes. They have been regarded as restricted to small areas and therefore as non-significant. They were assigned to Andisols/Andosols, Spodosols/Podzols, or andic Inceptisols in Soil Taxonomy and WRB. Soil research in Nepal and Bhutan showed that these soils are widespread at the southern slopes of the Himalayas between 2200-3500 m across different bioclimatic zones. Two sites were analysed in detail by pedogeochemical and mineralogical methods to give an overview about properties and processes of soil formation to enhance the discussion about their position in the world of soils. The results indicate advanced soil development, extremely low bulk densities, P retention >85%, and the dominance of Al-hydroxo-interlayered clay minerals. Column experiments indicate podzolisation by mobilisation of DOC, Fe and Al. Radiocarbon ages of 16 ka BP and NMR spectroscopy indicate re-stabilisation of translocated organic compounds throughout the solum. Sand fractions consist of microaggregates highly resistant to dispersion. EDX element mapping of microaggregates gave high contents of evenly distributed Fe. It indicates a stronger influence of Fe compounds as previously thought, pointing at "ferro-andic" properties. With respect to their worldwide occurrence and their physicochemical properties, it is suggested a re-definition or simplification of existing classification schemes. The apparently distinctive processes need to be further investigated probably indicating that these are different from Andisolisation and Podzolisation sensu stricto.

Keywords: Non-volcanic Andisols, Soil Geography, The Himalayas

Sybille Bauriedl, University of Hamburg. Email: bauriedl@geowiss.uni-hamburg.de; *Transformed Visions of the Waterfront: Rivers as Resource of Urban Management Strategies*

The waterfront has been identified by urban managers as important location factor for the new urbanites of the service society. The revitalization of de-industrialized cities goes along with a strategic re-production of the waterfront. My argument is, that especially huge rivers of metropolitan areas became an important resource of urban imagination and waterfronts became the most contested terrains of urban development. I will give several examples from Hamburg, Barcelona and London to discuss the discursive construction of waterfronts as historical scenery, as maritime scenery, as location of tradition and creativity and as location of permanent vitality. For this practice spatial metaphors of harbor narratives were used and materialized by a symbolic transformation of waterfront wharfs, docks, cranes, sailing ships etc. The recent shape, the functional meanings and the symbolic meanings of urban rivers and waterfronts are a result of the dominant growth discourse in Western metropolis. As an effect of this discourse we can recognize a process of an homogenization of the urban waterfront. And we can identify civil disorder against redevelopment of the urban waterfront, too. I will discuss these aspects with references to the recent debate on urban political ecology.

Keywords: waterfront development, urban management, urban political ecology

Brad A. Bays, Oklahoma State University. Email: b.bays@okstate.edu; *Patterns and Characteristics of U.S. Online Introductory Human Geography Courses*

Until geography instruction compares with history, math, and science in American elementary and secondary schools, the task of national geography education will continue to fall to a small band of instructors responsible for lower-division college courses. Such instructors are commonly graduate students and junior faculty with other priorities. Given the enormity of the task, the limitations of traditional instruction, and the uneven provision of offerings, distance learning (DL) should prove to be an ally in the war on geographic ignorance. This poster illustrates selected spatial patterns and curriculum characteristics of current online introductory-level human geography course offerings at accredited public institutions of higher education in the United States. The database was developed to assess the diffusion of DL introductory human geography instruction, to better understand the role of DL introductory human geography courses relative to face-to-face instruction, and to locate underserved markets for establishing new DL human geography courses. Individual course attributes related to instructional design (curriculum delivery methods, course management systems, student assessment tools), as well as attributes associated with institutional goals (markets, tuition, enrollment) are examined.

Keywords: geography education, distance learning

Lucas Mitchell Baker Baze, University of Oklahoma. Email: Lucas.M.Baze-1@ou.edu; *The Little Ice Age and the Spiro Mound Culture of Eastern Oklahoma*

In the early 1400's in the central plains there were many cultural changes and migrations for which we have no explanation. It is my hope to prove within this paper to what extent environmental causes were the driving forces for this upheaval. This change just before contact changed the cultural landscape of the plains until contact. The data consists of linguistic, archaeological, and paleoecology data used to determine to what extent the environment changed from the late 1300's to the early 1400's. This time period from the middle 1300's to the middle 1800's in Europe is called the medieval warm period and the little ice age, a time of climactic shifts that had lasting effects on cultures around the world. Though the effects are not constant across the whole planet, or the same, all regions of the planet were affected by this climactic shift. Little research however has been done however on this phenomenon's effects on the peoples of North and South America. There is some debate on whether or not this actually happened and to what extent this climate shift changed the environment. The effects of the little ice age were felt in North America and this can be shown by analysis of the archaeological and paleoenvironmental data.

Keywords: paleoclimate, archaeology

Kamanamaikalani Beamer, University of Hawai'i. Email: beamer@hawaii.edu; *Palena and Kalaiaina; Mapping the Traditional Owi State*

The Hawaiian Kingdom was recognized as an independent sovereign state as early as 1843 by the British and French governments. In order to achieve recognition the Hawaiian alii (chiefs) adapted to some forms of "Western" governance. This presentation will look into two traditional Hawaiian concepts, Palena and Kalaiaina, in order to understand what traditional thoughts may have been about ke aupuni (the state) and how this knowledge may have informed the creation of the modernization of the Hawaiian Kingdom. Through a look at

traditional Hawaiian ways of bounding and redistributing the land among chiefs, one can see something traditionally Hawaiian, as well as something that resembles the early formations of statecraft.

Keywords: Indigenous Mapping, Hawaii, Place, Boundary, Mental maps, Performance Mapping

Karen Beardsley, University of California, Davis. Email: kbeardsley@ucdavis.edu; Nathaniel E. Roth, University of California, Davis. Email: neroth@ucdavis.edu; James H. Thorne, Ph. D., University of California, Davis. Email: jhthorne@ucdavis.edu; Patrick R. Huber, University of California, Davis. Email: prhuber@ucdavis.edu; Michael C. McCoy, University of California, Davis. Email: mcmccoy@ucdavis.edu; *Environmental Impacts of Urban Growth in California's San Joaquin Valley*

In the next 40 years, the eight counties of the San Joaquin Valley are projected to more than double in population from 3.3 million to over 7 million residents. This projected growth creates a need for planners in the region to identify how to preserve its diminishing natural resources. In June 2005, California's Governor formed the California Partnership for the San Joaquin Valley with a goal of improving the economic well-being of the Valley and the quality of life of its residents. In October 2006, this Partnership released the San Joaquin Valley Strategic Action Proposal that provides recommendations for improving the economic conditions of the Valley. Unfortunately the recommendations fail to address population growth impacts on the region's biological resources. To assess the impacts of this projected growth, the Information Center for the Environment worked with the Partnership to develop seven potential build-out scenarios using UPlan, a GIS urban growth model. These scenarios include: 1. Status Quo (current growth patterns continue) 2. East/West Infrastructure Improvement (attract growth along East/West roads) 3. Compact Growth (within current spheres of influence) 4. Farmland Protection (no growth on prime farmlands) 5. I-5 to Highway99 Exclusion (no growth between these highways) 6. New Cities (create four new cities) 7. Great Cities (existing big cities grow larger). We used the output maps to assess impacts on natural resources by overlaying 20 biological data layers with the predicted growth footprints. Scenario 3 has the least impact on these resources, and Scenario 6 has the second smallest impact.

Keywords: Urban Growth, GIS, San Joaquin Valley, biological resources

Susan W. Beatty, University of Colorado. Email: susan.beatty@colorado.edu; *The Role of Fine-scale Heterogeneity in Maintaining Species Richness*

North-eastern deciduous forest communities are characterized by the occurrence of treefall gap disturbances. Treefalls disturb the soil, leaving persistent mound-pit microtopography for hundreds of years after the treefall event. Landuse management that obliterates this microtopography, such as clearing and plowing, provides a less heterogeneous soil surface for recolonization during forest regeneration. Comparisons were made between similar aged forests, but with different landuse histories and different degrees of fine-scale soil heterogeneity. In addition, forested sites with microtopography were monitored for species composition in microsites (mounds and pits) for 25 years. Forested sites without microtopography had a lower species richness and greater degree of dominance by a few species. Sites with a very high degree of microtopographic variation also had a lower species richness, than did sites with an intermediate degree of spatial heterogeneity. Sites that had been previously plowed, with a very homogeneous soil surface relief, had a similar species richness to intermediate heterogeneity sites, but with a higher number and degree of dominance of exotic species. In the non-plowed forested sites with microtopography present, the native species were much more likely to be found only in one microsite (a mound or a pit), whereas 60% of the exotic species occurred on both mounds and pits. The presence of microtopography appears to be important for maintenance of native species with higher equitability, but is not an impediment to colonization by exotics.

Keywords: deciduous forest, heterogeneity, treefall, richness, microtopography

R Matthew Beatty, PhD, CSIRO Sustainable Ecosystems. Email: Matt.Beatty@csiro.au; Amy L Griffin, PhD, University of New South Wales. Email: a.griffin@adfa.edu.au; Guy Barnett, BSci (hons), CSIRO Sustainable Ecosystems. Email: ; *The landscape pathology of human health: the urban environment and human physical activity in Sydney, Australia*

The urban environment has a significant influence on human health, and with rapid urbanisation occurring globally, urban health issues will figure prominently in urban planning, health care, and policy debates. In recent years there has been a renewed interest in the role of the physical environment in influencing health outcomes, and understanding the ways that the urban environment interacts with social factors is a key step in developing a new

understanding of human health in coupled social-ecological systems. In this study, we combine a detailed analysis of the urban environment with a survey that measures adult human physical activity, a correlate of important health outcomes including obesity, cardio-vascular disease, and type-2 diabetes. In this study, we focused on the Sydney, Australia metropolitan region. The urban environment was classified using a combination of high-resolution satellite imagery, population census data, and urban infrastructure data. Urban patches were identified based on the amount of urban greenspace, neighbourhood form (i.e., road networks and housing density), and socio-economic variables (e.g., income, education, ethnicity). Patterns of human physical activity were assessed using a modified version of the International Physical Activity Questionnaire (IPAQ) distributed across the range of identified urban patch types. There are strong environmental and socio-economic gradients in Sydney and patterns of physical activity were variable as well. Results from the study will be presented as well as a discussion of problems encountered with the linking urban physical and social environment for health outcomes research.

Keywords: Urban environment, human health, social-ecological classification

Justin Beaumont, Dr., University of Groningen. Email: j.r.beaumont@rug.nl; Bas Spierings, Dr., Utrecht University. Email: b.spierings@geo.uu.nl; Sjoerd Zeelenberg, drs., University of Groningen. Email: s.zeelenberg@rug.nl; Beyond Anglo-Saxon hegemony? analyzing urban governance in The Netherlands

We critically analyze an Anglo-Saxon hegemonic tendency over theorizations of urban governance within human geography. In the context of this tendency, we aim at a new theoretical framework for the analysis of urban governance practices in The Netherlands. Studies of urban governance typically fall into familiar categories: changing modes of governance; urban entrepreneurialism; coalitions and regimes; regulation theories; actor and policy networks; and citizenship and social justice. Distilling a number of complex and interrelated debates, we take our cue from what we characterize as a bipolar but not mutually exclusive distinction between neostructuralist (or neostructural) approaches (Brenner and Theodore 2002; Brenner et al 2003; Brenner 2004) and neoinstitutionalist thought (Harding 1996; Le Galès 2002; Kazepov 2005). Drawing selectively from both we offer an integrated framework based on still developing investigations into multi-level, multi-institutional and context-sensitive governance practices in European cities (see Giersig and Beaumont 2006; Beaumont and Giersig 2006). Relating our ideas to the current urban policy regime in The Netherlands, the Big Cities Policy, we argue that: (1) there are important ways to go beyond an Anglo-Saxon theoretical hegemony in the analysis of urban governance; (2) there are possibilities for analyzing European urban governance by integrating theoretical issues with hitherto greater currency in the US and the UK; (3) there is much to learn from the application of these ideas to the analysis of urban governance practices in The Netherlands. The paper discussed implications for urban governance and outlines an internationally comparative research agenda for the years to come.

Keywords: Urban governance; theory; The Netherlands; Big Cities Policy

Jonathan V. Beaverstock, Loughborough University. Email: j.v.beaverstock@lboro.ac.uk; James Faulconbridge, Lancaster University, UK. Email: j.faulconbridge@lancaster.ac.uk; Sarah Hall, Loughborough University, UK. Email: s.j.e.hall@lboro.ac.uk; Andrew Hewitson, Loughborough University, UK. Email: a.hewitson@lboro.ac.uk; The internationalization of executive search: constructing markets through knowledge, rhetoric and discourse

Understanding the internationalization of professional service firms (PSFs) continues to attract considerable attention from economic geographers. However, despite rich empirical studies of PSFs, the theoretical framework used to explore the strategic internationalization processes and modes of entry into foreign markets has changed relatively little in recent times beyond established international business resource-based theories of the firm. Meanwhile, elsewhere the analyses of both globalization and transnational corporations have become increasingly intricate as commentators focus on explaining how firms are restructuring their international operations and form to compete in the knowledge economy. In this paper, therefore, we revisit internationalization theory relating specifically to PSFs through a case study of Europe's headhunting industry. Drawing on this comparatively neglected PSF, we provide refinements that reflect the ever growing and maturing body of knowledge that can be used to conceptualise transnational PSFs in contemporary globalization. In particular, we draw on recent insights into the contemporary role of intermediaries and 'soft capitalisms' in the global economy, as well as understandings of the various forms of 'spatial economy' that firms produce through a range of forms of internationalization - wholly own subsidiaries, networks and strategic alliances- to explain the internationalization of executive search firms and the way such firms have used forms of knowledge, rhetoric and discourse to construct new markets for

their services overseas.

Keywords: Economic geography, relationality, services, headhunters

Kim Beazley, University of Cambridge. Email: krb28@cam.ac.uk; Rights, Risks and Relocation: Evolving Impacts and Discourses at Tadoba-Andhari Tiger Reserve, Maharashtra, India

Since the early 1970s, over 100 villages and more than 3000 families across India have experienced relocation in the supposed interests of wildlife. This policy of "conservation-related relocation" continues today. The dominant belief within the Indian forest department and among some influential conservationists remains that "fortressed" protected areas, erased of anthropogenic presence, are essential for successful wildlife conservation. However, empirical studies systematically exploring conservation-related relocation policy, the relocation process itself, its long and short-term social and ecological consequences, and the multiple discourses that surround it are thus far lacking, particularly in the Indian context. In addition, the limited conservation-related relocation research that does exist has largely failed to build on, or draw sufficiently from, relevant empirical and model building work in the more established field of development-induced relocation learning. This paper discusses preliminary findings of an ongoing doctoral study that is aiming to reduce these limits to conservation-related relocation knowledge. Primarily qualitative research (participant observation, semi-structured interviews, discussion groups) is being undertaken in several villages within and around Tadoba-Andhari Tiger Reserve, an Indian protected area that has been the subject of intermittent village relocation strategies for over 30 years. This empirical research at Tadoba-Andhari will then be used to establish a model of conservation-related relocation that also draws upon the wider relocation literature, particularly the more extensive scholarship that focuses on relocations induced by development activities. A tentative version of this model is outlined and some of the themes beginning to emerge from the empirical research at Tadoba-Andhari are examined.

Keywords: India-Maharashtra, protected areas, national parks, relocation, conservation

Evi Becerra-Acosta, student, University of Montreal. Email: e.becerra.acosta@umontreal.ca; Medium-term evolution of the urban heat island for the City of Montreal

The island of Montreal is a densely urbanized city. It is limited to the north by another island (Laval) and surrounded by areas with a substantial amount of forest areas. These conditions are ideal to sustain a heat island of at least the size of the island itself and of smaller scale heat islands within Montreal. For the last 20 years the urban and industrial areas within Montreal have been steadily replacing green areas and fowl land as well. These changes can be detected in the trends of time series of temperatures differences between Montreal and its surroundings. The objective of this study is to gain insight into the physical mechanisms responsible for the observed heat island effects in the city of Montreal for the last 20 years. To this end, the MM5 regional atmospheric model coupled to the Noah surface model has been used to model these medium-term trends. The atmospheric model was run with a 2km spatial resolution forced at its lateral boundaries with NCEP reanalysis for specific days chosen according to significant island heat events for the month of August from 1986 to 2006. The albedo and roughness length in the Noah model has been modified to account for the presence of urbanized areas as a first step to approach the problem. Preliminary results from experiments with different urban growth and distributions suggest that the observed heat island trends can be accounted for, to the extent that this low spatial resolution and the 2 physical constraints (albedo and roughness) permit.

Keywords: Heat islands, Urban Climate

Laurence C. Becker, Oregon State University. Email: beckerla@science.oregonstate.edu; Agro-Biodiversity and Cultural Diversity Face Globalization: Why Grow African Rice?

The recent successful inter-specific cross of Asian rice (*Oryza sativa*) and African rice (*Oryza glaberrima*) created new crop varieties (called Nericas) with potential for high yields. Together with renewed donor interest in supporting a Green Revolution in Africa, this technical achievement raises questions for agro-biodiversity conservation and the rights of peoples who depend on local crop diversity. Will West African farmers who currently grow *O. glaberrima* adopt the Nericas, leading to greater pressure on the reservoir of African rice biodiversity? Beyond the general regional distribution of African rice, little is known of the current roles played by genetically distinct varieties of *O. glaberrima* in local cultures and economies. Why have some farmers maintained *O. glaberrima* cultivation even under the pressure of national and international development programs and extension efforts that promote new, higher yielding varieties of *O. sativa*? Here we propose that a loss of local crop varieties managed by farmers in complex ecological habitats threatens the livelihoods of peasants least engaged in national and international trade. Agricultural practices sustaining African rice

biodiversity occur in environmental frontiers for modern variety development. In addition, they are carried out by farmers on the fringe of global development efforts. Cultivation of local crop varieties may be an expression of resistance to globalization.

Keywords: Agriculture, cultural ecology, Africa

David Beckingham, University of Cambridge. Email: djb79@cam.ac.uk; *Policing Irish drunkenness in nineteenth-century Liverpool*

In this paper I analyse the issue of Irish presence in nineteenth century Liverpool by looking at contemporary constructions of drunkenness in the city, and how the Irish, as the 'other' within the city, were rendered visible to the rest of the population though racialised numerical understandings of the city. It explores the spaces between the purported epistemological 'fact' of drunkenness and the observed reality of drinking to excess in Liverpool. The context, or knowledge, behind these epistemological 'truths' clashes head on with the realities of the failure of contemporary theory (e.g. sanitary theory, racial theory) to explain and account for drunkenness. There is a marked disjuncture between the contemporary anxiety and reality of drunkenness as exposed in official statistics and temperance society accounts. That disjuncture is explored through the problem of squaring governmentality theory with the contemporary disciplinary reality. What emerges is a projected interstitial space between the state and the social where the problematisation of drunkenness can be viewed within a framework of social control albeit one with a very uneven application. The empirical operation of racialisation is seen through the linking of working-class 'fallenness' (in relation to drink) to their class, race, ethnicity and geography.

Keywords: Liverpool, Irish, race, drunkenness

Eric Redfield Beckley, Central Washington University. Email: beckleypyr@yahoo.com; *When Mining Ends: A Comparative Case Study of the General Mining Law of 1872 and the Surface Mining and Control Reclamation Act of 1977*

Numerous environmental problems surround the 1872 General Mining Law, which governs hard rock mining on public land in the United States. In contrast, the Surface Mining and Control Reclamation Act of 1977 (SMCRA) contains environmental protections for the mining of coal. Through a case study of the Zortman/Landusky gold mines and the Big Sky coal mine, this paper describes what water problems remain when a mine enters its final stages of reclamation and how these problems were allowed to occur. Tracing each problem from its inception in law or policy, looking at court decisions that set the tone and precedents for these laws, examining Federal and state implementation guidelines, and evaluating how the implementation processes are actually carried out exposes the source of these problems. This paper will offer a detailed understanding of how two laws and their implementing policies deal with the issue of water quality in mining and may provide policymakers with already existing options to solve these water issues. The expansion of the SMCRA or similar legislation to hard rock mining could provide an efficient and effective tool for the regulation of hard rock mining.

Keywords: SMCRA, 1872, Reclamation

Jarad D. Beckman, UC Santa Barbara. Email: beckman@geog.ucsb.edu; Konstadinos Goulias, PhD, UC Santa Barbara. Email: goulias@geog.ucsb.edu; Clara Irazabal, PhD, University of Southern California. Email: irazabal@usc.edu; Macarena Gomez-Barris, PhD, University of Southern California. Email: gomezbar@email.usc.edu; *Does Culture Fade in Immigrants' Travel Behavior?*

This research aims to investigate, quantitatively, the nature of cultural preferences versus economic constraints within Latino communities in Southern California?also known as Latino New Urbanism. Through a review of existing literature on quantitative methods of defining compact lifestyles and economic indicators, a set of criteria were established in an attempt to separate economics (such as household income) from residence and transportation preferences (such as compact commuting patterns). After a set of general criteria were defined using the 1990 Census, year 2000 Census data at the city or PUMA level were used to supplement existing notions of assimilation into American culture, as specifically exemplified by commuting patterns. Determination of compact commuting as an outcome of choice or economic constraint is in this way investigated, offering greater insight into the motives behind Latino assimilation into American culture within twenty years of arrival. Then, a more detailed analysis using additional accessibility data offers yet another facet of the analysis. In this way our presentation proceeds with emerging questions of Latino culture and how it may differ from traditional Anglo-based lifestyles and includes a proposition of new research questions about indicators and methods to discern new immigrant behavior, assimilated immigrant behavior, and non-immigrant behavior. We then extend this to possible lessons learned for policy and planning.

Keywords: immigration, travel behavior, compact commuting

Esther S. Beckmann, Bowling Green State University. Email: esbphd@buckeye-express.com; Jeffrey Gordon, Bowling Green State University. Email: ; *The Geographical Technique of Positive Place Association: Application for Stress Reduction in Middle School Students*

Anna Freud declared adolescence as a unique period of childhood characterized by normative upheaval and turmoil. Early adolescence, typified by middle school students in grades six through eight, is an emotionally stressful period even for well-adjusted children. Biological changes might provoke anxiety, a search for independence may tend to idealize peers, and efforts to challenge and assert self may result in feelings of vulnerability and inadequacy. Potentially intensifying this often overwhelming stage, is the present-day middle school atmosphere with metal detectors, patrolling security, and demands associated with proficiency testing. In light of continued physical and emotional changes and compounding stressors in middle and late adolescence, the use and efficacy of positive place association (PPA) was examined. PPA can be used as an intervention technique identifying individuals' most positive place experiences in order to help reduce their stress levels. This geographical and behavioral concept, used as an applied stress-reduction technique, was hypothesized to be viewed as having merit for this population. A preliminary study surveyed middle school teachers by briefing them about PPA and then examining their perceptions as to its potential utility in the classroom. All subjects indicated a willingness to learn PPA. Suggested uses, however, varied. The majority stated their desire to use PPA prior to testing, especially relating to proficiency testing. A number shared specific vignettes of student test anxiety. As hypothesized, after learning PPA, most subjects agreed that it should prove a useful classroom intervention and stated that they were eager to implement this technique.

Keywords: Positive place association, stress reduction

Dan Bedford, Weber State University. Email: dbedford@weber.edu; Andrea Douglass, Weber State University and Ogden City GIS. Email: AndreaDouglass@ci.ogden.ut.us; *Changing Properties of Northern Utah Snowpack from a 20+ Year SNOTEL Record*

Mountain snowpack in northern Utah, like most of the rest of the western U.S., is exceptionally important, both as a water resource (sustaining the ecologically significant Great Salt Lake as a refuge for migratory birds, and enabling urban growth), and in its own right as a tourist and amenity migrant attraction through the ski industry. Also in common with many other parts of the western U.S., northern Utah is experiencing rapid population growth. These considerations make an understanding of the dynamics of mountain snowpack in this region very important. Concerns over future changes in snowpack dynamics in response to global and/or regional climate warming make the development of such an understanding all the more urgent. Of the two main forms of snowpack monitoring used in the U.S., manual snow courses and automated snowpack telemetry (SNOTEL) stations, manually-measured snow courses are often perceived to be more reliable. However, snow course measurements are typically only made twice a month, and records can be interrupted by events such as high risk of avalanche. SNOTEL records, by contrast, provide daily measurements of basic snowpack properties such as snow water equivalence. It is therefore possible to track snowpack evolution with quite high temporal resolution, if a little simple quality control of the data is first undertaken. This paper examines records from SNOTEL stations in the drainage basin of the Great Salt Lake for evidence of the major climatic influences on northern Utah snowpack, including several possible signals of climate warming.

Keywords: snowpack, global warming, SNOTEL, Great Salt Lake, Utah

Robert S. Bednarz, Texas A&M University. Email: r-bednarz@tamu.edu; Sarah W. Bednarz, Texas A&M University. Email: s-bednarz@tamu.edu; Anthony Filippi, Texas A&M University. Email: filippi@tamu.edu; Joni Kincaid, Texas A&M University. Email: jkincaid@geog.tamu.edu; Andrew G. Klein, Texas A&M University. Email: klein@tamu.edu; Adriana Martinez, Texas A&M University. Email: adrianaemtz@neo.tamu.edu; Tavia Prouhet, Texas A&M University. Email: taviaprouhet@tamu.edu; Michelle Simms, Texas A&M University. Email: msims@geog.tamu.edu; Nikki Williams, Texas A&M University. Email: nwilliams@geog.tamu.edu; *Advancing Spatial Thinking in the Classroom*

Advancing Geospatial Skills in Science and Social Sciences (AGSSS), an NSF GK-12 program, emphasizes the development of spatial thinking skills in middle school science and high school social science courses. During the 2005-2006 academic year 4 graduate and 2 undergraduate Fellows participated in the program. This academic year, the 5 graduate-student co-authors of this abstract serve as Fellows. These graduate students work with educators to develop and modify curriculum material that purposefully engages the students in developing and refining their spatial thinking skills. Fellows assist teachers and students during lesson implementation by providing support for geospatial technology and by introducing the perspective of research scientists into the classroom. The

program also requires fellows to refine their own abilities to communicate complex ideas as they observe and assist students grappling with spatial-thinking concepts in the classroom. As part of a self-assessment initiative, Fellows keep weekly journals in which they record general classroom observations, challenges in helping students think spatially, and opportunities to introduce additional spatial-thinking into the classroom. The Fellows organize weekly meetings to facilitate coordination and cooperation for upcoming activities and to determine how best to assist teachers with their action research projects. Bi-weekly seminars, led by the faculty principle investigators, offer opportunities to discuss relevant research literature and to reflect on recent activities. These, and other, project activities ensure that Fellows will develop improved teaching skills and confidence as scientists.

Keywords: spatial thinking, geography education, GIS, geo-spatial technology

Sarah Witham Bednarz, Texas A&M University. Email: s-bednarz@tamu.edu; Robert S Bednarz, Texas A&M University. Email: r-bednarz@tamu.edu; *Developing Spatial Thinking With, About, and Through Geospatial Technologies*

Spatial thinking comprises the knowledge, skills, and habits of mind to use concepts of space, tools of representation, and reasoning processes to structure, solve, and to express solutions to problems. Spatial thinking underlies a significant amount of geographic learning such as the use of maps, graphs, images, diagrams, models, and visualizations. In addition, it supports the description, explanation, and discussion of the functions, structures, relationships, and operations of various phenomena. Thus, spatial thinking is a foundation for using and understanding geospatial technologies. Despite its importance, spatial thinking is not an explicit part of science or social science curricula in K-12 US classrooms. Most students are not competent spatial thinkers. Students find that spatial thinking is the most challenging component of GIS use; although they can produce maps, they frequently cannot interpret them. Few K-12 science and social science educators are prepared, through pre-service education, professional development, or supporting materials, to teach students the cognitive strategies associated with spatial thinking. This paper presents research on spatial thinking from an ongoing NSF-funded program, Advancing Geospatial Skills in Science and Social Studies. It explores ways geospatial technologies may or may not support spatial thinking. A model to implement spatial thinking and geospatial technologies in K-12 classrooms based on the work of Shulman and Mishra and Koehler is presented. Special attention is focused on observed relationships between teachers' understanding and use of specific strategies to enhance students' spatial thinking abilities and the use of geospatial technologies, particularly GIS, IGIS, and remote sensing.

Keywords: geography education, spatial thinking, geospatial technologies education

Drew Bednasek, Queen's University. Email: drewbednasek@gmail.com; *The Colonial and the Postcolonial Landscape of the File Hills First Nations Reserve*

Within the politics of commemoration it is important to remember that what is not commemorated may be just as significant in forming cultural landscapes as what is commemorated. On the Peepeekisis Reserve in south eastern Saskatchewan, Canada, the non-commemoration of the File Hills First Nations farm colony symbolises an end to one of the most oppressive colonial landscapes in North America. For much of the first half of the twentieth century, Indian Commissioner William Graham, the founder and director of the colony, hand-selected "superior" graduates from surrounding residential schools and located them onto individual farming plots on the Peepeekisis Reserve. Former students, often pushed into arranged marriages by Graham, were supposed to live "civilised" agrarian lifestyles using Euro-American ideals, such as discipline, morals, time/place regimentation, gender norms and non-native language, acquired during their time in residential schools. Today, the First Nation of Peepeekisis does not, for apparent reasons, commemorate its colonial past with monuments or museums. All of the material features of the farm colony's colonial landscape are fortunately gone, replaced by a people working to exercise their rights on their own land as it was negotiated by Treaty 4, the Indian Act and the Canadian government's fiduciary responsibilities. In this paper, I demonstrate how the Peepeekisis First Nation's non-commemoration of the farm colony symbolises not only a rejection of the brutal assimilation practices of the colonial government, but it represents the construction of a cultural landscape free from colonial intervention in livelihood, land use and education.

Keywords: Canada, First Nations, colonialism, landscape

Melanie Bedore, Ph.D. student, Queen's University. Email: bedorem@hotmail.com; *Youth drop-in programs: A community-based initiative to generate social capital, engagement and empowerment among Canadian youth*

Background: Childhood and adolescence are critical periods of intellectual and social development, yet for some they are fraught with excessive risk behaviour that can impair their growth into healthy, engaged and productive adults. Issues like drug and alcohol abuse, physical inactivity, youth crime, unprotected sex, violence, and apathy can continue into adulthood and impair an individual's development into a productive member of society. Project focus: This research project looks to recreational drop-in programs as an intervention to empower youth in their community and reduce risk behaviour. I hypothesized that these programs would produce three positive outcomes in youth people involved: increased physical activity, reduced youth crime and improved community attachment and civic engagement through volunteerism and leadership. Methodology: I conducted open-ended qualitative interviews with fifteen administrators of drop-in programs in South-Eastern Ontario. The programs ranged in location (urban/rural), size, funding base and complexity of operations. Open-ended questioning allowed leaders to tell their stories and share triumphs and frustrations. Results: There is great geographic and programming diversity among these programs, yet central themes arise: leaders reported positive outcomes in youth involved, including greater physical activity, positive peer pressure and group dynamics, leadership opportunities and improvements in trust and self-esteem in the youth. Recommendations: Youth drop-in programs should be supported by communities and appropriate levels of government, but allowed maximum freedom to adapt programming to suit the needs of the youth population. They may present an opportunity to reduce risk behaviour and improve youth social capital through engagement and empowerment.

Keywords: Canada; Youth; Children; Drop-in Programs; Risk Behaviour; Social Capital

Laura Been, Antelope Valley College. Email: lbeen@avc.edu; *Landscaping for a Southern California Lifestyle*

Despite persistent water shortages American homeowners have developed an obsession with having lush, green, perfectly manicured, grass yards; even when the climate where they live doesn't lend itself to having such a yard. While efforts are made to curtail this wasteful use of water, it is the purpose of this research to offer a new approach toward conservation and prove that when given the chance, people will make the most sustainable choice. Beginning with an introduction of the Lifestyle Landscape Project, this thesis shows that alternative landscapings have a place in today's new housing developments and that this project should be used as a guide for future housing developments. The Lifestyle Landscaping Project was a joint undertaking by the local water district and housing project developer uniquely offering buyers yard landscaping options. In addition to offering traditional home upgrades new residents chose between landscapings, each using different amounts of water, and having a different cost. While the water conservation upgrades cost more the project was still a success for a number of reasons. Chief among the reasons were environmental concerns, specifically water use, and on-going maintenance. Learning from the results of this project allows it to be applied to future home developments. The data shows that environmental selling points are successful, yet the question becomes promoting the benefits of alternative (desert) landscaping. If developers will invest in offering and marketing water conserving landscapes home buyers will chose those alternatives.

Keywords: landscape, water, desert

Jason D Beery, Pennsylvania State University. Email: jdb425@psu.edu; *The New Space Tourism: The Privatization of Space Travel*

Technological innovation within the last few years is allowing for the creation of a new space tourism sector. As opposed to existing forms of space tourism, in which tourists pay approximately \$20 million to fly aboard Russian space vehicles to the International Space Station for 10-14 days, the new space tourism consists entirely of private companies offering two to three hour trips (aboard reusable private spacecraft) that travel beyond 100 km above Earth, the experience weightlessness and views of Earth against a black horizon, for \$100,000 - \$200,000. Here, I examine this rapidly developing empirical phenomenon, particularly how different actors are influencing the creation of a profitable space tourism sector and the implications of such a sector on broader themes of human activity in space. I empirically analyze the economic supply-side of space tourism through the (re)production of the place of space, economic and industrial geography, and political economy in the role of the government as a regulator and economic developer. In the longer-term, the success of this private space travel sector may lead to increased private participation in the public space travel and exploration.

Keywords: space tourism, tourism-supply side, economic geography, place-production, political economy, privatization, outer space

Jared Beeton, The University of Kansas. Email: jmbeeton@ku.edu; *Late Quaternary Landscape Evolution and Geoarchaeology in the Cottonwood River Basin, Flint Hills, Kansas*

The pattern of cultural deposits in a fluvial context is controlled by the temporal and spatial pattern of late Quaternary landscape evolution. Floodplain deposition, erosion and stability act as geologic filters by destroying, preserving, and modifying the cultural record. This study examines late Quaternary landscape evolution in the Cottonwood River basin, located in the Flint Hills of eastern Kansas. Specifically, the objectives of the study are to (1) identify and describe terrace and floodplain fills and associated buried soils in the valleys of the Cottonwood River and its tributaries, (2) determine radiocarbon ages of late Quaternary valley fills and construct an alluvial chronology for the Cottonwood River system, and (3) develop a predictive model for locating cultural deposits in the river basin. Data indicate that large valleys (>4th order) were zones of net sediment storage during the early, middle, and late Holocene. Most small streams

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Keywords: Geoarchaeology, Geomorphology, Fluvial

Mohsen Beheshti, California State University, Dominguez Hills. Email: mbeheshti@csudh.edu; Richard Wasniowski, California State University, Dominguez Hills. Email: RWasniowski@csudh.edu; *Benefits of Using Honeynets and Data Fusion for Intrusion Detection*

As computer attacks are becoming more and more difficult to identify the need for better and more efficient intrusion detection systems increases. The main problem with current intrusion detection systems is their high rate of "false alarms". In this paper we discuss our experience in analyzing potential benefits of distributed multi sensor systems for intrusion detection. The goal of this project is to examine how to integrate multiple intrusion detection sensors in order to minimize the number of incorrect-alarms. The purpose of this paper is to discuss implementation of prototype multi sensor based intrusion detection system. We are especially interested in analyzing a traffic that has an abnormal or malicious character. A specific feature of the model is that the systems use honeynets and multiple sensors. A honeypot is a system whose value lies in bringing more attacks on the system. Frequently not only web servers but also Honeynets are objects of malicious attacks. An Intrusion detection monitoring multiple systems and networks requires the existence of multiple intrusion detection systems and a subsystem to fuse information from several sensors. In many cases, intrusion detection systems produce false alarms called "false positive." The typical response to this by the administrator is to reconfigure the intrusion detection system to not identify that particular event as an intrusion attempt. Our implemented model is in fact just a prototype and needs to evolve into more mature and efficient model. Future work will emphasize a revisit of database design

Keywords: Fusion, Network, Security, Intrusion

Denise Behrens, California State University, Long Beach. Email: dbehrens26@yahoo.com; *A Comparative Geographic Analysis of European Union and United States Governmental Foreign Aid*

In many respects, official foreign aid granted by the European Union exhibits important contrasts from that of the United States, most notably in terms of recipient nations, the forms and amounts of aid given, and stated objectives and strategies. Many of these transatlantic differences appear to have their origins in varying foreign policies, geopolitical interests, and historical linkages, among other factors, and can furthermore have a significant impact on the affected nations. Therefore, this paper will conduct a comprehensive examination of foreign aid granted by the United States and the European Union (primarily at the supranational level) from a geographic perspective. After ascertaining and analyzing the specific similarities and differences between European and American aid, some possible reasons for the spatial patterns revealed will be discussed. Finally, it will briefly speculate on the future of foreign aid from the European Union and the United States, as well as some of the potential repercussions of both current actions and planned initiatives.

Keywords: foreign aid, geography of development, Europe, United States

Colin M Beier, PhD Candidate, University of Alaska Fairbanks. Email: ftcmb1@uaf.edu; Trista Patterson, PhD, USDA PNW Forestry Sciences Lab, Juneau AK. Email: tpatterson@fs.fed.us; *Mapping Social-Ecological Vulnerability: Ecosystem Services, Human Use and Disturbance*

This article presents a conceptual model of social-ecological dynamics that addresses the feedbacks of anthropogenic disturbance on the flow of ecological goods and services from ecosystems to society. We applied this model in developing an analytical GIS framework to identify areas of emergent vulnerability at a landscape scale. Because the nexus of human use, disturbance, and productivity can indicate more intense couplings between human and ecological systems, we suggest that spatial identification of where these features coincide may also be areas where unintended or unforeseen consequences of human

activity are more likely. Since social-ecological processes are different in every region, our approach emphasizes the use of place-based and locally relevant indicators of these factors. In the coastal rainforests of southeastern Alaska, there is concern about the legacy of commercial logging on fish and wildlife species of local subsistence and commercial importance. Some of these impacts have been observed in the short-term while many of the ecological feedbacks involve slower variables related to forest regeneration. Our approach spatially couples social and ecological variables to determine where high ecological provision, high human use and high human disturbance coincide on the SE Alaska landscape. We describe some of the systems dynamics linking these three factors and provide examples of how time lags and feedbacks among them heighten the possibility of sub-optimal decision-making. We argue that these areas represent loci of vulnerability in the social-ecological system, given the dependence of local residents on fish and wildlife resources for subsistence and commercial uses.

Keywords: Alaska, Tongass National Forest, natural capital, subsistence, logging, GIS

Meredith Beilfuss, Indiana State University. Email: mbeilfuss@isugw.indstate.edu; James H. Speer, Indiana State University. Email: gespeer@isugw.indstate.edu; *Undergraduate Students Perceptions of Fieldwork Preparedness*

The disciplines of geology and geography have a long tradition of gathering data in the field, outside the classroom. The 'field' becomes the laboratory where undergraduate students can learn and practice the skills of science. Prior to conducting fieldwork, experienced instructors need to prepare students for learning and working in the field by practicing the tools and techniques of gathering data and working as a team. In an effort to determine students' perceptions of fieldwork preparedness, student interviews and survey data were collected before and after an experiential learning opportunity. Students' perceptions of preparedness ranged from very well prepared to completely not prepared on issues such as the use of equipment, working together in teams, and making geologic maps in the field. Students discussed both self-reliance and reliance on the group to help complete fieldwork assignments. This pilot study will inform other instructors on possible strategies to use when preparing students for learning in the field.

Keywords: Geography Education

David Beilman, PhD, University of California - Los Angeles. Email: dave.beilman@ucla.edu; Zicheng Yu, PhD, Lehigh University. Email: zy2@lehigh.edu; *Late Holocene Permafrost-Carbon Dynamics in Peatlands of Western Canada - A New Multiproxy Perspective from the Southern Limit*

The widespread thaw of discontinuous permafrost across the boreal plains of North America, including disappearance at its southernmost fringe, has resulted in changes to peatland vegetation and carbon cycling. The accepted regional model of peatland permafrost dynamics ascribes widespread formation to late Holocene cooling, and particularly to the onset and termination of 'Little Ice Age' cooling (LIA). However, detailed paleoenvironmental data in support of permafrost history and sensitivity have been lacking. Here we present a 9000 year high-resolution multi-proxy record of peatland history from a treeless thaw site at the southern limit of permafrost in Saskatchewan, Canada, using 11 AMS radiocarbon dates, plant macrofossils, carbon and nitrogen assays, and decomposition proxies. Minerotrophic conditions, first characterized by sedges and then by brown mosses, persisted until about 2500 years ago. Multi-proxy evidence suggests that permafrost developed before 700 years ago, associated with a sharp decrease in carbon accumulation. The age of a spruce needle layer at the transition between forest and post-thaw Sphagnum peat indicates that permafrost degraded between 300 and 500 years ago, followed by increase in carbon sequestration. These permafrost dynamics, which predate the LIA, are consistent with 1500-yr climate cycles evident in other Holocene records. The effect on modern vegetation of permafrost thaw at this site has persisted for hundreds of years.

Keywords: peatlands, carbon, permafrost degradation, Holocene

Frederick L. Bein, Dr., Indiana University Purdue University at Indianapolis. Email: rbein@iupui.edu; Christopher J. Hill, . Email: baobab_lodge@yahoo.co.uk; *Multi Story Agriculture in Inhambane, Moçambique*

Multi-story agriculture in Inhambane Province of Mozambique occurs where approximately 30 useful plants are grown together in forest gardens that have evolved over the last 1000 years and have survived colonization, slavery, wars, droughts, pestilences, floods and cyclones. Only cowpeas, sorghum and wild fruit trees originate in Africa while introductions from Asia and America dominate the crop mix. The diversity of crops provides a basic diet and periodic income while maintaining a strategy of subsistence. Crops growing in symbiosis survive in the nutrient starved soil while coconuts and fruit trees reduce evaporation and constant ground cover provides erosion control. The high biodiversity helps to reduce pest and disease problems as do the short fallow periods at the lower levels

which effectively provide space for a few livestock to graze. Modernization is drawing farmers away from this life style and the multifaceted self sufficient farming traditions maybe forgotten.

Keywords: crop diversity, subsistence agriculture, agroforestry

Barry J. Beitzel, Trinity Evangelical Divinity School. Email: bbeitzel@trin.edu; Joint Nautical Ventures on the Mediterranean Sea by Tyrian Phoenicians and Early Israelites

Historical notices in the Hebrew Bible speak of a maritime partnership between Phoenicia and early Israel, according to which Hiram [I] and Solomon had one merchant fleet on the Red Sea which sailed to Ophir, and another fleet on the Mediterranean Sea, which sailed to Tarshish. Many scholars regard Hiram's partnership with Solomon on the Red Sea as a reliable tradition, but these authorities view any such nautical enterprise on the Mediterranean with great skepticism. This paper aims at presenting a range of evidence that points unmistakably to a Phoenician presence in the western Mediterranean by the 10th century BCE, thereby offering a level of plausibility to the biblical narratives in this regard. The evidence includes (1) numerous artifactual pieces — some inscribed in Phoenician and many exhibiting various forms of fine craftsmanship commonly ascribed to advanced Phoenician technology — found in secure archaeological settings in Spain; (2) evidence of 3 early texts which reference "Tarshish" as an early place-name in the Mediterranean; (3) evidence of actual Phoenician settlements located along the southern coast of Spain; (4) Phoenician materials found amidst early shipwreck sites in the Mediterranean; and (5) evidence of lead isotope analysis of copper oxide ingots found across the Mediterranean. In the process, the paper will seek to address such geographical questions as the location of Tarshish, currents and shipping lanes across the ancient Mediterranean, extent of land visibility from the surface of the water, and the location and nature of Phoenician ports.

Keywords: nautical travel, Mediterranean Sea, Phoenicians, ancient shipwrecks

Gashawbeza W. Bekele, Tennessee State University. Email: gbekele@tnstate.edu; Randall W Jackson, West Virginia University. Email: Randall.Jackson@mail.wvu.edu; Spatio-Economic Interdependency in Industry Clusters

A proper appraisal of the convergence between economic and spatial interdependency is essential in industrial cluster studies, for formal and informal collaborative relations are expected to develop between economically linked industries that are located in close geographic proximity. This paper presents a method for identifying industries that share both economic and spatial interdependency. The proposed framework integrates input-output and spatial autocorrelation based multivariate techniques to provide an objective mechanism for detecting spatially and economically clustered industries. The approach lays a basis to explore whether economically linked industries could tap advantages of co-location to lower costs, share information, and improve economic efficiency and innovativeness.

Keywords: Industry cluster, spatial analysis, input-output techniques, agglomeration economies

Matthew F. Bekker, Ph. D., Brigham Young University. Email: matthew_bekker@byu.edu; Daniel B Fagre, Ph. D., USGS-NRMS. Email: dan_fagre@usgs.gov; Ribbon Forest Dynamics in Glacier National Park, Montana

Linear patterns of subalpine forests termed ribbon forest have been described in several locations in the Rocky Mountains. The origin and maintenance of these patterns have been attributed to wind-snowdrift interactions and underlying lithological structure, but the dynamics of ribbon forests have not been well studied and are poorly understood. We examined the structure and dynamics of ribbons dominated by subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), and whitebark pine (*Pinus albicaulis*) in Preston Park, a glacial valley located in central Glacier National Park, Montana. We used dendrochronology and field measurements of snow depth and solar radiation to explain the timing and magnitude of advancement of ribbon forests into wet meadows. The species, diameter, and height of all trees, and seedlings >30 cm in height were measured in seven 2-m wide transects spanning six meadows, and 60% (n=330) of these were cored or sectioned to determine tree ages. Seedling establishment was dense, but almost exclusively limited to the east and north sides of meadows. Although forest-meadow edge patterns seemed to suggest continuous and recent invasion, tree ages indicated episodic establishment, with very few seedlings younger than 40 yr. Tree invasion is controlled by snow depth patterns, which are influenced by endogenous feedback between ribbons and snow deposition on west and south sides of meadows, enhanced snowmelt due to increased solar radiation on north and east sides of meadows, and

microtopographic variability.

Keywords: Biogeography, Vegetation dynamics, Meadow invasion, Dendro-chronology, Glacier National Park

Michael Beland, California State University, Northridge. Email: mcb65370@csun.edu; Shawna Dark, Dr, California State University, Northridge. Email: shawna.dark@csun.edu; Using GIS to analyze historical conditions on the San Gabriel River

In recent years, a variety of public and private organizations in California have devoted resources to the restoration of wetland systems. As a result, government agencies and non-governmental organizations have expressed the need for development of reference conditions of wetland systems. Appropriate reference conditions, intended to distinguish natural processes from anthropologic effects on systems, can be established by compiling and analyzing available historical information. For my historical ecology study on the San Gabriel River, I use geographic information system software to integrate, analyze and create a visual representation of historical data. My synthesis of a wide variety of historical maps and textual source material results in the production of a map database of historical reference wetland systems thereby improving our understanding of the past landscape of the San Gabriel River watershed. This in turn provides a historical framework for organizations evaluating wetland restoration plans and management alternatives.

Keywords: GIS, historical, wetlands

Oliver Christian Belcher, Graduate Student, University of Kentucky. Email: oliver@uky.edu; Between Law and Necessity: Mutable Sovereignty, Executive Power, and the Fabrication of the "Enemy Combatant"

In the aftermath of the construction of the Guantanamo prison complex and the Abu-Ghraib torture 'scandal,' a numerous amount of theoretical analyses emerged in geography and other disciplines around Giorgio Agamben's concepts of the 'exception,' homo sacer, the sociology of 'the camp,' etc. Most of these analyses focused on the possibilities of the spatialization of the 'exception,' and its consequences for conceptualizing power topologically within geography. This paper instead attempts an 'archaeology of the exception' by analyzing the legal penumbra of the 'enemy combatant,' and the geographical imaginaries involved in the production of such a legal object. While not taking for granted the transhistorical disposition of sovereignty as outlined by both Giorgio Agamben and Carl Schmitt ("The Sovereign is he who decides on the exception"), this analysis assumes that any theorization of (US) sovereignty and the exception has to be understood within the field of (US) governmentality. Therefore, the argument presented here considers the practices within the legal apparatus that produce the exceptional 'enemy combatant.' By underscoring both the mutability of sovereignty and the governmental practices involved in producing 'the exception,' the paper asks whether it is too hasty to conclude, as Agamben has, that 'the ban' is the original political relation.

Keywords: biopolitics, governmentality, sovereignty, violence, Guantanamo, law, enemy combatant

Deborah J Belden, Department of Geography, University of Montana. Email: deborah.belden@umontana.edu; Ulrich Kamp, Department of Geography, University of Montana. Email: ulrich.kamp@umontana.edu; Yeong Bae Seong, Department of Geology, University of Cincinnati. Email: ; Lewis A. Owen, Department of Geology, University of Cincinnati. Email: ; Geomorphological Mapping of the Shigar and Braldu Valleys, Central Karakoram, Pakistan, Using GIS and Remote Sensing Techniques.

The high Karakoram Himalayas is a region of immense topographic relief whose origin is currently not well understood. K2 is uplifting at 2-6mm a-1, however recent denudation is thought to be due mainly to surface processes, not tectonic unloading. Geomorphological mapping assists in evaluating the polygenetic role of glaciation, mass movement denudation, and fluvial erosion in landscape development and uplift. A series of twelve geomorphological maps 1:100,000 covering the Shigar and Braldu valleys up to K2 were produced using field mapping and photography, GPS measurements, and a digital elevation model generated from ASTER imagery. Landscape and morphometric analysis were performed using GIS software. The landforms are described in relation to geology, geomorphological processes, and altitudinal zones. Case studies of special locations include, for instance, flash flood deposits, active landslide areas, a sackung, and rock avalanches. Quantifying of landform types helps to understand the dominance of single geomorphological processes. Three distinct altitudinal zones could be identified, and each has a dominate erosion/deposition process and moisture pattern. These zones are: (1) the upper zone, above 6000 m is the zone of perennial glacier accumulation and avalanching; (2) the middle zone from 3000-6000 m where active and former glacial processes, freeze-thaw cycles, and fluvial erosion dominate; (3) the lower zone below 3000 m with sub-montane and

semi-arid conditions where alluvial fans, landslides, and breakout flood deposits dominate the landscape. This is the first complete geomorphological map series of the area which provides important insight into the nature of topographic evolution.

Keywords: geomorphology, Karakoram, GIS, glacial, landforms, remote sensing

David John Bell, PhD, School of Geography, University of Leeds. Email: d.j.bell@leeds.ac.uk; Sexualizing Surveillance: Technologies and/of Exhibitionism

This paper explores the appropriation of new media technologies - camera phones, web cams, CCTV cameras - through practices that Hille Koskela labels 'empowering exhibitionism'. As a way to arguably transgress the dominating effects of 'surveillance society', these practices create a space for rethinking the role of surveillance technologies in the constitution of sexualized subjects. 'Caught in the Act' compilations of CCTV footage show 'found' images of public sex acts, while websites capturing and circulating images of public nakedness and public sex, such as dogging or 'eco-porn' websites, connect implicitly or explicitly to the history of political and countercultural staging of nakedness, framed in the context of new media 'prosumption'. The production, circulation and consumption of both 'found' and 'staged' images of public nakedness across a range of media provides a provocative opportunity, therefore, to rethink the forms and uses of 'spaces of exhibitionism' and the practices of exhibitionism as a particular articulation of the politics of nakedness.

Keywords: CCTV, webcam, camera phone, nudity, sex pics

Heather Bell, University of South Florida. Email: heatherbell6@hotmail.com; Describing the Hundred Year Flood: Patterns of Perception in Broome County, NY

Many have questioned the usefulness of 100 year flood terminology in communicating flood risk. New terms have been introduced, but are they better at conveying uncertainty and concern? This study compared three methods used to describe policy's benchmark flood: a 100 year flood; a flood with a 1 percent chance of occurring in any year; and a flood with a 26 percent chance of occurring in 30 years. Face to face questionnaires were conducted with residents living in the 100 and 500 year floodplains of Vestal and Union, two flood prone communities in Broome County, New York. Both towns had major flooding in June of 2006. Respondents were asked to rate the flood descriptions in terms of perceived likelihood, size, and level of associated concern.

Keywords: risk communication, risk perception, 100 year flood

Juli Bell, Department of Earth and Atmospheric Sciences, Purdue University. Email: jhbell@purdue.edu; Brenda Beittler Bowen, PhD, Department of Earth and Atmospheric Sciences, Purdue University. Email: bbowen@purdue.edu; Spectral Reflectance Characteristics of an Ancient Mars Analog Environment

Hyperspectral remote sensing is a passive, non-destructive technology used to collect spectral signatures of materials, including minerals, over a broader spatial scale than data gathered with handheld instruments. The Grand Staircase-Escalante National Monument in southern Utah contains an area of Navajo Sandstone mineralogy not explained by current models of fluid-rock interaction. Some of these minerals are also found on Mars and at naturally-formed acid saline lakes in Western Australia. These minerals include jarosite, hematite, alunite, and gypsum, which form in extreme conditions of acid saline fluids. The Utah site provides important information on the history of the fluid-rock interactions forming the minerals, and can be used to understand the development of the ancient Mars sedimentary environment and the modern acid saline lake environment in Western Australia. This study uses hyperspectral image spectroscopy to map the mineral distribution and analyze the site morphology to better understand the geologic history of the Utah site. Future work will include identification of spectral reflectance data that will be compared to Mars and the Western Australian acid saline martian analog in order to improve knowledge of their sedimentary evolution.

Keywords: Navajo Sandstone, Mars environment, remote sensing-hyperspectral

Martha Bell, University of Wisconsin - Madison. Email: martha.bell@gmail.com; How Can You Earn a Living From Clay Pots?: Rural Exchange Networks and Diversified Livelihood Strategies in the Peruvian Andes.

Rural exchange networks play a significant role in the livelihood strategies of Andean farmers, herders and artisans. Trade in these systems generally takes the form of barter of agricultural products for handicrafts and/or pastoral products. These exchange networks link the diverse ecological zones of the Andean region, providing access to a variety of agro-pastoral products. At the same time, they serve as an important component of livelihood strategies in cash

scarce, uncertain, Andean economies. This paper looks at one specific type of exchange practice - the trade of handicrafts (earthenware cooking pots) for agricultural products (mainly grains) in the context of the Northern Peruvian Andes. Through analysis of extensive interview data, this paper demonstrates how artisans can use craft production to provide food for their households without either initial capital investment or exchange of money. This paper also demonstrates that craft production and trade is only one component of diversified household economies in this region, and thus seeks to explain how craft production is a useful strategy and why it is used. Moreover, the spatiality of these exchange networks proves to be a key to understanding how they function and why they are effective. This spatial organization reveals interesting links between environment and local economies, allowing for alternative interpretations of the concept of "local food system."

Keywords: exchange networks, barter, livelihoods, handicrafts, Andes, Peru

Michael M. Bell, University of Wisconsin - Madison. Email: michaelbell@wisc.edu; William L. Bland, University of Wisconsin-Madison. Email: wlbland@wisc.edu; Ecological Power: Holons...and Agency, Intentionality, Narrative, Context, Change, and...

In this talk, we take the holon approach to ecology and environment we have been working on and extend it into a discussion of ecological power. In our use of a holon approach, we seek to take account of the reality of intentionality, human and otherwise, in ecology. Fundamental to this approach is a recognition that parts and wholes never absolutely exist, and yet as well a recognition that intentionalities seek to construct boundaries in an ever-changing, unfinalizable, and incommensurate ecology of contexts. Ecological power is the ability of a holon to sustain its intentionality from and among the many agencies of its ecology of contexts?which, perhaps paradoxically, requires near-constant change. As we will describe, ecological power is centrally dependent upon the successful construction of a holonic narrative, from and among the ecology of contexts. We will also describe how holonic narratives vary in degree to which they are inclusionary and exclusionary, and the degree to which they are dialogic and monologic. Which all sounds pretty dull and theoretical, but we will endeavor to show otherwise.

Keywords: power, ecology, environment, change, theory

Scott Bell, Brown University. Email: scott_bell@brown.edu; Rachel Morello-Frosch, Brown University. Email: rmf@brown.edu; Post-Hurricane Katrina Health Outcomes

Hurricane Katrina affected New Orleans and the Gulf Coast in many ways. While new reports during and immediately following the disaster indicated the substantial human suffering there has been less focus on long-term health impacts and outcomes. This paper will explore some of the health outcomes that have emerged in the wake of the hurricane and examine several of the complex analytical issues associated with studying health and population dynamics following the immense disruption of Katrina. Environmental, health, census, and other data will be used to clarify how New Orleans and the surrounding area have responded to the devastation visited by the hurricane. We expect to focus on public health and population variability as key components in this study. Establishing a baseline from which to make pre- and post-Katrina comparisons will also be explored. Spatial patterns associated with the extent and type of damage as well as evacuation and return patterns will also be incorporated to establish whether post-Katrina health or illness can be predicated by any of these broad variables.

Keywords: Public Health, GIS, Spatial Analysis

Stephen Bell, Queen's University Belfast. Email: sbell15@qub.ac.uk; Analysing local migration patterns across space and time: A raster-based study

The first of Ravenstein's laws of migration, proposed in the 1880s, stated that the majority of migrations are of a short distance. It is therefore necessary to study local migration patterns in order to understand the true nature of internal migration. Many previous studies of migration have used aggregated data making it impossible to look at the local-scale, e.g. using data from censuses; or the spatial and temporal extents have not been broad enough to study large-scale spatio-temporal change. Working with migration data that highlights the movement of individuals, rather than using aggregated data, I have developed a methodology that will allow me to analyse changes of local migration across both space and time. Converting the data from a vector format into yearly raster surfaces that represent the variation of migration intensity, using spatio-temporal interpolation, I have begun to look at the spatio-temporal variation of in, out, and gross-migration at the local scale. In this paper I present some initial insights into the spatio-temporal nature of local British migration. By comparing separate regions of the country I intend to show how patterns of migration activity can be identified, the importance of looking at short-scale moves, and how temporal patterns vary with space and spatial patterns vary with time.

Keywords: Migration; Space-time; Raster

Daniela Belloli, University of Miami. Email: dbelloi@gmail.com; Jan Nijman, Ph.D., University of Miami. Email: nijman@miami.edu; *Paradise Lost? Deconstructing Miami's Affordable Housing Crisis*

Research on affordable housing (policy) in North American cities is complicated by the intra-metropolitan spatial variation in affordability and by questions of scale. The question of "affordable housing for whom" is inevitably a political question but it is inevitably geographical as well. In this paper, we investigate the affordable housing crisis that emerged in recent years in metropolitan Miami. This is an interesting case as it has for many years been one of the most polarized urban areas in the United States with a relatively large poor population, a small middle class, and high levels of residential segregation. In addition, in promotional narratives dating back to the early 20th century, having a home in Miami has often been described as owning a piece of "paradise." We examine the unfolding of the affordable housing crisis over time and across the metropolitan area. We combine quantitative and textual analysis and we ask two specific questions. First, how have trends in the cost of housing affected different income classes across the metro area? Second, what does a discursive analysis of recent debates and proposed policies suggest about the politico-geographical nature of the housing crisis?

Keywords: affordable housing, class, Miami

Anne C. Bellows, Ph.D., Rutgers University. Email: acbellow@rci.rutgers.edu; *What We Do Not Understand About Public Interest in Organics*

A 2003 demographically and geographically representative US-based telephone survey of 1201 persons revealed the expected finding that those who purchase organics are positively correlated with those who consider organic production methods when they decide what foods to eat (p

Keywords: New York, Oakland, neighborhood, phenomenology, everyday, heterogeneity, photography

Jacob Bendix, Syracuse University. Email: jbendix@maxwell.syr.edu; Keith C. Bowman, SUNY-ESF. Email: kbowman@syr.edu; Anna L. Lumsden, Syracuse University. Email: allumsde@maxwell.syr.edu; James G. Puckett, Syracuse University. Email: jgpuckett@maxwell.syr.edu; *Relative Prominence of Successional Theorists in Fifty Years of Journal Citations*

Questions about vegetation change following disturbance are prominent in the theoretical debates within biogeography and plant ecology. Disturbance has been viewed variously as an aberration triggering predictable succession back to the initial conditions; as a normal periodic event triggering cyclical but predictable change; or as a normal event triggering unpredictable change that may lead to an endpoint different from the pre-disturbance vegetation. While many authors have weighed in on these ideas, they are most often associated with, respectively, the scholars F.E. Clements, A.S. Watt, and F.E. Egler. To track the changing relative prominence of these theories, we used the Science Citation Index to examine the citation patterns of key papers by the three authors named above in journal articles over a 50-year period (1956-2005). This method does not allow measurement of the "popularity" of competing theories - citation does not imply agreement - but it does provide an indication of the role of each in setting the terms of debate. More than two thousand articles cited the key papers, with the overall number increasing steadily since the late 1970s. While citations of Clements increased steadily over the past 30 years, citations of Watt increased more slowly, and citations of Egler leveled off after peaking in the late 1980s. Examined by journal discipline, citations in Biology and Ecology journals parallel the pattern described above, whereas Clements was cited more frequently in Geography journals, and less frequently in Forestry journals.

Keywords: succession, vegetation dynamics, biogeography-theory

Karina Benessaiah, McGill University. Email: karinaben@gmail.com; *Mangroves, Shrimp Farming and Coastal Livelihoods: Land Cover and Use change in the Gulf of Fonseca, Nicaragua*

Shrimp aquaculture since the 1980s has dramatically altered the landscape of the Gulf of Fonseca, Central America. While it provided employment and investments to one of the poorest regions of Central America, it also constituted a main threat to mangrove ecosystems and dependent livelihoods. Aquaculture was presented as conflicting with local livelihoods, shadowing the active role played by local people. Indeed there is a diversity of existing aquaculture activities, which influence local household economics. It is therefore important to identify the role that shrimp aquaculture has played in local household livelihoods and determine how these households have influenced coastal land use change. A stratified random survey was performed in Puerto Morazán, Nicaragua in 2006. Coastal land cover/use change was assessed using satellite imagery from 1976 to 2006. It was discovered that involvement in aquaculture lead to overall higher incomes, providing capital necessary for investments in fishing; key for subsistence. The long-term sustainability of shrimp aquaculture, however, is

undermined by high levels of indebtedness, limited access to credit and environmental degradation. This pattern was expressed spatially by initial conversions of natural areas to ponds, followed by a replacement of many small and medium-sized shrimp farms by larger enterprises. Lagoons, previously communally owned, were found to be the main areas of conflict between aquaculture and fishing. These findings are important in order to understand spatial patterns of coastal land cover/use change and how they relate to household dynamics, and subsequently provide a basis for sound integrated coastal management and poverty alleviation strategies.

Keywords: Livelihoods, Coastal Areas, Land Use, Remote Sensing, GIS, Latin America, Mangroves, Aquaculture

John Benhart, Jr., Ph.D., Indiana University of Pennsylvania. Email: jbenhart@iup.edu; *Model Industrial Real Estate Ventures. Reform Movements, and Planning Innovation in Southern Appalachia, 1880-1900*

Model industrial real estate ventures appeared on the landscape of Appalachia in the 1880s. Characteristic of these ventures was large scale capital financing, planned industrial development, and detailed city planning. A closer examination of model real estate ventures during this period in Appalachia reveals that the planned urban landscape of these places had a strong link to urban and social reform movements that were emerging in the United States at this time. Although the towns that resulted from model industrial real estate ventures did not grow to the size and dominance that was originally forecast for them, they do provide significant insight into trends in city planning, regional development and an emerging urban ethos prior to the 1893 Chicago World's Fair.

Keywords: urban geography, planning, City Beautiful, sanitary reform, Appalachia

Aïcha Benimmas, Université de Moncton. Email: benimma@umoncton.ca; *Maps in New Brunswick French-speaking Elementary Schools Social Studies Classes*

The map is the necessary tool that allows children construct geographic knowledge by the analysis of land issues (Maier, 1999). Its power lies in its ability to make abstract and difficult to represent land realities observable. It allows for the asking of territorial problems, to visualize them, to confront them with explanatory factors and consequently look to resolve them. Maps structure the thoughts of their readers (Chevalier, 1995), fashion their mental maps and can even manipulate their opinions (Monmonnier, 1993). Despite this cognitive contribution and maps' popularity, the map remains an undervalued tool in terms of pedagogical uses in schools (Mosenthal and Kirsh, 1990; Wiegand, 2006). However, geographic education has been characterized for at least a decade by the consideration of the specificity of the discipline, the problematical nature of its contents and the interest given to geographic reasoning (Gregg and Leinhardt, 1994; Young, 1994), to which maps must play a crucial role. This study has three objectives: 1) to discover elementary school social studies teachers' map representations, 2) to determine how elementary social studies teachers' representations influence their maps teaching strategies and 3) to assess the students' cartographic skills at the end of elementary school. The data collection method is both qualitative (semi-structured interviews) and quantitative (questionnaire). Also, the analysis method of the data is using content analysis and statistical analysis. Since the research is currently in process, the results will be discussed at the time of presentation.

Keywords: Maps, geography education, elementary school

Solomon Joshua Benjamin, Asst. Prof. Dept. of Political Science, University of Toronto. Email: sollybenj@yahoo.co.in, solomon.benjamin@utoronto.ca; *Conflictual Geographies of New Capitalism in Metro India*

I look at conflictual geographies in metro India where massive IT Corridors, expressways and International Airports contest 'slum lands'. The latter, constituting the bulk of employment and economic value addition, is pitched against the Supreme Court, urban elites, and national level policy makers with violent consequences: 300,000 people evicted in Bombay, 150,000 in Delhi, and 77,000 in Calcutta under its Marxist government. A renewed violence recently rocked Delhi when its administration forced by the Supreme Court attempted to seal 45,000 small shops, building on an earlier closure sought of 95,000 manufacturers. An aggressive urban elite, influential in policy via 'civil society' promotes 'electoral reforms and participatory planning'. This is to control chaos and reduce corruption to facilitate global aspirations. Such conflicts question earlier formulations around 'power and resistance' and social movements. The surprise turns out to be the centrality of the municipal arena. Interestingly, scholars from either ideological position see this to be a world of 'nervous greed, local thugs, corrupt local bureaucrats, ward level politicians, and small time peddlers of influence'. A much closer look shows how in deeply material ways, the politics of Space and Place is rooted in complex contemporary contests: New institutional re-alignments around Parastatal agencies and 'Civil Society' confront highly

politicized lower level bureaucracies; Globally connected financial architecture attracted to the most rapidly growing real estate markets in Asia confront small firm networks that already tap such surpluses; Finally, new laws for mega land acquisition stonewalled in local government administrative and legal loopholes.

Keywords: Urban Politics, Globalization, Urban Violence, City planning, City Economy, India, Land tenure, Mega Projects, Slums, Municipal Politics, Real Estate, Industrial Clusters

Tor A. Benjaminsen, Norwegian University of Life Sciences. Email: torbe@umb.no; Faustin Maganga, University of Dar es Salaam. Email: efh@udsm.ac.tz; Jumanne Moshi Abdallah, Sokoine University of Agriculture. Email: abdallah@giant.suanet.ac.tz; *The Political Ecology of a Farmer-Herder Conflict in Tanzania*

Farmer-herder conflicts in Africa are often presented as typical examples of resource conflicts that illustrate the main message in the influential 'Environmental security' literature. However, political ecologists argue that these conflicts are more than just resource conflicts and that they should be studied within a broader historical and policy context. In this paper, we propose a detailed case study of a local conflict at village level between farmers and pastoralists in the Kilosa District in central Tanzania. This conflict led to the killing of 38 villagers in December 2000 and has been highly publicised and much discussed in Tanzania. It is frequently interpreted as a clear-cut resource conflict about access to water and grazing for the pastoralists in the dry season. However, the paper will demonstrate that to understand the conflict, it is also necessary to study the history of land use in the district, which involves the rise and fall of the sisal estates and state ranches as well as the history of villagisation, land tenure policy and pastoral policy in Tanzania. In conclusion, we argue that the root cause of the conflict is policy-makers' and other officials' lack of appreciation and understanding of principles of pastoral production leading to attempts to confine pastoralists in 'pastoral villages', which lack basic services and do not contain enough grazing land.

Keywords: political ecology; pastoralists; land use conflicts; pastoral policies, Tanzania

Chris Benner, Pennsylvania State University. Email: cbenner@psu.edu; *Industrial Agglomeration, Regional Labor Markets, and Call Center Jobs: the Case of Cape Town and Johannesburg*

Most studies of the relocation of call centers focus on national factors shaping location, including wage rates, tax and regulatory structure, unionization levels and the like. At the same time, local labor markets conditions and industrial structures within destination countries also play a critical role in shaping call center employment patterns. Call centers are complex, networked organizations and are typically supported by a web of institutions and firms that are frequently rooted in particular locations. Understanding the relationship between these local dynamics and national processes is essential for gaining a full understanding of growth and dynamics in call center jobs. Based on a detailed survey of 63 South African call centers, along with more than 50 in-depth interviews with call centre managers and 4 detailed case studies, this paper examines patterns of call center employment in Cape Town and Johannesburg, the two largest sites of call centers in South Africa. It explores how particular characteristics of the local labor force affect patterns of call center employment, and how local institutional practices, business networks, and labor market dynamics influence the types of call centers located in each area.

Keywords: Call centers, offshoring, labor markets

Drew E. Bennett, University of Texas-Austin. Email: dbennett@mail.utexas.edu; Rodrigo Sierra, University of Texas-Austin. Email: ; *From Cattle to Cacao: Changes in Indigenous Land-use in the Ecuadorian Amazon*

Landscapes in the Ecuadorian Amazon experienced dramatic changes during the last forty years as various development and colonization schemes expanded road networks and brought colonists into the region. The indigenous inhabitants of the Amazon were especially impacted as they confronted new political and socio-economic forces. This paper investigates the changes in land-use and livelihoods of one indigenous Kichwa group located in the Sumaco Biosphere Reserve of the Upper Napo region of the Ecuadorian Amazon. Particularly, through the use of land-use mapping and household questionnaires, it investigates the current use of natural resources in the construction of livelihoods. These results are then compared to historical accounts from an adjacent community to reveal that land-use and livelihoods changed dramatically over the past 40 years but that these changes are not unidirectional and that certain traditional land-uses remain important for household food security. In addition, a "mixed-use" cash-cropping strategy that increasingly incorporates shade grown cacao has largely replaced cattle ranching that came to dominate the area in the 1980s. Several groups promoting sustainable development in the newly created Sumaco Biosphere Reserve have played a major role in the adoption of these new

strategies.

Keywords: Ecuador, Amazon, land-use, conservation and development, community based natural resource management

John S. Benson, Minnesota State University Moorhead. Email: bensonj@mnstate.edu; *From Pagans to Partners: An American Church Explains Its Mission to Its Members (1922-2002)*

In most evangelical missions, individual missionaries send prayers letters back to the home country to explain their work and to ask for donations. In mainline churches, missionaries were usually salaried and the church updated members in the home country about the missions overseas. This paper analyses the changing message that the Augustana Lutheran Church (1862-1962), and its succeeding churches, The Lutheran Church in America (LCA) (1963-1987) and the Evangelical Lutheran Church in America (ELCA) (1988 to present) about their work overseas, concentrating specifically on the work in Tanzania. I have used four official church journals (The Lutheran Companion?Augustana; The Lutheran and World Encounter?LCA; and The Lutheran?ELCA) to look at the interest in missions by that church, who wrote the articles about the work, how they discussed their work, and how they viewed their companion Lutheran church in another country. The first articles were usually written by the missionaries themselves and concentrated on the mission stations and the ethnic groups with which they worked and the lives of the missionaries. In subsequent years, church writers from the US told the stories and often concentrated on the work of the partner churches, foreign policy issues, and less on the personal side of missionary life. I will use documents from various mission directors to analyze their sense of mission goals. In these articles, one sees a move away from a concentration on the individual American missionary to an understanding of the broader issues affecting other Lutheran churches around the globe.

Keywords: Missions, Lutheran, Intercultural Communications, Tanzania

Lisa M. Benton-Short, The George Washington University. Email: lbenton@gwu.edu; *21st Century Immigrant Gateway Cities*

The processes of globalization, urbanization and migration have increased the number and diversity of urban immigrant destinations. In order to understand the impact of immigrants on urban space, it is important to examine both the form and function of 21st century gateway cities throughout the world. This paper provides an introduction and overview of the common themes that unite the papers in these sessions. These themes include: the rise of hyper-diverse immigrant gateways, the cyclical nature of gateways, the impact of state policies on immigration, the expansion of categories of entry, how cities have become defacto immigration policy makers, identity issues, the creation of new labor markets and economic spaces, the spatial segregation or assimilation of immigrants, and the emergence of the city as the site for immigrant celebration or contestation.

Keywords: cities, migration

Gigi M. Berardi, Huxley College, WWU. Email: gberardi@wwwu.edu; Bradley F. Smith, Dean, Huxley College, WWU. Email: ; *Building Undergraduate Programs: Where Environment and Emergency Management Meet*

This paper describes the development of an undergraduate program in sustainable community planning and emergency management initially created with existing faculty and classroom resources, and then expanded with substantive state funding. Such a program, necessarily, must fit with departmental and collegiate strategic plans and mission statements. The ultimate goal of many of the major programs at Huxley is to create scholarship on and service-learning opportunities in disaster-resilient, sustainable communities. The demand for such interdisciplinary programs in sustainable development with a multidisciplinary foundation is great. Certainly, the combination of emergency management and planning creates a unique niche that is much needed in both career fields. The program was established with the understanding that planning and emergency management are a good fit, especially given the long-standing tradition of research in hazard studies in geography and disaster studies in sociology, and that the same critical thinking, decision making, and robust communication skills developed in all major programs at Huxley College, Western Washington University, enhances emergency management education. The program described here, created in 2006, builds on a long-standing certificate program in emergency management, established at the university pre 9/11. This paper addresses questions of how to utilize existing courses in the creation of such a program based in interdisciplinary education and commitment to informed practice.

Keywords: academic programs, education, emergency management, environment, hazards

Janet Bercovitz, University of Illinois. Email: jbercov@uiuc.edu;
Maryann Feldman, University of Georgia. Email: mfeldman@uga.edu;
Academic Entrepreneurs and Local External Inventors

Invention, despite the romantic image of lone genius, is generally recognized to be a team sport involving multiple individuals, often with diverse backgrounds. Frequently the discourse about economic development assumes that local inventors will collaborate more frequently and with greater impact with academics from local universities. This paper uses detailed data on the composition and history of over 2000 invention teams from two prominent universities for fiscal years 1988 to 1999 (July 1, 1988 to June 30, 1999) to test the collaborative patterns of academic entrepreneurs with external inventors. Every invention disclosure represents the formal acknowledgement of the discovery of scientific results that may have commercial application. The invention disclosure is the first step towards patenting and subsequently licensing the technology that is disclosed. The disclosure lists the names of the inventors in the order that would be used on a patent application. The paper examines the location of external inventors to assess the degree of collaboration with individuals in the local environment and to discern if spatial proximity matters in the quality of the disclosure generated.

Keywords: invention collaboration, spacial proximity, entrepreneurship

Lawrence D. Berg, University of British Columbia. Email:
Lawrence.berg@ubc.ca; *Practicing Whiteness: Nature, Race and Geographies of Exclusion in Vernon, Canada, 1890-1925*

This paper examines historical geographies of practice as they enacted whiteness in the small municipality of Vernon, BC, Canada, circa 1890-1925. Racial discourses underpinned much of contemporary thinking at the time, and unlike present-day whiteness that tends to be more hidden the enactment of whiteness was also relatively 'visible' during this period. This paper focuses on two aspects of the geographies of whiteness. First, I discuss the way that whiteness was enacted through embodied practices. Second, I examine practices that enacted whiteness in ways that drew upon very specific constructions of the differences between a racialized human and non-human nature.

Keywords: race, racism, whiteness, practice, historical geographies, nature, Canada

Susan J. Bergeron, West Virginia University. Email:
sbergeron@mail.wvu.edu; Lucy Kammer, West Virginia University.
Email: ; L. Jesse Rouse, West Virginia University. Email:
jesse.rouse@mail.wvu.edu; Zachary K. Pride, West Virginia University.
Email: kane.zach@gmail.com; Trevor M. Harris, West Virginia University.
Email: trevor.harris@mail.wvu.edu; *Recreating a boom town: a virtual reconstruction of a nineteenth century urban landscape*

One of the most difficult tasks in landscape archaeology and the study of past cultural landscapes is the synthesis and integration of information from disparate sources. However, the widespread availability of computers has spurred the development of digital landscape reconstructions and recreations as tools in the synthesis of information about the physical features of historical landscapes. This paper discusses the use of Historical GIS, geospatial technologies, and advanced computer graphics to provide a spatial framework and digital context for generating a virtual representation of a past urban landscape. Through the use of virtual reality and immersive visualization, this project displays the recreated landscape of a small regional city in West Virginia that underwent an industrial boom in the late 1800s. In recent years, however, many of the city's structures have been lost or changed as it has undergone redevelopment or gentrification, and a comprehensive interpretation of the city's historical urban geography is now possible through the use of geovisualization. The project draws heavily on the highly accurate historic Sanborn fire insurance maps, as well as historical photographs and texts. These sources were utilized to generate over 300 custom 3D models of the known structures within the town center. The completed models were imported into the GIS, along with other GIS layers including ground surface, streets, trees, and street furniture to populate the virtual landscape. The completed 'scene' offers a visual representation of Morgantown's nineteenth century landscape and allows users to explore the recreated physical and cultural elements of the town.

Keywords: GIS, geovisualization, virtual reality, historical landscape

Cory W Berish, Ph.D., US EPA. Email: berish.cory@epa.gov; *Enterprise Architecture: Solutions For Our Future*

In 2004, R4 EPA partnered with the Office of Environmental Information to implement the Agency's Enterprise Architecture (EA) Program at the Regional level. R4 EPA established a Regional EA Team to focus on six priority areas for improving the management of program data, systems utilization, and to support multi-media collaboration within EPA and our State partners. Using an EA model and tools, the team is supporting human capital planning efforts in the area of succession planning. They developed a retirement eligibility matrix for

each organization. The data depict retirement eligibilities by critical job element. The EA team completed Phase I of the Region's effort to consolidate base cartographic and programmatic vector data and to provide users with a single point of access. Estimated annual return on investment was estimated at \$128,000 for labor, operations and maintenance. The EA Team also developed an approach for Region 4 to ensure our ability to provide analytical support in the event of future major hurricanes.

Keywords: EA, GIS, Succession Planning

Lindsay Berk, University of North Carolina - Chapel Hill. Email:
berk@email.unc.edu; *The Effects of Prescribed Fire on Bird Communities in the Ponderosa Pine Forests of the Southwestern US*

Many bird populations have declined due to changes in fire regime and the resulting alteration of habitat. Some studies show that birds exhibit higher diversity in fire-maintained landscapes versus unmanaged landscapes, however, the impacts of prescribed fire on bird communities and the mechanisms behind these responses are unclear. Additionally, few studies have addressed the effects of prescribed fire on bird communities of the Southwest, especially in reference to the impacts of these fire treatments on foraging behavior. Here I illustrate a study that evaluated prescribed fire as a restoration tool for bird communities in the Southwest, addressing the following questions: 1) how does forest structure impact birds following a prescribed fire; 2) does foraging behavior impact avian responses to fire treatments at multiple spatial scales; and 3) how do birds alter their guild structure and foraging behaviors in response to these treatments? We collected data at study sites situated in the ponderosa pine forests in Arizona and New Mexico, using an experimental sampling design to measure response variables pre- and post-treatment. We implemented a prescribed fire treatment at each study site and sampled vegetation structure, bird species composition and abundance, and foraging behavior at all sites. With these data, we can examine how birds respond to fire treatments through their differing densities, foraging behaviors, and through scaling effects of these responses. These results will offer insight into the responses of birds to prescribed burning practices and will provide land managers with the necessary information to continue efficient forest management practices.

Keywords: conservation, landscape ecology, birds, fire

Thomas Berkhout, BA, MES, PhD Student, University of British Columbia. Email: tom_berkhout@yahoo.ca; *The Emergence of Sustainability Centred Organizational Fields*

Almost two decades after the release of the Brundtland Report by the United Nations, sustainability is still a widely contested concept. One explanation for this ongoing contention is that it is an idea that has the potential to create far reaching changes to a number of society's dominant institutions (e.g., capital markets, bureaucratic states, science, religion, and democracy). In this light, it can be argued that a sustainable future will require either the integration of sustainability-based principles into the existing dominant societal-level institutions or the emergence of sustainability as an independent institution. In the United States and Canada, a review of significant sustainability based policies and actions reveals that there has been a broader adoption of sustainability-based principles at the local scale and state scale than there has been at the national scale. This paper uses institutional theory to argue why the adoption of a shared concept of sustainability is more tenable at the regional scale in these two countries than it is at the national scale. A critical element is the increased opportunity for collaboration among the different organizations (e.g., government, private sector, NGOs, and civil society) that interact on a regular basis around sustainability related issues. Over time, the successive interactions between these recurring groups of organizations lead to the development of regional sustainability-based organizational fields. Operating at the level between individual organizations and society, these organically emergent fields play a critical role in the development, dissemination and reproduction of socially constructed expectations and practices concerning sustainability.

Keywords: Sustainability, institutional theory, emergence

Daniel S. Berkowitz, NEXRAD Software Developer, National Weather Service. Email: daniel.s.Berkowitz@noaa.gov; Ronald G. Guenther, Software Engineer, RS Information Systems, Inc.. Email: Ronald.G.Guenther@noaa.gov; *Radar Coverage: A GIS Application*

Weather radars are used for many applications including providing estimates of precipitation accumulation amounts. These radar estimates are just one source of precipitation accumulation data meteorologists and hydrologists use for real-time forecast and warning operations and climatological applications. GIS data along with newly acquired Shuttle terrain data (1 arc-second) and radar locations updated based on GPS-data have been combined to provide improved maps of radar coverage for each scanning angle used by weather radars. These maps assist hydrologists in better specifying areas where non-radar precipitation accumulation estimates (e.g., rain gages, satellite data) can best be used to supplement the

radar-estimated precipitation amounts, especially in complex terrain and at long ranges from the radars. This poster will provide details on how the GIS database/application has been combined with the Shuttle terrain data and more accurate radar locations to create these new radar coverage maps for rainfall estimation and other applications.

Keywords: gis, radar

Adam Berland, University of Minnesota. Email: berl0038@umn.edu; Modeling vegetation change in the Big Woods of Minnesota

Anthropogenic climate change is expected to elicit significant vegetation responses at the regional scale. Knowledge of past climate-driven vegetation dynamics will enhance predictions of future conditions. Specifically, it is important to understand how disturbance processes, such as fire, and ecological processes, such as succession and seed dispersal, have interacted to produce regional vegetation patterns in response to changing climate. The Big Woods of Minnesota is a dense hardwood forest located at the boundary between forest and prairie ecosystems. The area has seen marked changes in community composition and disturbance over the last several thousand years. While empirical paleoecological data have been able to describe past vegetation patterns in the Big Woods, computer modeling permits illumination of the processes behind these patterns. This work used the forest model LANDIS to simulate vegetation dynamics in the region. Sensitivity analyses illustrated how ecological assumptions in the model are evidenced on the simulated landscape. This research supports the hypothesis that topography and water bodies acted as firebreaks, and were therefore important in determining the location of the prairie/forest border.

Keywords: vegetation dynamics, climate change, disturbance, forest, model

Matthew M. Bernau, South Dakota State University Graduate Student. Email: mattbernau@hotmail.com; A Fencerow Prairie? Barbed Wire Fences as the Prairie's Last Stand in Southeast South Dakota

North American prairies have undergone a massive land use and land cover change since European settlement. It is estimated that ninety nine percent of the native tall grass prairies have been converted to agriculture or settlement. This study explores the possibility that some prairie species have been protected by barbed wire fences that serve as field boundaries in the agricultural landscape. Barbed wire fences were put in place to separate and confine livestock, and many still exist even though they are no longer needed, because they are expensive to remove. Clay, Union, and Lincoln counties in southeast South Dakota have been selected as the study area. Vegetation maps have shown that these counties are representative of the agricultural landscape that has been carved from native tall grass prairie. Vegetative sampling using the quadrat and census method will determine the species composition of plants that have been protected from cultivation by barbed wire fences in the study area. The outcome of this study may be important to plant geographers, geneticists, conservationists, and ecologists because fencerows are a potential source for native prairie species.

Keywords: barbed wire, fences, native species, prairie, South Dakota

Christian Berndt, Universitaet Frankfurt. Email: c.berndt@em.uni-frankfurt.de; Migrant labor and territorial capitalism

In today's global age where the conditions allowing the production of quasi-national economies and societies have ceased to exist, various forms of mobile labor establish trans-territorial life-worlds which do not chime well with the institutions of national economic models. Applying a perspective which privileges mobility over stability, I analyze the dilemmas confronting the contemporary German political economy from the perspective of mobile labor. I argue that the much-cited "German Model" was founded on a particular geographical compromise: Resting mainly on the mobility of goods, the country's economic success crucially depended on an elaborate regime of limited cross-border mobility of production factors (labor, capital). Only this allowed the maintenance of the sedentary life-styles and high living standards of a core of the workforce. In addition to the global stretching of production systems and the tremendous pressure on unionized labor in the wake of it, it is the mobility of "low skilled" labor which appears to contribute to the erosion of the stable post-war territorial compromise. Using evidence from selected urban labor markets, I critically analyze the ambivalent responses to low wage migrant labor and identify the dilemmas resulting from these measures. Criticizing the "methodological nationalism" of predominantly defensive measures which have little to do with the social realities in cities such as Frankfurt or Berlin, I argue that decision-makers in Germany have not yet come to terms with the requirements of an increasingly connected world. Trapped territorially they instead unintentionally create new dilemmas for every problem they seek to solve.

Keywords: labor migration, varieties of capitalism, Germany

Lea Berrang Ford, PhD, Public Health Agency of Canada. Email: leaberrang@hotmail.com; Sleeping sickness in Uganda: a spatio-temporal analysis of environmental change, social conflict, and disease re-emergence, 1970-2003

Sleeping sickness is a re-emergent, infectious disease affecting large regions of sub-Saharan Africa, resulting in significant public health and economic burden. South-eastern Uganda experienced an outbreak of sleeping sickness in 1976, and cases continue to be recorded in new regions of the country. This paper presents the results of spatio-temporal analyses of sleeping sickness in south-eastern Uganda for 1970-2003. Land use change variables are assessed as predictors of spatial variation in the disease using satellite proxy data and zero-inflated regression modelling. The role of civil conflict as a temporal trigger of sleeping sickness outbreaks is discussed. The results suggest that sleeping sickness is expected to continue to spread into currently unaffected regions, particularly given the presence of unstable political and social conditions in vulnerable north-central districts.

Keywords: medical geography, spatial analyses, gis, africa, infectious diseases, historical

Kate A Berry, University of Nevada. Email: kberry@unr.nevada.edu; Jen Huntley Smith, Ph.D., University of Nevada, Reno. Email: jen@unr.nevada.edu; H. Peter King, University of Nevada, Reno. Email: howatt@unr.edu; Contested Waters: Water Politics, Law and Technology in Late 19th Century O'ahu, Hawai'i

This paper considers how Hawaiian water conflicts and their resolution reflected political/social/cultural tensions between traditional/indigenous and western EuroAmerican approaches as well as the changes they wrought to Hawaiian waterscapes, as ditches and infrastructure were used, discarded or adapted to new ends. Using late 19th century administrative and case law in the Kingdom of Hawai'i, we examine Hawaiian water decisions and law during a period of intense transformation, analyzing the ways that legal and political systems simultaneously reflect and shape the society within which they operate. The Commissions of Private Ways and Water Rights, established by the Hawaiian monarchy, invoked traditional Hawaiian as well as Western EuroAmerican assumptions and technological practices in adjudicating water conflicts. Some of the Commission decisions were appealed to the Hawaiian Supreme Court, leaving further records of water conflict resolution. Analyzing these decisions provides insights into the complex dynamics which arose as indigenous societies responded to, adapted and challenged western colonizing efforts. We examine the decisions of the Commissions and Courts that shaped the nature of water practices and technologies on O'ahu, by evaluating legal processes, analyzing individual agency, tracking alternate uses of water infrastructure and interpreting institutional frameworks.

Keywords: water law, water technology, Hawaii, historical geography, Pacific Islanders

Susan M. Berta, Ph.D., Indiana State University. Email: sberta@indstate.edu; Habitat Mapping for Indiana in 2000

There have been many changes in the habitats, the vegetation and the animals of Indiana between 1800 and 2000. The human population of Indiana increased from about 22,500 (20,000 Native Americans and 2500 settlers) in 1800 to 2.5 million in 1900 to 5.9 million in 2000. This rapid increase in human population brought great changes to the Indiana landscape changing our state from woods, prairie and wetland, into an agricultural state with many urban communities. The total land in agriculture went from less than 100,000 acres in 1800 to 16.7 million acres in 1900 to 15.1 million acres in 2000. The U.S. Fish and Wildlife Service / Fish and Wildlife Department engaged Indiana State University in project to examine the habitat and biodiversity of Indiana for the year 2000 and review the changes over the past 200 years. The result, in part, is a manuscript describing the Habitat of Indiana in 2000. Highlights of the habitat changes are presented for discussion.

Keywords: habitat, mapping, Indiana

Mario Berti, Simon Fraser University. Email: mmariob@sfu.ca; Homelessness, Community and Rights

Within critical geography an increasing amount of attention is being paid to the plight of the urban poor and the ways that so called "quality-of-life laws" are serving to exclude the abject and marginalized from the spaces of the city. I will discuss a 2005 study I conducted in Vancouver, BC, Canada, that investigated the Regulation of Public Space and the Criminalization of Homelessness in two Vancouver neighborhoods. Trends emerged that were both troubling (such as the prevalence of victimization rates), and surprising (such as who homeless respondents most feared victimization at the hands of). However, there were also opportunities for hope seen in homeless peoples complex, and often heartening,

conceptions of community inclusivity. I will explore these findings, and discuss different conceptions of community.

Keywords: Homelessness; Vancouver, BC; Rights; Community; Victimization

Kathryn J. Besio, University of Hawaii-Hilo. Email: besio@hawaii.edu; *Being Haole: "race," education and US empire in Hawai'i*

Hawai'i is often characterized as an exemplar of the US melting pot because of its multicultural and multiethnic make-up. Yet racial identities, particularly bicultural racializations based on "whiteness" and its apparent opposite "Indigenous" complicate the state's/nation's multicultural identity. In the transcultural educational spaces of Hawai'i, one of the ways this is apparent is in the make-up of the student and staff populations in which "white" bodies make up a significant percentage of those who teach, and non-"white" bodies - a wide range of Pacific, east Asian, "Local" and Hawaiian bodies — comprise those who learn. In this paper, I look more closely at how being Haole — an indigenous construction of "whiteness" — calls forth for university educators the legacies American imperialism in Hawai'i, highlighting the day to day practices of race and US imperialism in myriad, taken-for-granted ways. For educators who may self-identify and are identified by their students as Haole, this identity construction may create opportunities for critical pedagogy, although simultaneously it also produces a kind of pedagogical paralysis. Drawing upon focus group interviews with "white" university educators in Hilo, Hawai'i, I look more closely at how our negotiations with this particular construction of whiteness in Hawai'i's colonial present, deploys, disregards and often embraces being Haole and all the complications it entails.

Keywords: colonialism, whiteness, education, Pacific

Kirsten M. M. Beyer, MPH, University of Iowa. Email: kirsten-beyer@uiowa.edu; *Identifying and Mitigating Health Disparities with Public Participatory GIS*

An integration of geographic information systems (GIS) and community-based participatory research (CBPR) can identify and characterize health disparities by addressing both questions of equality and equity. GIS enables small area analysis and the integration of data collected for areas of different shapes and sizes, while CBPR addresses power and ownership of knowledge in the research process, leading to the generation of knowledge that is more likely to lead to action. This paper examines challenges faced in integrating GIS and CBPR for health disparities research, and discusses work from an ongoing collaborative project that examines spatial patterns of cancer in Iowa.

Keywords: PPGIS, cancer, health geography, health disparities, GIS, community-based participatory research

William B. Beyers, University Of Washington. Email: beyers@u.washington.edu; *State Trends in High Technology Industry in the United States: The Shift from Manufacturing to Services*

High-technology industry has been the darling of economic development organizations in the United States for the last half century. This sector has been defined in different ways over the years, but today the prevalent definition is based on the occupational structure of industries. Industries with relatively high levels of employment in scientific, engineering, and computer occupations have been regarded as high-tech in recent years, but there have not been assessments of regional trends in employment in these industries for some time. This paper uses national industry-x-occupation data to define high-tech industries, and reports on regional trends over the last decade. Traditional measures such as coefficients of regional specialization and coefficients of industrial concentration are presented, as well as shift-share measures. A key point of this paper is to emphasize the emergence of service industries as the leading elements in the high-tech sector in the U.S., replacing the historic focus on certain categories of manufacturing.

Keywords: high-tech, employment, structural change

Kris Bezdecny, M.A., University of South Florida. Email: bezdecny@cutr.usf.edu; *Orlando, Before Disney: Constructing a Historical Geography of Central Florida*

While Orlando, Florida is viewed as a relatively new city, its history, prior to the opening of Walt Disney World, is often overlooked. This paper explores the urban history of Orlando within the context of central Florida. The focus will be from the original American settlement around Fort Gatlin during the Second Seminole War to the opening of Magic Kingdom in 1971, with emphasis upon periods of significant change within the social urban landscape. In addition, this history will then be linked to the massive changes that began to occur with Orlando's rapid ascent as a tourist city following the arrival of Walt Disney World. The sociopolitical and socioeconomic history of those intervening 135 years must be understood in order to contextualize contemporary issues in

Orlando's social urban landscape.

Keywords: Orlando Florida; historical geography - urban; urban geography - history

Budhendra Bhaduri, Oak Ridge National Laboratory. Email: bhaduribl@ornl.gov; Mark Tuttle, Oak Ridge National Laboratory. Email: tuttlema@ornl.gov; Cheng Liu, Oak Ridge National Laboratory. Email: liuc@ornl.gov; John Sorensen, Oak Ridge National Laboratory. Email: sorensenjh@ornl.gov; Oscar Franzese, Oak Ridge National Laboratory. Email: franzeseo@ornl.gov; Eddie Bright, Oak Ridge National Laboratory. Email: brightea@ornl.gov; James Nutaro, Oak Ridge National Laboratory. Email: nutarojj@ornl.gov; Phil Coleman, Oak Ridge National Laboratory. Email: colemanpr@ornl.gov; Kalyan Perumalla, Oak Ridge National Laboratory. Email: perumallaks@ornl.gov; *Advanced Geospatial Modeling and Simulation for Intelligent Consequence Management*

Geospatial information has been recognized as the common element in preparedness, response, and recovery activities as it enhances situational awareness and analysis leading to improved information communication, sharing, and time critical decision making. This paper will describe ongoing development of a computationally intensive and efficient, scenario driven geospatial modeling analysis, and visualization framework that allows near real time processing and integration of remotely sensed data, derivation of more intelligent data derivatives, and faster than real time modeling and simulations using capability computing. We will illustrate this concept through the current functions of the Visualization and Modeling Working Group of the Department of Energy, to which Oak Ridge National Laboratory provides the critical capabilities for geospatial modeling and visualization of population dynamics, transportation infrastructures, and commodity movements aimed to enhance the nation's ability to prepare and respond to natural disasters and other emergencies and developing novel solutions for emerging issues. In addition, we will discuss development and integration of transportation, physical and behavioral science computational algorithms; the integration of these models that address different spatial and temporal scales; and the development of dynamic optimization routines to take advantage of real-time data from sensor networks. Drawing from our experience in supporting national and international consequence management efforts for recent natural disasters including Hurricanes Katrina and Rita, and historic Tsunami of 2004, we will highlight the practical limitations of traditional disaster decision support structure and criticality of geospatial science and technology in advancing current modeling and analysis approaches.

Keywords: Disasters, Geospatial modeling, Simulations, Consequence management.

Keshav Bhattarai, University of Central Missouri. Email: bhattarai@cmsu.edu; Mahmoud Yousef, Mathematics and Computer Science, University of Central Missouri. Email: yousef@cmsu.edu; *Mapping impervious surfaces using high resolution images: Comparing results of object-oriented classifier vs. vectorized approaches*

Accurate mapping of impervious surfaces has been a topic of research for many years because of its impacts on urban environment and its neighborhood. However, various mapping methods have both overestimated (>50%) and underestimated (

Keywords: remote sensing, impervious, NDVI, vectorization, urban

Lisa Bhungalia, Syracuse University. Email: lbhungal@maxwell.syr.edu; *Urbicide in the West Bank: The Politics of Development and Demolition (1967-Present)*

Urbanism is at the core of the Israeli-Palestinian conflict. Since occupying the West Bank in 1967, the Israeli state has systematically produced and destroyed urban spaces?Jewish and Palestinian respectively?throughout the territory as a means of securing geo-political dominance in the region. While Israel has dismantled settlements in strategic zones of the Occupied Territories, such as the Gaza strip, it has erected a vast matrix of Jewish-only towns and infrastructure around Palestinian cities and refugee camps throughout the West Bank. The resulting matrix has successfully expanded Israel's de facto national borders into contested territory, while facilitating the economic, social, and physical deterioration of Palestinian urban centers. The process of urban destruction, or urbicide, has been accelerated through the demolition of Palestinian city-spaces within the context of Israel's contemporary "War on Terror." This paper investigates the relationship between Israeli colonialism and space?specifically, the ways in which Israel's expansionist ideology manifests itself across the West Bank landscape via a two-pronged process of urban development and demolition. Through the use of primary and secondary literature, this paper examines the concept of urbicide as it was written into Israel's national settlement plans during the early stages of state formation, and traces its evolution through Israeli settlement and counter-terrorism efforts from

1967 to the present.

Keywords: urban and political geography, war, landscape and conflict, Israel/Palestine

Arvind A.R. Bhuta, M.S., Virginia Tech, Department of Geography. Email: bhuta.arvind@gmail.com; Lisa M. Kennedy, Ph.D., Virginia Tech, Department of Geography. Email: kennedy1@vt.edu; Jeffrey R. Walters, Ph.D., Virginia Tech, Department of Biological Sciences. Email: jrwalt@vt.edu; Potential for using dendrochronology to reconstruct historical cavity excavation and maintenance of longleaf pine by red-cockaded woodpeckers

The red-cockaded woodpecker (RCW) is an endangered species endemic to the longleaf pine ecosystem in the southeastern United States (US). This non-migratory, cavity-nesting woodpecker specifically excavates cavities for nesting and roosting in living pine trees, preferably longleaf pine. The decline of the RCW and its endangered status are due to fire exclusion, human disturbance, and the decline of the longleaf pine ecosystem. The elimination of cavity trees and old growth pines from the RCW's historical range has resulted in small fragmented populations of RCWs located throughout the southeast. Based on one of these populations in Southern Pines, North Carolina, we are examining 175 longleaf pine cores that have undergone disturbance due to cavity excavation. Cavity excavation requires up to more than a decade, while cavity maintenance, another decade or two, keeps resin wells active causing considerable disturbance to the living pine tree. We have detailed records of the locations and RCW excavation histories of these trees and will use dendrochronology to investigate whether there is a disturbance signal in the annual ring-width growth of longleaf pine from the effects of cavity excavation and its active maintenance. Based on our findings, we hope to determine the potential for using this signal as a proxy for historical RCW cavity excavation and maintenance in old-growth and second growth longleaf pine forests, naval stores stumps, and salvaged and reclaimed longleaf pine from buildings. This technique could provide data on long-term spatial and temporal patterns of RCW activity in the southeastern US.

Keywords: red-cockaded woodpecker, longleaf pine, dendrochronology, North Carolina

Ling Bian, University at Buffalo. Email: lbian@buffalo.edu; Yuxia Huang, University at Buffalo. Email: huang3@buffalo.edu; Gyoungju Lee, University at Buffalo. Email: gjlee@buffalo.edu; Eunjung Lim, University of Buffalo. Email: elim3@buffalo.edu; Deborah Wilson, National Institutes of Health. Email: dw109u@nih.gov; Murray Cohen, National Institutes of Health. Email: cohenmu@ors.od.nih.gov; Modeling Vulnerability to Communicable Diseases for Communities

This project is intended to model the vulnerability of individuals in communities to communicable diseases. Communicable diseases transmit from individual to individual through a social network of human contact. The spatial and temporal heterogeneity in this process can significantly affect the outcome of population health. This project uses a network approach to modeling heterogeneous transmission patterns. Nodes and links in a network are used to represent individuals and individualized interactions. The characteristics of nodes and links and the topology of the network collectively characterize the exposure of individuals to diseases. A spatially explicit approach is incorporated to account for the spatial heterogeneity in contact patterns and changes in these patterns through location and time. The characteristics of the network are represented by a series of parameters according to the demographic and social structure of a community. The vulnerability of individuals to communicable diseases in communities is evaluated under difference scenarios.

Keywords: communicable diseases, network, spatial heterogeneity

Thomas Anthony Blanchette, Louisiana State University. Email: tbianc1@lsu.edu; Kam-biu Liu, Louisiana State University. Email: kliu1@lsu.edu; Environmental Impacts of Hurricane Ivan: Evidence From Remote Sensing and Lake-sediment Studies

Hurricane Ivan, a category 3 storm, directly hit Gulf Shores, Alabama, on September 16, 2004, with maximum sustained winds of approximately 130 miles per hour. The 16-foot storm surge inundated the coastal plains and caused massive tree mortality in the maritime forests around the Shelby Lakes in Gulf State Park. A remote sensing study was performed to analyze the vegetation damage by comparing Landsat-5 satellite imagery taken before the storm (July 20, 2004) and those after the storm (July 7, 2005). Vegetation indices, along with unsupervised/supervised classification schemes, were used to reveal land cover changes. Remote sensing results, supported by ground-truthing with GPS, show that approximately 47% of the forest was damaged or killed due to the storm. Fifty-two cores were collected from these lakes during three trips (August 2005, May 2006, June 2006) to study the sedimentary pattern resulting from the barrier-breaching and overwash processes. Some of these cores were compared with cores taken from nearby sites during the 1990s so that Ivan's sedimentary

signature can be identified. The lake-sediment study reveals a spatially uneven depositional pattern among Lake Shelby, Middle Lake, and Little Lake.

Keywords: paleotempestology, remote sensing, Hurricane Ivan

Matthew Biddle, University of Oklahoma. Email: mbiddle@ou.edu; title

Dzamilia Bienkowska, Uppsala university / CIND. Email: dzamilia.bienkowska@kultgeog.uu.se; Local mobility of labor in two Swedish clusters

Clusters of similar and linked organizations located in particular places are increasingly perceived, by both industry actors and policy makers, as key to creating essential competitive edge in today's business climate. The concentration of skilled and specialized labor present in clusters implies an increased potential for local labor mobility. The mobility of workers is often portrayed as an advantage for clusters as it forms a channel for the dispersal of knowledge and enables individuals to expand their social networks as they encounter new co-workers. The concept of local labor mobility, its reasons and effects, is explored in two Swedish clusters of IT and telecom firms. The methods used in the study are interviews with representatives from cluster firms and analysis of register data. The findings suggest that mobility of workers on the local level can be described as an intricate interplay of the principal actors of mobility, that is individuals, firms and cluster organizations. These actors are all driven by their own motives, interests and agendas and influence the resulting level of mobility in many ways. The nature of this interplay implies that there is little room for simple policy measures geared towards realizing the full mobility potential of clusters. Furthermore, labor mobility involves several negative aspects, as it incurs costs and increases risks, can be damaging to business relations and can make a workplace unstable. Hence, increased labor mobility should not be perceived as an easy way to greater competitiveness in the case of the two clusters under study.

Keywords: Labor mobility, clusters, Sweden

Jess Bier, CUNY - Graduate Center. Email: faboohoo@aol.com; Deciphered Data: Mapping Palestinians in New York and New Jersey

A contribution to the emerging literature on Arab and Middle Easterners in the U.S., this paper analyzes a major discrepancy in the 2000 U.S. Census data: the merging of Palestinians and Israelis into a single category. While ancestry and language data include categories which differentiate among Palestinians and Israelis, the place-of-birth data do not. Therefore, the objective of this project was to overlay the ambiguous place-of-birth data for New York and New Jersey census tracts with hatched layers displaying ancestry and language data. The maps which have resulted provide for the visual exploration of the place-of-birth data in light of geographically separate Arab and Israeli communities. Such investigation allows researchers to visualize data error and estimate the number and location of Palestinians in the region, a partial correction for the drastic undercounting of Palestinians. This in turn will hopefully aid future research on both Palestinians and Israelis by encouraging awareness that the place-of-birth data for Israelis includes an un-recognized, and quite statistically significant, number of self-identified Palestinians. People of Arab and Middle Eastern descent are classified as "White" according to the U.S. Census, which means that the detailed SF-3 and PUMS data are the only data which include information on Arabs and Middle Easterners. Correcting misperceptions which arise from data ambiguity in the place-of-birth SF-3 tables is therefore a necessary part of future work in these communities, and it also has resulted in the creation of maps to better aid community advocates.

Keywords: Urban Geography, Critical GIS, migration, Palestine, Israel, Arab American, Middle East, New York City

Sabin Bieri, University of Berne. Email: sabin.bieri@giub.unibe.ch; Playing Cat and Mouse. Violence, Urban Movement and the Role of the Police

Focusing on the role of the police towards 1980's urban movements in Switzerland, this paper considers struggles for "free spaces" by predominantly young people who politicised the public realm through transgressive acts. By ritualising violent confrontations with the police the movement shaped its self-understanding and public appearance. These encounters contained playful elements whilst, at the same time, the police was constructed as the enemy. Driven by their own vulnerability, increasing pressure and fear, both sides lost control in a territorial conflict for "the right to the city". I will argue that the role of the police forces was highly ambivalent in these confrontations and shaped by particular political agendas of their own. Based on official documents and in-depth interviews with former participants of the movement and authorities, this case study sheds a light on how political conflict was negotiated in a major Swiss city. Applying the Foucauldian concept of governmentality to the sources of the local police department, the proclaimed transition from a high intervention standard to one of low intervention initiated at the end of the 1960s was contested. I will argue by contrast that the disturbances rather

intensified by contradictory doctrines of police deployment, leading eventually to an upgrade of police forces. The paper refers to relational theorising of the state in recent cultural and political geography literature. Affect and emotion are considered as constitutive moments for the political and are adopted as crucial categories for the analysis of social transformation.

Keywords: Transgression, Police, Governmentality, Geographies of Emotion, Political Geography

Greg Bierly, PhD, Indiana State University, Dept. of Geography, Geology, and Anthropology. Email: gbierly@isugw.indstate.edu; Elaina Tuttle, PhD, Indiana State University, Life Sciences Dept.. Email: ; Rusty Gonser, PhD, Indiana State University, Life Sciences Dept.. Email: ; Kacie Nichole Schwartz, Indiana State University. Email: kschwartz2@indstate.edu; Allison Lapcheska, Indiana State University. Email: alapcheska@indstate.edu; *The Relationship Between Regional Climate and the Nest Success of the White-Throated Sparrow*

The white-throated sparrow (*Zonotrichia albicollis*), a socially monogamous songbird of the northeastern U.S., exhibits polymorphism in both sexes (white and tan morphs). Behavioral and genetic differences between morphs, combined with disassortive mating, lead to differential parenting and nest success between pair types. The white morph type is more aggressive and promiscuous; thus white-male/tan-female pairs are potentially less effective parents for a variety of reasons. Against the backdrop of regional climate, these parenting differences may be related to nest and reproductive success. Our objective is to relate the differential nest success of the *Z. albicollis* pair types to aspects of the regional climatic environment in the winter prior to nesting and during the nesting season itself. In this study, we investigate nest success (including number of eggs laid, number of chicks, proportion of male chicks, depredation) in the context of surface and upper level atmospheric variables for the Cranberry Lake Biological Station in the Adirondack Mountains. Monthly and seasonal temperature, precipitation, geopotential height and circulation data (standardized Pacific North American Index values) are used to characterize the winter and spring climate of the wintering and nesting grounds for the period 1988-2005. Correlation matrices and composites difference maps are used to examine the relationship between climatic variations and nest success, as well as differential success between pair types.

Keywords: climate, sparrow

David Biggs, University of California, Riverside. Email: david.biggs@ucr.edu; *Insurgency and the Water Landscape in Vietnam*

Throughout the First and Second Indochina Wars, battle lines were commonly drawn between different environments—city and country, field and forest, above ground and below. Vietnam's networks of roads and airstrips facilitated the circulation of French, American and South Vietnamese government troops while remote mountain footpaths and sinuous delta creeks supported an alternate infrastructure that since 1930 became a basis for the Vietnamese Revolution. Since the first days of colonial conquest in 1858, many such struggles to 'pacify' or 'liberate' Vietnam were centered on water. Controlling traffic on waterways and clearing swamps were constant features of public works campaigns. During the Indochina Wars, such projects were often targeted for attacks, but in addition to such attacks, insurgent worked steadily from the 1940's to expand an alternative 'liberation' government from key bases on the creeks and inside the forests. Now working as leaders in post-war provincial and national governments, former insurgents have now focused many government-funded projects in these areas, producing an often-problematic mix of inherited, old government infrastructure with newer schemes often motivated less by sound environmental or economic planning and more by revolutionary loyalties to former base areas. This paper considers how the water landscape figured into the Indochina Wars and how the legacy of the insurgency played into post-war development of the hydraulic landscape in Vietnam.

Keywords: water, insurgency, Vietnam, landscape

Trent W Biggs, PhD, INTERA, Incorporated. Email: trentbren@yahoo.com; Christopher A Scott, PhD, University of Arizona, Tucson. Email: cascott@email.arizona.edu; Anju Gaur, PhD, International Water Management Institute. Email: a.gaur@cgiar.org; Balaji Rajagopalan, PhD, University of Colorado, Boulder. Email: rajagopalan.balaji@colorado.edu; *Land use and basin-scale energy balance: Has irrigation countered regional warming in India?*

India is one of the regions on Earth that has areas showing decreasing surface temperatures over the past 50 years. Here we quantify the relative effects of aerosol forcing, greenhouse gas forcing, and land use on the energy flux in the Krishna Basin, southern India (259,000 km²) over 1952-1997. Irrigation has expanded to more than 40,000 km² in the basin, which resulted in near complete depletion of streamflow and significant aquifer over-abstraction. Simultaneously, annual evapotranspiration increased by ~36-55 km² and basin-average NDVI

increased. Surface air temperature decreased by up to 1 degree C over 1952-1997 in areas that experienced rapid irrigation development, but increased by 1 degree C or more in areas that are unirrigated, with either rainfed agriculture or non-agricultural land uses. Aerosols decreased incoming radiation by ~160 MJ/m² per year over 1952-2000, greenhouse gas forcing increased net radiation by 75 MJ/m² per year, while the ET increase from irrigation development reduced the sensible heat flux by 344 MJ/m² per year. Similar trends in temperature occurred in the Ganges basin, where temperatures increased 0.5 degrees C from 1885-1960, but then decreased ~0.3 degrees from 1960-2000, suggesting that irrigation development may have affected the energy balance and surface temperature of a significant fraction of the land surface of India.

Keywords: hydrology, climate change, irrigation, India

Wendy Bigler, Southern Illinois University Carbondale. Email: wbigler@siu.edu; *Irrigation Agriculture and Desert River Interaction: Historical Akimel O'odham (Pima) and the Gila River*

Arid alluvial rivers can undergo considerable geomorphic change in response to flood events. This study suggests that historic Akimel O'odham (Pima) farmers' agricultural practices affected channel change in response to a large magnitude flood event in 1905. Using historical maps and General Land Office survey notes, I document channel change in the Gila River of central Arizona for two significant flood events in 1891 and 1905. While differences in land use along the channel did not appreciably impact channel change for the 1891 flood, these differences did affect channel change in the larger magnitude 1905 flood event. Following this flood, the channel widened much more in reaches bordering irrigation farm land than it did for reaches bordering forested land. This amplified widening was likely the result of farmers clearing land of soil-anchoring vegetation, as well as the constructing canals which would have transported floodwaters (and their ability to induce geomorphic change) to a broader area.

Keywords: Agriculture, fluvial geomorphology, General Land Office surveys, Arizona

Denise Bijoux, University Of Auckland. Email: dbijoux@orcon.net.nz; Denise Bijoux, MA, University of Auckland. Email: dbijoux@orcon.net.nz; *Everyday Lives: Solicited Diary and Photo Methodologies in Research on Everyday Connections to Place*

This paper draws on preliminary results from Doctoral research that seeks to understand the importance of place of residence (house, neighbourhood, city) in personal processes of attachment, identity and social connection. Drawing on data gathered through interviews and solicited photo-diaries in 2006, the research explores women's experience of place and space as they go about their daily lives. The study is based around areas along a four kilometre stretch of road in Auckland, New Zealand that are identified as undergoing change on a number of levels and which represent a continuum of suburbs of socio-economic difference. Examples of movement within, between and beyond this area are explored in an attempt to discern how daily activities and movements might contribute to personal and collective senses of belonging and feelings of 'home'. Particular attention is paid to the methodologies employed and how, together, they offer a mode of capturing a nuanced, sensory and embodied experience of the environment that is deliberately subjective and selective and ultimately useful in understanding and representing the diversity of experiences and perspectives.

Keywords: Everyday life, neighbourhood, attachment, identity, social connection, solicited diaries, photography

James J. Biles, Indiana University. Email: jbiles@indiana.edu; *Urban Economic Restructuring and Informal Employment: A Case Study of Mérida, Mexico*

The dual forces of neo-liberal reform and globalization have brought about profound changes in urban economies throughout Latin America, with concomitant implications for the livelihoods of those who live and work in cities. In theory, neo-liberal economic reform and globalization should reduce the role of the informal economy in meeting the needs of urban populations as both consumers and workers. Data from Latin America, however, suggest that the importance of the informal economy as a source of employment has not diminished in recent years. In fact, in the case of Mexico, the number of workers in the informal sector has increased by 25 percent during the past decade. This paper presents the preliminary results of research on informal employment in Mérida, Mexico. Based on a survey of nearly 600 households throughout the city, this case study employs an expanded typology of informal employment to assess the livelihoods of those who work informally. In addition, I make use of detailed work history data to identify patterns of mobility between and within formal and informal sectors of the urban economy.

Keywords: Informal economy, globalization, Mexico

Emily Billo, Syracuse University. Email: erbillo@maxwell.syr.edu; *The Hydrocarbon Industry: A Case for Corporate Governance in Ecuador's Amazon Region*

How has a multinational hydrocarbon industry restructured relationships between the state, society, and nature in Ecuador's Amazon region? What are the particular conditions, forces and relations of hydrocarbons production that have contributed to this restructuring? Specifically, this paper examines the question of whether the Ecuadorian hydrocarbons industry has been able to establish a "spatial" or "institutional fix" to overcome capitalism's inherent contradictions. This paper will begin to explore the ways in which the industry has also benefited from neoliberal restructuring of the state, and whether such restructuring has contributed to "corporate" governance within Ecuador, and perhaps most prominently, within the Amazon region. These theoretical questions are based on research conducted in three indigenous Kichwa communities along Ecuador's Rio Napo, in the north central Amazon region during July and August of 2005. At the time of this research, these communities are within or next to hydrocarbon "blocks" leased by different multinational companies, including: Occidental Petroleum and EnCana. This paper looks specifically at these companies' "corporate social responsibility" programs that have provided much of the community's infrastructure in recent years. This infrastructure has included school buildings, medical facilities and potable water systems. As a result, communities look to the companies for additional resources, rather than the state, suggesting that the companies "govern" the region. Yet, this research shows that company "responsibility" to communities is within carefully defined industry parameters, benefiting the companies, but at what cost to communities and the environment?

Keywords: corporate governance, hydrocarbons, political ecology, Ecuador

Tina Billups, University of North Dakota. Email: tina.billups@und.nodak.edu; *Staying Power: Aging-In-Place in Larimore, North Dakota*

The growing population of those aged 65 years and over is a phenomenon with significant social, economic, and political implications at the national and state level. Aging-in-place, or the residential stability of growing old in a familiar location, is one important attribute of this increasing elderly population. In the United States, many predominantly rural Great Plains communities are experiencing this phenomenon among their elderly populations. Larimore, North Dakota, with its substantial elderly cohort and rural environment, serves as a case study to determine why elderly age-in-place, what factors are involved, and what the implications are for rural communities. Data were collected by conducting surveys and interviews with members of the elderly population in the Larimore community, and conducting interviews with Larimore community leaders. The surveys and interviews were designed to determine the study group's socio-demographic characteristics, ascertain why the elderly residents choose to stay in Larimore, and identify what could be changed in the community to make their lives more satisfying and enjoyable. Results indicate that elders are choosing to remain in their location for a variety of reasons, which include attachment-to-place, close proximity to family members, and homeownership. Findings may be of interest to health care professionals, and those in planning positions for understanding this phenomenon in North Dakota's elderly population residing in rural communities.

Keywords: aging-in-place, North Dakota, population

Michelle Bilodeau, University of Washington. Email: micheb3@u.washington.edu; *Placed-based suicide: the 'scene' and unseen meanings of the San Francisco Golden Gate Bridge*

Suicide, according to the Center for Disease Control (2006), is ranked as the eleventh leading cause of death within the United States. While suicide may be recognized as an emerging public health epidemic, stigma of the act remains. Since the erection of the Golden Gate Bridge in 1937, over 1,200 people have committed suicide from this 'scene'. The Golden Gate Bridge is now the number one "suicide magnet" in the world. Yet, the four and half foot railings separating the bridge sidewalk from the water two hundred and fifty foot below remain unchanged from the original construction of the bridge. Opponents to a suicide barrier stress financial feasibility though there is an underlying concern that a barrier will destroy the architectural and iconic meaning of the bridge. I argue that the conflicting meanings of this 'scene' connect to how inadequately and ambivalently suicides, as well as mental health-related illnesses, are understood at larger social scales. In this paper, I examine the act of suicide from Golden Gate Bridge through the lens of governmentality and the body.

Keywords: health geography, cultural geography, governmentality, suicide, place, San Francisco

Richard E. Bilsborrow, Ph.D., University of North Carolina-Chapel Hill. Email: richard_bilsborrow@unc.edu; Luis Limachi, Econ., Instituto de Investigaciones de la Amazonia Peruana. Email: llimachi@iiap.org.pe; *Vulnerability, Livelihoods and the Environment: Differences Across Urban and Rural Communities Around Iquitos, Peru*

Urban, peri-urban and rural populations in the Amazon rainforest may have different livelihood strategies, based on their location relative to roads, rivers and urban centers. This may lead to differences in living standards, including housing conditions, incomes, assets, and vulnerability. How do these populations relate to the rich natural environment in which they live, especially in terms of modes of livelihood? In times of crisis, do they increase their dependence on exploitation of natural resources? This paper will report on findings from a survey of 216 households in 15 communities in and around Iquitos, carried out by UNC and IIAP in 2005. The paper will also examine the dimensions of "vulnerability" and provide empirical evidence based on the survey

Keywords: poverty, vulnerability, livelihoods, urbanization, environment, Peru, Amazon

Nick Bingham, Dr, Open University. Email: n.bingham@open.ac.uk; *Biopolitics, Biosecurity and the modern way of death*

This paper seeks to work productively between two parts of the oeuvre of Giorgio Agamben hitherto little connected in the burgeoning critical literature on his work. This pairing comprises - on the one hand ? the superficially compelling but hugely generalised and anthropocentric theses on biopower for which he is perhaps best known on the one hand, and the tantalising because fragmentary and more than human centred speculations more recently collected in *The Open* on the other. Specifically, I suggest something interesting happens if we read the former in the light of the latter and its identification of human-animal relations (and not just the bios-zoë relation within the human) as a critical juncture for the working of the anthropological (and thus, I suggest, biopolitical) machine. Grounding this question in a consideration of the emerging regimes of biosecurity being mobilised against the perceived clear and present danger presented by avian influenza, I ask whether it is too easy ? and indeed inappropriate ? to make the connection between the states of emergency and exception currently being enacted across the world against poultry and the events to which Agamben has applied those terms in his earlier work or ? on the contrary ? too difficult because it forces us to confront the centrality of determining what, when, and where nonhumans are killable to protecting the logic of sovereignty and thus our collective ways of life.

Keywords: Biopolitics, biopower, biosecurity, Agamben, nonhuman

Amanda Bingley, Lancaster University. Email: a.bingley@lancaster.ac.uk; *Becoming unremarkable: can psychotherapeutic approaches become well-established research methods in geographic and other social science enquiry?*

Can social and cultural geographers draw psychotherapeutic methods into mainstream research design or will those of us actively using these approaches always stay at the fringes of the discipline, by default or choice? From Burgess et al.(1988) in their seminal work using psychoanalytic 'small groups' a limited number of empirical studies in the 1990s and 2000s have designed research with methods drawn from creative and integrative psychotherapeutics (Bingley, 2002; 2003). A theoretical debate has emerged that draws on psychotherapeutic experience as opposed to applied psychoanalytical theory (see Bondi, 2003). This small but persistent movement in social and cultural geography is seemingly unusual, remarkable, and innovative. In this paper I aim to further the debate around the use of psychotherapeutic methods and consider some of the challenges, benefits and disadvantages in making the shift from innovation to unremarkable. I explore whether it is either desirable or even possible for the methodology to become mainstream given that these methods require extra training which is not routinely part of postgraduate education; many experienced researchers may not be aware of the nature of therapeutic methods and the different perspectives they offer; some feel uncomfortable with the approach. I note there is a certain disconnection between the focus of those engaged in theoretical debates in psychoanalytic geographies and those who draw on the theory to design empirical research using psychotherapeutic methods. I conclude by highlighting one or two possible indicators of the level of integration and acceptance of this specialised methodology into the discipline.

Keywords: psychoanalytic geographies, methods

Jon R. Binnie, Manchester Metropolitan University. Email: j.binnie@mmu.ac.uk; *Queer imaginings of an enlarged Europe*

This paper discusses recent transformations in European Union sexual citizenship associated with the enlargement process. It is through debates on the enlargement process that questions of sexual dissidence have assumed a much higher profile than hitherto within the EU. In particular there has been increased visibility around the issue of the treatment of sexual minorities in a number of

central and eastern European countries both prior to and since accession. At the same time the particular crisis and opportunity for sexual citizenship associated with EU accession in some states associated with the emergence of sophisticated activist networks challenging homophobia within political discourse. In parallel we are witnessing the growth of critical attention to sexual politics in central and eastern Europe. Much of this attention is coming from emerging formations of queer studies that only partially owe their intellectual basis to the 1990s development and establishment of queer theory in the US and the UK. These intellectual developments have in turn led to calls for the more assertive articulation of distinctive central and eastern European trajectories of queer thinking different from those seen to be established in US and UK academia. The paper discusses multiple and competing imaginings of a queer Europe, and examines the tensions between elite and grassroots visions at different spatial scales.

Keywords: Sexuality, Europe

Aaron Binns, Florida State University. Email: awb04d@garnet.acns.fsu.edu; *Archaeological Site Detection and Prediction using GIS and Multispectral Satellite Imagery Integration*

Applications of GIS in archaeology are a growing, but still somewhat simplistic and under utilized field of study primarily restricted to basic mapping, visualization, and predictive modeling. Similarly, the primary source of remote sensing data used to locate and identify buried archaeological remains has been largely derived from vertical and oblique aerial photography. Rarer still is the archaeologist who will integrate this spatial and temporal data with today's geospatial technology to improve the results and integrity of archaeology's ultimate goal of accurate explanatory and correlative predictive modeling. As high resolution satellite imagery improves, and economies of scale expedite and expand its availability and cost effectiveness, its applications for archaeology must be investigated and fully exploited. The major drawbacks in GIS predictive modeling to date has been a general lack of geospatial familiarity within the archaeological field, and the subsequent use of speculative and/or unreliable data to create predictive models. The introduction of a new geospatial toolbox capable of merging and improving the existing archaeological record and all its relevant environmental and socio-economic variables is required. A toolbox that compliments the integration of high resolution satellite data and aerial photography, from many remote sensing systems, with GPS and the growing prowess of GIS to streamline and topologically examine the vast wealth of under utilized multi-disciplinary data to appreciably improve both the spatial and temporal capabilities of predictive modeling of prehistoric dynamics and development. Key Words: Predictive archaeological modeling, environmental and socio-economic variables, high resolution satellite imagery, Geographic Information System Integration.

Keywords: Predictive archaeological modeling, environmental and socio-economic variables, high resolution satellite imagery, Geographic Information System Integration.

Franco Biondi, DendroLab, University of Nevada. Email: fbiondi@unr.edu; Scotty Strachan, DendroLab, University of Nevada, Reno. Email: ; *Spatial and temporal patterns identified in a Pinus monophylla tree-ring network*

A network of 16 pinyon tree-ring chronologies, some longer than 800 years, was recently developed for the Great Basin of North America. Based on the 1608-2000 period, cluster and principal component analysis showed the existence of spatially separated bioclimatic units. Climate response was analyzed using bootstrapped correlation and response functions on multiple time intervals. The longest chronologies were then used to reconstruct climate in the region. Using the entire reconstruction as starting point, the most significant climatic episodes were numerically identified and stochastically modeled.

Keywords: Climate variability, Nevada, Pinyon, Great Basin

Karl W Birkeland, Forest Service National Avalanche Center. Email: kbirkeland@fs.fed.us; Kalle Kronholm, Norwegian Geotechnical Institute. Email: kalle.kronholm@ngi.no; Katherine J. Hansen, Montana State University. Email: khansen@montana.edu; Eric Lutz, Montana State University. Email: elutz@montana.edu; *Temporal Changes in the Spatial Variability of Snow Stability: Implications for Predicting Snow Avalanches*

Snow avalanches are a significant hazard in alpine environments worldwide. In the United States snow avalanches kill more people on an average annual basis than earthquakes or landslides. This paper summarizes a two-year study of temporal changes in the spatial variation of snowpack properties at the scale of individual slopes. Knowledge of such variations in snow stability and snowpack properties, and how they change, is critical for understanding and predicting snow avalanches. We measured weak layer shear strength and micropenetrometer hardness in the field to quantify snowpack stability and snowpack structure. Our

results suggest that some measures of spatial variability increase through time, providing one possible mechanism for increasing slope stability. Due to the difficulty in quantifying the exact spatial structure (and how it changes) of slopes in the field using current technology, we also developed numerical techniques to quantify the potential error when measuring and describing spatial structure, and a cellular automata model to assess the effect of spatial structure on slope stability. These numerical approaches confirmed the difficulty in quantifying temporal changes in spatial structure, as well as providing evidence that small-scale (on the scale of 1 to 10 m) increases in spatial variability can have a very strong stabilizing effect on avalanche potential. Future work utilizing new non-destructive tools like radar may help to better quantify temporal changes in spatial variability. In the meantime, the spatially variable nature of the snowpack continues to be a primary source of uncertainty for professionals and recreationists assessing avalanche conditions.

Keywords: snow avalanches, spatial variability, temporal change, spatial analysis, cellular automata

Trevor L. Birkenholtz, Ohio State University. Email: birkenholtz.1@osu.edu; *The Capacity of Irrigation Technology in Socioecological Change: Irrigated Landscapes, Produced Scarcity, and Adaptive Social Institutions in Northern India*

Over the past thirty years, twenty million tubewells have proliferated across India during its Green Revolution. Nearly two million of these are in Rajasthan, India's most arid state and the site discussed in this paper. Today, the tubewell continues to flourish even as groundwater overdraft is accelerating throughout the region. The degree to which this rapid technological diffusion has transformed groundwater based socioecologies is not clear. What capacity does this technology have in motivating socioecological change and differentiation? Following Mitchell (2002), this paper attempts to examine the role of technology and non-human nature, such as groundwater and soil, in social and ecological change to render the issue of power and agency a question rather than an answer. The results of this analysis suggest, first, that there is differentiation in agricultural income and productivity among tubewell adopters that mostly follow traditional axes of difference. Second, findings show that this inequality is partly offset by the creation of new social institutions: tubewell partnerships. These tubewell partnerships, however, both enable and constrain the production of new socioecologies. So that, third, at different moments in the economic process, the tubewell has different capacities to effect its associations and bring about socioecological change, including the creation of new forms of social and individual institutions and land(water)scape change.

Keywords: political ecology, India, water, irrigation, social institutions

Mark Birkin, University of Leeds. Email: m.h.birkin@leeds.ac.uk; *A Research Agenda for Spatial Analysis with Policy Applications*

A number of recent papers have appealed to geographers to make a greater political and social impact. In this contribution, I will argue that spatial analysis has an important role to play in this process, and that this impact ranges from relatively applied, tactical and planning issues to much more high level strategic and policy questions. We will describe how a group of geographers within the Centre for Spatial Analysis and Policy at the University of Leeds have come together to tackle this agenda through the combination of multiple substantive applications and diverse spatial analysis methods.

Keywords: spatial analysis, policy, applied geography

Philip D. Birnie, Ohio State University. Email: birnie.1@osu.edu; *Relocation and Co-Location of Small Businesses in the Context of Gentrification*

Over the past few decades, urban "redevelopment" projects have drastically altered countless business districts throughout U.S. cities. Through the execution of these projects, incoming establishments linked to corporations displace locally owned small businesses. Amid formidable challenges, some small business owners nonetheless, are able to relocate and remain in business. There exists a substantial literature discussing how small business owners utilize networks to address challenges despite limited resources and also a literature that recounts the ramifications of displacement due to gentrification. However, to date, a coupling of these literatures has not occurred. Specifically, I ask: how do small business owners utilize networks to overcome the challenges of displacement and remain in business? Drawing on the experiences of displaced small business owners from a redeveloped business district adjacent to the Ohio State University, I synthesize these two issues, analyze how small business owners' networks permit relocation, and sometimes encourage co-location in the context of gentrification.

Keywords: gentrification, small business, networks, displacement

Kristina Monroe Bishop, University of Arizona. Email: kmbishop@email.arizona.edu; *How the End of Apartheid Changed Medicine: The Media's Construction of Biomedical and Traditional Treatments for HIV/AIDS*

From 1990-1994, the apartheid system was dismantled in South Africa ushering in a new democratic government. Concurrently, HIV/AIDS reached epidemic proportions and currently at least one in five adults is HIV positive. The South African government's response to HIV/AIDS has been widely covered in the news media. Denial and stigma are rampant within the government and within the local communities. AIDS activists and foreign governments criticize the South African government's promotion of 'traditional medicine' over biomedical treatments. Even as biomedical treatments for HIV/AIDS become more widely available in South Africa, many with the disease use traditional medicine with the government's support. What materials constitute 'traditional medicine?' A scan of national and international media lists everything from herbs, to vitamins, to garlic, and various other "natural" products. Biomedicine, however, is constituted of western pharmaceuticals, often touted as 'toxic' by South African government officials. Using textual analysis of the media publications from 1990 to the present, I will examine how ideas of African traditional practices which use "natural" products are portrayed by the American, British and South Africa media. I will examine how biomedicine, as a scientifically proven form of treatment, is portrayed both by government officials and by AIDS activists. I will explore how the post-apartheid state has rendered legitimate particular types of traditional medicine in light of the rhetoric of the African Renaissance and explore the discussions that arise from this newfound legitimacy over what materials constitute medicine.

Keywords: HIV, medicine, South Africa

Michael P. Bishop, University of Nebraska-Omaha. Email: mpbishop@mail.unomaha.edu; John F. Shroder, Jr., University of Nebraska-Omaha. Email: jshroder@mail.unomaha.edu; Umesh K. Haritashya, University of Nebraska-Omaha. Email: uharitashya@mail.unomaha.edu; Henry N.N. Bulley, University of Nebraska-Omaha. Email: hbulley@mail.unomaha.edu; *Climate Forcing and the Baltoro Glacier System in the Karakoram Himalaya*

Alpine glaciers play a critical role in climate dynamics and landscape evolution. Although global observations indicate general glacier retreat, glacier sensitivity to climate forcing in the Karakoram is complicated due to complex topography, debris-cover variability, and climate feedback mechanisms. Consequently, we conducted a study on the Baltoro Glacier system and assess various glacier parameters related to glacier mass balance and erosion. Fieldwork was conducted in the summer of 2005. Multi-temporal satellite imagery, satellite-derived, and SRTM digital elevation models were used in modeling and change-detection studies to assess energy-balance parameters, ice-volume and debris-cover conditions. Our results indicate that ablation is highly variable as a function of topography and debris-cover characteristics. Field results indicate a downwasting rate of 6 cm day⁻¹ and ice depths of ~ 85-300m from the terminus to the base of K2. Variations in supraglacial lake impoundments and catastrophic flooding were observed. Geochronology results reveal young glacial stages which document rapid valley incision rates. Our results indicate dynamic surface conditions, production of significant amounts of meltwater, and highly variable glacier topography. We collectively discuss these results in the context of glacier sensitivity to climate forcing and glacier erosion and landscape evolution.

Keywords: Karakoram Himalaya, alpine glaciers, remote sensing, DEMs, ASTER

Michael C. A. Bitton, Louisiana State University. Email: mbitto1@lsu.edu; *Interpreting Geomorphic Change in Coastal Areas: Hurricane Katrina's Impact on Port Fourchon, Louisiana*

This paper examines changes to the Port Fourchon, Louisiana, area as identified through remotely sensed imagery. Pre- and post-Hurricane Katrina Landsat TM and Radarsat data were used to identify changes in the Fourchon area by means of comparing changes to the land-water interface. Results indicate that there has been a landward migration of Racoon Spit, and the total size of the island is decreasing, thus leaving the area west of Port Fourchon more vulnerable to wave-energy impacts. As well, sandy barriers across bays east of Fourchon were breached during Hurricane Katrina exposing more land area to potentially higher wave energy. However, these barrier forms were recovering soon after the storm. Although Port Fourchon suffered minimal damage, a direct blow from a severe hurricane could have dire consequences and potential damages could be amplified if the shoreline continues to migrate further landward, thus minimizing the protective capacity of the current coastal system.

Keywords: Coast, Geomorphology, Remote Sensing, Louisiana, Hurricane

Roger Bivand, Norges Handelshøyskole. Email: Roger.Bivand@nhh.no; *Spatial structure, autocovariance, and model mis-specification: eigensystem approaches*

The eigensystem approach to models of spatial data offers both opportunities and challenges in application. The most obvious is the choice of representation of spatial structure, which may be related to knowledge of micro-level factors driving interaction. When no micro-level hypotheses are present, the choices involved in selecting suitable spatial link matrices are non-trivial, and affect the outcomes of analyses. A further choice concerns the representation of the autocovariance in the model, placing it in the error of the full model (spatial error), or the null model with dependence only affecting the response variable (spatial lag). Finally, it is possible that the eigensystem approach, when applied to a mis-specified model, that is a model with other mis-specification problems than those addressed in the spatial link matrix, will lead to inappropriate inferences. The paper discusses these choices in relation to ongoing concerns in applied spatial statistics using a range of examples and implementations.

Keywords: Spatial statistics, Spatial autocorrelation, Spatial analysis

Mark D. Bjelland, Gustavus Adolphus College. Email: mbjelland@gustavus.edu; *Millennial Dreams: Greenwich Millennium Village and the Paradoxes of Creating Environmentally Sustainable, Socially Inclusive Communities*

In 1999, the U.K.'s urban task force headed by superstar architect Lord Richard Rogers issued a report entitled, *Towards an Urban Renaissance*. The report made a strong argument for the importance of new models of sustainable urban design in order to stem the destruction of the British countryside and reinvigorate urban cores that were falling victim to neglect and dereliction. One outcome was the Blair government's creation of a set of millennium communities that were to demonstrate the application of sustainability principles to British cities. The most prominent and most advanced of the seven millennium communities is Greenwich Millennium Village which opened just in time for the millennium celebration. This study draws upon the perceptions and experiences of a sample of residents of Greenwich Millennium Village to assess whether the social and environmental goals of the project are being met. The results suggest a number of paradoxes for large government-sponsored, urban sustainability demonstration projects.

Keywords: urban planning, sustainable development, London

Bryan A Black, Hatfield Marine Science Center, Oregon State University. Email: bryan.black@oregonstate.edu; George W. Boehlert, Hatfield Marine Science Center, Oregon State University. Email: george.boehlert@oregonstate.edu; *Rockfish, tree rings, and climate: marine-terrestrial linkages in the Pacific Northwest, USA*

We apply dendrochronology techniques to otolith growth increments of long-lived splitnose rockfish (*Sebastes diploproa*) in the northeast Pacific to i) generate multidecadal growth chronologies, ii) relate growth to ocean variability, and iii) compare with tree ring chronologies throughout the US Pacific Northwest. Rockfish otolith growth increments were thin sectioned, measured, and crossdated verified using COFECHA. The chronology was related to upwelling, sea surface temperatures, ENSO, and the PDO, and significantly ($p < 0.01$) correlated with indicators of cool, productive ocean conditions, especially during the winter and spring months. February upwelling accounted for 50% of the variance in the splitnose chronology. The chronology also significantly ($p < 0.01$) and negatively correlated with high elevation tree ring chronologies located throughout the Pacific Northwest. Tree-ring chronologies that correlated with the splitnose rockfish chronology shared a sensitivity to winter and spring ocean variability, and allowed a reconstruction of splitnose rockfish growth to the year 1600 AD. This approach revealed significant climate-driven linkages between the growth of organisms at 300 m depth in the Pacific Ocean with those at 2,000 m in the Cascade and Sierra-Nevada Mountains. We also report on pilot projects involving yelloweye rockfish, geoduck clams, and freshwater mussels.

Keywords: dendrochronology, Pacific rockfish, climate

Jennifer L. Black, MS RD, New York University. Email: j.black@nyu.edu; James Macinko, PhD, New York University. Email: james.macinko@nyu.edu; *Neighborhoods and Obesity: The Roles of Area Socio-demographics, Food Availability and the Physical Environment*

Purpose: In addition to individual factors such as genetics, SES, and gender, evidence suggests that neighborhood socio-demographics, food availability and the physical environment are determinants of obesity. Findings from a systematic literature review on neighborhood determinants of obesity will be presented. Methods: PubMed and PsychInfo were systematically searched using the keywords: neighborhood, obesity, SES, income, racial composition, income inequality, multilevel, food, supermarket, grocery store, farmers market, price, fast food, built/physical environment, physical activity, crime, and transportation. Fifty-one studies were identified, coded and abstracted. Results: Decreased

neighborhood SES is consistently associated with obesity, but the roles of income inequality and racial composition remain equivocal. Neighborhood SES and race are associated with access to healthy food, supermarkets and exposure to fast food. Access to fitness facilities, green space, land use and walkability are associated with increased physical activity and reduced obesity, while graffiti, perceived crime and traffic may promote weight gain. A small number of studies have assessed the associations between single neighborhood variables and obesity, but to date, no single conceptual model or assessment tool comprehensively describes these factors and their relationships. Seldom have protective neighborhood variables been assessed in concert with obesogenic factors. Consequently, the overall neighborhood effect on obesity may have been over- or underestimated. Conclusion: We have proposed the Neighborhood Obesity Model (NOM) to illustrate the relationships between individual and neighborhood determinants of obesity and a Neighborhood Obesity Index (NOI) to quantify these effects. Next steps include testing the model and index using data from New York City.

Keywords: neighborhood, obesity, food, physical environment, socio-demographics

Jason Kenna Blackburn, PhD, Louisiana State University. Email: jblack6@lsu.edu; Kristina M McNyset, PhD, US EPA (ORD). Email: McNyset.Kristina@epa.gov; Martin E Hugh-Jones, PhD, DVM, MPH, LSU Department of Environmental Studies. Email: mehj@vetmed.lsu.edu; Andrew Curtis, PhD, Louisiana State University. Email: acurtis1@lsu.edu; Ecological Modeling and GIS-based Approaches to Predicting the Distribution of Anthrax

Anthrax, caused by *Bacillus anthracis*, threatens public health as a zoonosis, and can lead to massive economic losses in livestock and wildlife. This was evident with two of the largest North American outbreaks in several years in the 2005/2006 summers. Despite this, our understanding of anthrax natural ecology is weak, yet necessary for cost effective control within its endemic range. While traditional control response of annual vaccination, outbreak site management and herd treatment is effective for livestock it needs to be made more efficient, and make better use of recent scientific advances. This approach is untenable in wildlife, therefore demanding a need for increased surveillance and improving our understanding of *B. anthracis* distribution. Ecological modeling and GIS-based analyses can provide methodologies for predicting the spatial distribution of anthrax, while at the same time GIS-based surveillance systems can be employed to track disease and response in real-time. Reliable spatial predictions of endemicity allow control programs to target and monitor specific animal populations, which pays off in greater efficiency and quicker recognition of unusual outbreaks. This paper will review current ecological modeling approaches used in anthrax prediction. Model predictions for the distribution of *B. anthracis* will be presented for the contiguous United States. These models provide insight into biogeographic affinities across landscapes and allow for an evaluation of the species' success within an evolutionary ecology framework. Integrating disease predictions and GIS-based tools also identify gaps in vaccination and control efforts and improve response time through democratization of data and farmer education programs.

Keywords: anthrax, ecological niche modeling, GIS-based surveillance, wildlife, livestock

Chris Blackden, MA, University of Kentucky. Email: rubinfarr@hotmail.com; Metasovereign: Modes of Power in the WTO

Theorizing the WTO in terms of sovereignty opens up a number of interesting questions. Does the concept of sovereignty have a useful theoretical role in a governmental framework where power is conceived of as dispersed and capillary? How do we link the seemingly remote and distant abstraction of the WTO with embodied actors on the ground? How do we treat a case where two sources of sovereignty operate in the same territory and over the same subjects? Where does violence fit in where a sovereign authority has no military apparatus? Drawing upon the work of Foucault, Mitchell, and Agamben, we can think of the WTO as a set of circulating references that create the effect of a central sovereign reference point. Such reference points of authority need not be territorially exclusive, as in the traditional nation state. With the rise of multistate organs like the WTO, such arrangements of overlapping sovereignty may be becoming the norm.

Keywords: WTO, sovereignty, state

M. Jason Blackman, UBC School of Community and Regional Planning. Email: mjason.blackman@gmail.com; Broadening the Creative Paradigm in Vancouver

Vancouver has experienced twenty years of escalating real estate values. During this period, residential megaprojects located in the peninsula led to a revalorization of the downtown core by the new middle class. Subsequently, Vancouver has attracted much attention due to its high livability rankings. This

paper will argue that these successes often serve to eradicate spaces where vernacular activity is situated. Specifically, because land in Vancouver is so valuable, the activities and uses that occur on urban space are highly regulated. In addition, the insertion of predominantly residential land uses in close proximity to areas that traditionally served more diverse functions ranging from industrial production to night-time entertainment/performance spaces has led to conflict over the use of public space and externalities such as noise and traffic. The impacts of related government policies and programmes in Vancouver, particularly those at the municipal level, are outlined and assessed. Key challenges and barriers for the expression of vernacular creativity, in particular the visual arts and other spontaneous forms of creativity in the public realm are identified. This paper offers an analysis that exposes the limitations of the current conception of livability and makes recommendations for a broader of the definition of livability that includes provisions to ensure that spaces of vernacular creativity are nurtured and protected in the city of Vancouver.

Keywords: vernacular creativity, inner city, livability, public space

Eric M. Bladh, California State University, Los Angeles. Email: embladh@gmail.com; John Kirchner, PhD, California State University, Los Angeles. Email: jkirchn@earthlink.net; Transit Oriented Developments

Transit villages, or transit-oriented developments, have become increasingly popular in the urban world, but are sometimes caught up in controversy over justifying their existence. These types of developments need to validate their usefulness through careful scrutiny of their roles in meeting community needs, being sure that they combine the advantages of mass transit with careful community and land-use planning. This paper takes a look at the transit oriented development model (TOD) and discusses its pros and cons for new or redeveloped urban centers across the nation. It also reviews one proposed development in the Metropolitan Los Angeles area, considering its conceptual framework and possible weaknesses, and offers suggestions to help capture the highest possible use of transit for village residents. Such independent reviews can be used by both planners and developers for optimal planning and implementation of TOD's.

Keywords: tod, transit oriented development, transportation, urban planning

Jacob Blair, University of Oregon. Email: jblair@uoregon.edu; Map users & symbolization: Interactions between spatial ability and visual search.

I am investigating whether a subject's measured spatial ability has a relationship with measured times to completion (TTCs) in a map search task. In addition, I will also discuss the mitigating effects on TTCs that different visual variables have. Finally, basing my analysis on visual search theory, spatial ability theory and domain expertise theory, I will look into the interaction between the effectiveness of a map's design and the ability of the user of the map.

Keywords: cartography, cognitive, perception, spatial ability, visual search, visualization, map

Luke Blair, United States Geological Survey. Email: lblair@usgs.gov; Marco Ticci, United States Geological Survey. Email: mticci@usgs.gov; Scott Haefner, United States Geological Survey. Email: shaefner@usgs.gov; David Wald, United States Geological Survey. Email: wald@usgs.gov; Improving the Accessibility to Earthquake Data, Geologic Hazard Maps and Post-Earthquake Damage Information in the San Francisco Bay Area Using Google Earth

Virtual globe programs such as Google Earth can be used as an easily accessible platform to communicate relevant geospatial data to the public. This popular software program is an interactive map of the Earth that can display user-generated geospatial datasets stored in Keyhole Markup Language (KML) format. These KML files can be generated automatically or exported from popular geographic information system (GIS) programs such as ArcGIS. Currently, the U.S. Geological Survey (USGS) provides real-time, global earthquake epicenter locations, along with Shakemaps and "Did You Feel It?" maps in KML format to make the data more widely accessible. Methods are now being generated to convert geologic hazard maps in the San Francisco Bay Area into KML format to accompany the earthquake data. Although the USGS, California Geological Survey (CGS), and other groups have collected a wealth of geologic information in the Bay Area, little has been done to organize and provide this data in an accessible manner. By converting the geologic maps into KML format, they can be downloaded and viewed as overlays on the aerial imagery and 3D terrain provided in Google Earth. This project presents the methods used to convert important geologic information such as bedrock geology, liquefaction susceptibility, faults and fault zones, landslides, flood zones and various shaking scenarios in the Bay Area into KML. As a result, these methods can provide quick and accessible decision making support in the form of post-earthquake information to emergency response agencies, as well as public and scientific audiences.

Keywords: GIS, Google Earth, KML, data accessibility, earthquakes

Megan K Blake, University of Sheffield. Email: m.blake@sheffield.ac.uk; Lucy Crane, University of Sheffield. Email: L.Crane@sheffield.ac.uk; *Moulding food*

Research on food production has focused on the transitions foods make as they travel from farm to fork. Our paper aims to extend this research by moving beyond the economics of food with a focus on what happens to food once it enters the home and is taken up by household members. The temporality of food states brings to the front a complex myriad of connections, disconnections and reconnections between family members and food, invigorating institutions to moments of practice. Specifically, the moments between shopping and cooking and cleaning become defining moments where the questioning or blind acceptance of social norms occur, thereby exposing the structuring framework that is under the surface. By reflecting on and comparing the practices of several middle class families in the UK, the clash between food institutions and the practice of everyday life are highlighted, which in turn illuminates the ways that family members more broadly engage with and become members of particular social groups.

Keywords: Food, family, institutions, everyday life, practice

R. Denise Blanchard-Boehm, Texas State University. Email: RB06@txstate.edu; William A. Bass, M.S., Houston-Galveston Council of Governments. Email: William.Bass@h-gac.com; "Assessment of Risk Perception Based on Prior Flood Occurrences in South-Central Texas: The Influence of Cartographic Visualizations and Experience on Accurate Risk Perception"

Natural hazards are normally occurring events, and pose a range of risks for society. Risk perception research studies are especially useful for determining actions people may undertake, or may not undertake, due to a lack of understanding or incorrect perception of risk. The majority of risk communication and risk perception research conducted in the past twenty-five years have utilized traditional forms of cartographic products. This research focuses on participants experience with flood hazards, and how new techniques in Geographic Information Systems and Cartographic Visualization might influence one's perception of risk associated with historical precipitation events and their potential for flooding.

Keywords: Key Words: Cartographic Visualization, Environmental Perception, Natural Hazards, Risk Communication

Benjamin L. Blandford, MA Student, University of Kentucky. Email: Benjamin.Blandford@uky.edu; *Structured Public Involvement in Land Use Planning*

Theory in urban planning has tended to be either process oriented, such as through community participation, or outcome oriented, such as through new urbanism. This paper describes a new tool for use in urban planning, one that acknowledges the principles of new urbanism and emphasizes the process of Structured Public Involvement. This process attempts to resolve the problems of procedural justice that have plagued urban planning. This paper also describes the implementation of this tool in Franklin - Simpson County, Kentucky. This small community in southern Kentucky has just begun to feel the pressures of development from the neighboring growing cities of Nashville, Tennessee and Bowling Green, Kentucky. Fearing the onslaught of suburban sprawl, concerned citizens united and invited a consortium from the University of Kentucky to help them identify and implement specific planning strategies aimed at managing growth. This paper demonstrates how, by using the process of Structured Public Involvement at several public meetings, the citizens were able to document their preferences for land development patterns that, unbeknownst to them, were also consistent with the principles of smart growth.

Keywords: Urban Planning, Public Involvement, Smart Growth

Paul W. Blank, Humboldt State University. Email: pwb1@humboldt.edu; *Shifting Orientations in Mediterranean History*

The Mediterranean Sea has witnessed shifting orientations in its long history. In the Ancient World, the most important divide in the sea was between east and west, whether civilized east, barbarian east, or, in later centuries, Greek east, Latin west. The east-west divide reappears periodically, as it did during the civil war in Bosnia in the 1990s. A north-south schism first appeared in the Mediterranean during the first millennium BCE. In this period, Greeks colonized the northern littoral and Phoenicians colonized the southern littoral. The pattern of Indo-European north and Semitic south reappeared dramatically with the Arab-Islamic invasions of the seventh and eighth centuries CE. This was a major reorientation, which spelled the end of the ancient world and the beginning of medieval times. In this context, the ideas of Henri Pirenne once again become germane. Despite a reprise of the east-west orientation during the Renaissance, the north-south divide came to dominate modern Mediterranean history. As Europe developed, the southern Mediterranean languished, until the entire southern littoral fell under European colonial control during the nineteenth and

twentieth centuries CE. Even after the retreat of formal colonialism, the north-south divide remains salient, with a prosperous, developed north dominating an impoverished and unstable south. As policymakers confront the dangers of this north-south schism, it is important to be aware of the deep historical roots of the Mediterranean's shifting orientations.

Keywords: Mediterranean, schisms, ancient history, Renaissance, Pirenne

Alison Blay-Palmer, Queen's University. Email: palmera@post.queensu.ca; *Sustainable food systems: A study in relativity and relationality*

Building links between eaters and growers is a challenging task. This paper follows the creation of an on-campus farmers' market at Queen's University (Kingston, Ontario) in the fall of 2007. The enthusiasm and voracious demand for local food by the students and from the university and food service institutions contrasts sharply with the actual supply capacity on the part of the growers. The (re)creation of direct farmer - eater ties clearly exemplifies the relational and contingent nature of local food systems. By rebuilding local ties and moving away from distanced and homogeneous connections typical of the industrial food system, one discovers the personal stories that are the essence of political, social, ecological and economic interaction. This paper makes the point that post-structural and political ecology interpretations are inevitable and essential to framing and understanding these complex, heterogeneous relationships. Only multifaceted and dynamic theoretical perspectives suffice as we unravel the nuanced and layered stories that are typical of sustainable local food systems.

Keywords: farmers' market, political ecology, post-structuralism, Ontario, sustainable food system

Jiri Blazek, Charles University. Email: blazek@natur.cuni.cz; *Regional development in the Czech Republic - from divergence to stabilization?*

The paper aims to challenge (on the example of the Czech Republic) the prevailing view about predominating divergent tendencies of regional development in Central East European post-communist countries. Paper starts with outline of convergence/divergence debate from both theoretical and methodological viewpoints. Secondly, empirical analysis of development of regional disparities during the post-communist period was performed on two hierarchical levels (14 regions and 70 districts) in order to test several research hypotheses. Moreover, the districts were arranged into two separate groups - metropolitan and non-metropolitan regions as development potential of these two groups of districts differs significantly. The main hypotheses are: 1) a partial shift of traditional socioeconomic axis from traditional North-West - South-East direction to new West - East direction as a result of changed geopolitical situation, 2) stabilization of scale of regional disparities since the turn of millennium, 3) shift of differentiation from regional to microregional level. On the basis of analysis of trends of development of regional disparities of selected key indicators it can be concluded that: 1) the partial shift of socioeconomic axis to West-East direction has been confirmed but only in case of some of analyzed indicators, 2) regional disparities generally stopped growing approx. since years 2000/2001, 3) but the disparities continue to grow within the group of metropolitan regions which indicates growing differentiation among regional centers.

Keywords: regional disparities, convergence/divergence, economic and social indicators

Jennifer Blecha, University of Minnesota. Email: blec0013@umn.edu; *'If You Get To Know Those Animals, You Really Love Them': 'Moral Proximity' And Urban Livestock Agriculture*

The past century has seen the rise of the industrial agri-food system, which for livestock animals has increasingly meant life and death in enclosed factory-like facilities that are kept at a physical and psychological distance from urban consumers. In stark contrast to this dominant system, the past decade has seen a growing number of urban Americans begin keeping small numbers of livestock animals close to home, for example raising backyard chickens or participating in a community agriculture project including dairy goats or beehives. This paper examines how dominant economic systems and political discourses have objectified animals as raw materials in the industrial production process, and how these relations are enacted spatially. I consider to what degree animal confinement facilities and slaughterhouses might be understood as Agambian 'spaces of exception' where beings have been reduced to such a status that anything can be done to them. This paper also draws on work in feminist political geography (particularly Hyndman 2007) to highlight embodied practices that produce situated knowledges with concrete political effects. Through qualitative research with small-scale urban animal-keepers, I explore how the interactions these individuals have with their animals affect their perception of animal subjectivities. These practices challenge and disrupt agri-industrial assumptions and power relations by bringing animals into physical and 'moral proximity' (Ó Tuathail 1996) with the people who benefit from their bodies and labors.

Keywords: animals, proximity, livestock, care, moral geographies, subjectivities, urban

David Bleeden, University of Illinois-Chicago. Email: dbleeden@att.net; *Conjoining Body and Population: Giorgio Agamben's Biopolitics*

Giorgio Agamben has argued that Michel Foucault's biopolitical thesis requires correction, but he leaves the details of the resultant biopolitical framework undelineated, despite it being the foundation upon which his Homo Sacer project rests. This paper endeavors a construction of Agamben's biopolitics. To accomplish this, it first offers a brief exposition of Agamben's project, with particular attention paid to the sovereign choice on exception, the state of exception this choice initiates and their role in the production of homo sacer, bare life. The paper argues that what Agamben calls "the biopolitical body of the West" be understood as the collection of all bare life?which is all human life given Agamben's argument that all life is in some degree bare—or what Foucault called "population." From this conceptualization, the paper explores how Foucault's distinction between discipline and regulation, and specifically the norms thereof, function foundationally in Agamben's project. Agamben contends that deciding on the exception, the sovereign decides upon the inclusion of life in law. That is, the state of exception normalizes human relations such that law can function as theorized in the Western tradition. Norms then generate the paper's argument and Agamben's biopolitical framework is thus developed upon the conceptualization that it is not a matter of the intersection of norms of regulation and discipline as Foucault described, but of their co-articulation. The state of exception is, from this perspective, further theorized as a zone of indistinction between discipline and regulation, body and population, sovereign power and biopower.

Keywords: Agamben, Biopolitics, Foucault, Post-Structuralism

Nat Bletter, City University of New York/New York Botanical Garden. Email: bletter@earthlink.net; *Distribution of Stimulant Plants in the New World and Implications for the Discovery of Chocolate*

Of all the types of psychoactive plants available to humans, the stimulant plants are perhaps the most often used and have quite a wide distribution. In the New World, yerba mate (*Ilex paraguariensis*), guayusa (*Ilex guayusa*), guaraná (*Paullinia* spp.), cacao (*Theobroma cacao*), yaupon (*Ilex vomitoria*), coca (*Erythroxylum* spp.), tobacco (*Nicotiana* spp.), sweet flag (*Acorus calamus*), and mormon tea (*Ephedra* spp.) are some of the more commonly known and used stimulants. Strangely, despite the fact that cacao had a native range extending to northern South America, the seeds of cacao were only discovered by the Mesoamericans to make an excellent stimulating beverage. Looking at a map of the distribution of all of these stimulant plants shows us that one hypothesis to explain chocolate's localized discovery is that the inhabitants of all other areas of cacao's range besides Mesoamerica had many other, more easily prepared stimulant plants at their disposal. Only the Mesoamericans had to resort to the complex process of fermenting, roasting, shelling, grinding, cooking, and frothing of the cacao seeds to make a stimulating beverage because they had no other stimulant plants growing nearby.

Keywords: Ethnobotany, Pre-columbian map, GIS, Crop biogeography

Desmond Blik, Concordia University. Email: desmond.blik@gmail.com; Pierre Gauthier, PhD (McGill), Concordia University. Email: pierreg@alcor.concordia.ca; *Neo-liberalism Mediated by Landscape: Morphological interpretations of post-industrial transformation in Montréal, Canada.*

Variability in the reconfiguration of urban residential environments has raised questions concerning the interaction of neo-liberalism with specific local and regional contexts. This paper presents the results of an ongoing case study that seeks to understand the particularity of contemporary residential reconfiguration in an industrial district in Montréal, Canada, by exploring the historical and spatial emergence of its built landscape as a structure influencing the outcomes of economic strategies and forces. By employing morphological analysis, we reveal how contemporary processes of residential redevelopment in the Lachine Canal industrial district can be viewed as an outcome of a dialectic between structural permanencies present in the built landscape and prevailing economic forces which privilege privately-funded, internationally-standardised development models. By unveiling the role of the built landscape as a structure mediating neo-liberal privatisation and privatisation, we suggest that the analysis of patterns in the urban structure can serve as a means for comprehending local and regional nuance in the enactment of neo-liberal transformation, especially in cases of the reconfiguration of residential environments.

Keywords: urban, neo-liberalism, privatisation, residential redevelopment, industrial restructuring, built form

Mikhail S Blinnikov, St. Cloud State University. Email: mblinnikov@stcloudstate.edu; Jason R. Lindsey, Political Science, St. Cloud State University. Email: jrlindsey@stcloudstate.edu; *Green Youth of Eurasia: Growing up in the Post-Soviet Space*

We address the fundamental question of spatiality of youth development from the perspective of theory and practice in natural education programs for high school and early college age in 3 post-Soviet republics: Russia, Ukraine and Kazakhstan. While it is undeniable that the three states have increasingly diverged with respect to their economic and political endeavors over the past 15 years, much remains the same in traditionally apolitical corners of the society with a high degree of social inertia, i.e., after-school nature education. We analyze existing types of programs and projects in 3 countries based on certain geographical parameters in a largely qualitative study that draws upon direct observations, participation, and limited questionnaire use. Specific regions of study include central Russia, South-Central Siberia (Novosibirsk Oblast and the Altai), Kyiv, Odessa, Almaty, and Oskemen regions. The role of geographic factors in shaping the similarities and differences in the naturalist programs of these areas is discussed, as well as their degree of change from the Soviet period.

Keywords: youth development, green movements, Post-Soviet space, environmental education

Stefano E. Bloch, Ph.D Student, University of Minnesota, Twin Cities, Department of Geography. Email: bloch027@umn.edu; *The "prop" industry: locations and collections of a film industry service provider*

The break-up of the major motion picture studio system as a result of the 1948 U.S. v. Paramount anti-trust decision set the stage for an increase in the number of Hollywood's flexibly specialized production firms. This shift from a vertically integrated studio system to a vertically disintegrated production network generated a new population of independent studio services and adjunct service providers over the next several decades. In 1986 Storper and Christopherson predicated that small, newly independent service providers would continue to agglomerate around the existing Hollywood studios over the next several years, holding the film industrial complex together in Los Angeles. My research shows that in the twenty-years since Storper and Christopherson's publication of "The City as Studio; the World as Back Lot," the properties, or 'prop,' industry has been particularly illustrative of the rapid trend toward spatial agglomeration of adjunct studio services. The prop industry has actually experienced a boom in growth, arranging itself into three distinct clusters in Hollywood, the San Fernando Valley, and West Los Angeles. Aside from its proximity to existing sound stages, the formation of these clusters is also the result of personal relationships among prop-house owners, and the shopping patterns of set-dressers and prop-shoppers. The geography of the prop-house industry is illustrative of current industrial locations theory, but it is the interesting stock of futuristic furniture, vintage memorabilia, cast-off medical and military equipment, and fabricated hand-props that is the key to the difference in quality of this Hollywood studio service.

Keywords: Hollywood, film industry, economic clusters, props, properties supply, Los Angeles

Daniel Block, Chicago State University. Email: dblock@csu.edu; Noel Chavez, University of Illinois-Chicago. Email: nchavez@uic.edu; Nancy Bates, University of Illinois-Chicago. Email: nbates@uic.edu; Judy Birgen, Chicago State University. Email: jbirgen@csu.edu; *Mapping Food Access as Patterns of Retail Investment: Examples from Chicago*

Studies of low food access or "food deserts" are being completed nationwide and have been very useful for community organizations. These studies usually focus on lack of access to chain supermarkets. The Northeastern Illinois Community Food Security Assessment is an in-depth study of food access in the Chicago area, utilizing GIS, door-to-door survey, market basket, and qualitative approaches. The GIS portion of the study utilizes a new approach to create distance rasters from residential addresses in the Chicago area to the nearest chain, independent, and discount supermarket, as well as food pantry and fast-food restaurant. Data on food-stamp purchasing and spending by ZIP Code is also examined. The other portions of the study enlighten this data to allow us to understand better the impacts of differences in food access on neighborhood residents. This deep analysis of food access, involving many types of stores, reveals possible reasons for the emotional impact of "food desert" studies. Differing levels of food access often act as a marker for residents of how well their neighborhood is served by the mainstream economy. Viewing food access in this way ties such studies to theories of urban change and community investment and under-investment. Measures of food access might be used as one measure of retail investment that particularly affects residents, emotionally, economically, and physically. This presentation will discuss the assessment as a whole, the GIS methodology and results, and tie these results to larger issues of retail investment that rise from the rest of the study.

Keywords: food deserts, retail geography, Chicago, supermarkets

Peter Blodgett, Huntington Library. Email: pblodgett@huntington.org; *Developing America's Playgrounds: National Parks and the Evolving Vision of Outdoor Recreation 1916-1939*

The 1920s and 1930s witnessed an enormous increase in the volume of American domestic tourist travel, powered by the expanding private ownership of personal automobiles and the widening availability of paid vacations. Even during the depths of the Great Depression, large numbers of Americans still possessed the resources to indulge their wanderlust. Among the most popular destinations for these new travelers were the scenic wonders of the fledgling national park system, organized in 1916. Many tourists, however, sought more active diversions than simply enjoying the contemplation of physical beauty. Their growing enthusiasm for many different kinds of outdoor activities imposed new and greater demands upon the nation's recreational resources, especially those managed by the federal government. To probe the relationship between national parks and the increasing American appetite for outdoor recreation, this paper will focus upon the struggle during the years between World War I and World War II to reconcile conflicting visions of how Americans might most effectively enjoy protected landscapes. In particular, the essay will investigate the frequent reliance by the federal government in this period upon private means to achieve public ends. This examination will include not only the intertwining of national park concessionaires with national park management but also the broader collaborations between private enterprises and public agencies to promote the use of such landscapes as documented by contemporary travel literature and advertising and the records of federal agencies such as the National Park Service and the National Conference on Outdoor Recreation.

Keywords: parks, recreation, tourism

Nicholas Blomley, Simon Fraser University. Email: blomley@sfu.ca; *Homelessness and freedom? Why Waldron was wrong*

In an influential paper in 1991, Jeremy Waldron laid out a powerful argument against laws regulating the homeless. Arguing from first principles, he notes that all human liberties must be exercised somewhere. Property rules, for Waldron, are a central device through which actions in space are regulated. The particular plight of the homeless person, however, is that 'there is no place governed by a private property rule where he is allowed to be' (299). This means, of course, that the homeless person is forced to live her life out in the only space not governed by such rules - the streets, parks and sidewalks of the city. Superficially egalitarian rules that govern behaviour in public (regulating sleeping or urinating in public, for example) are shown to be particularly punitive for the public place. Denied access to private property, the homeless are 'comprehensively unfree' (302) under such a regime. While helpful in making sense of the particular plight of the homeless in relation to dominant property relations, Waldron's treatment does not explain the ways in which homelessness itself may partly be produced, regulated and legitimized through property. Put more simply, the predicament of the homeless, for Waldron, is that they are outside property: I suggest below that their problem may be that they are utterly entangled within it. Waldron relies on a liberal geography of rights: I offer a more critical reading.

Keywords: homelessness, rights, property

Gina Bloodworth, Central Washington University. Email: bloodwog@cwu.edu; *"Innovation" And Confusion Concerning Water Rights In The Rapidly Developing West.*

In the fractious world of water politics, some new innovations in the re-allocation of water rights in the west are the proving ground for the next generation of water managers and water users. In a sharp contrast to the usual arrangement of players and alliances in the irrigation agricultural economy, some senior water rights holders in the Columbia River Basin in Washington State have recently embarked on a water rights swap like no other seen before. The logic underpinning this new arrangement is to reduce loss of surface water via transport, allow for increased in-stream flow, while making the current water users more efficient. A cartographic representation of senior water rights, irrigation canal and diversion networks, and groundwater availability provides a geographical tool for understanding both how the new water rights allocation might work, and what is still unclear about surface-groundwater interaction. It remains to be seen exactly what the larger implications of this redistribution of the surface water flow will mean to the hydrologic regime of Kittitas County, and the Yakima River sub-basin of the Columbia River system. Can water managers view this as solving one water problem by creating another, or as a template to be replicated in other areas of the arid mountain west?

Keywords: water resources, policy, Columbia River, Washington state

Shauna M Bloom, Phd Candidate, University of Guelph Department of Geography. Email: sergeippa@yahoo.com; *Exploring Local Food Systems in Rural Ontario*

This research will address a gap in the literature concerning rural food systems and the importance of non-farm intermediaries in linking farm and non-farm actors. It will further explore the discourse surrounding food quality in the local food system. The significance of food in the agro-food system has shifted research from a mutually exclusive dualistic approach, one where research on production was separated from the research on consumption, to a more integrative approach where linkages and networks along the entire agro-food system are explored. Non-traditional intermediaries, such as local health departments, are emerging as important players in connecting farm and non-farm actors. Many local food system initiatives are organized around three main themes (1) community food security and access to healthy food, (2) amenity and rural development, and (3) sustainable agriculture. These three themes can be found, in their various forms, in many initiatives around Ontario. From an initial informal survey of local food systems it is clear that many initiatives are focused on providing fresh food to consumers while providing alternative outlets for farm products. Indeed, much of the current literature on local food systems reflects this focus on fresh quality food. Huron County, Ontario is a rural agricultural county with no large urban center to send its agricultural products, yet local food initiatives are emerging. This research will explore one local food initiative in Huron County, the Field to Table Network. This research will document the challenges of developing and maintaining a local food system with multiple agendas.

Keywords: local food, food quality, agro-food networks

Virginia L. Blum, Professor, University of Kentucky. Email: vblum1@pop.uky.edu; Heidi J. Nast, DePaul University. Email: hnast@depaul.edu; *Getting the 'Drive' Right: Psychoanalytic Theory and Social Science Method*

This paper explores the utility of psychoanalytic insights and methods in social science work. We argue that psychoanalysis has always emphasized the social and material to the extent that it addresses the production of subjectivity through the organism's interaction with its environment. Psychoanalytic understandings of this interaction differ radically, however, between Freudian drive theory and later non-Kleinian theories of object relations. Whereas the latter tends to premise the vicissitudes of the subject upon idiosyncratic experiences at the hands of caregivers, the former insists on psychical forces that extend far beyond individuals and their narrow family circumstances. Accordingly, Freudian drive theory draws upon and documents arrangements of the social to create theoretical/interpretive frameworks that lie beyond the idiosyncratic utterances of the analysand. In this sense, Freudian psychoanalytic judgments depend upon, and are riveted to, the social, and arguably psychoanalytic 'cures' involve re-situating the individual in socio-linguistic space. We preface our argument by outlining two major developmental theories in psychoanalysis: Freudian drive theory and the deficit models of object relations theory. We suggest that some of the difficulties geographers face in assessing how to decipher the "unconscious" from sociospatial data might be resolved by differentiating between these two very different theories. We argue that Freudian drive theory is better equipped to handle the social in that it presumes non-idiosyncratic contexts. We end our paper by considering several examples to show how the unconscious might be accessed through analyzing a variety of material/social conduits through which it circulates.

Keywords: psychoanalysis, the unconscious, drive theory

Dan G. Blumberg, Ben-Gurion University of the Negev. Email: blumberg@mail.bgu.ac.il; *SAR and hyperspectral data; a New era in spaceborne remote sensing of the environment*

In the next couple of years at least two SAR high resolutions payloads will be launched, and during the next decade many more. These are complemented by hyperspectral missions with their advantages too. Optical remote sensing is being used routinely in environmental and agricultural management and studies. Radar data which is often used in geophysical studies is not utilized heavily in environmental and agriculture practice and specifically X-band data are not commonly used. In this presentation unique high resolution polarimetric X-band radar data from Elta Systems Inc test bed SAR flown onboard a Boeing 737 aircraft are shown alongside hyperion and other hyperspectral data that can be used. The results shown are for arid environments where the potential use of X-band SAR for agriculture and bio-geophysical studies alongside hyperion data will be demonstrated. Most importantly the detection of subpixel vegetation clusters and other issues that were difficult to assess in the arid areas will be shown.

Keywords: Remote-Sensing, SAR, Geomorphology, Vegetation

Kenneth Blumenfeld, University of Minnesota. Email: blume013@umn.edu; *Convective Variables as Predictors of Severe Thunderstorm Evolution Over a Major Urban Area*

This paper reports on an ongoing investigation of severe weather frequencies over the Twin Cities Metropolitan Area, Minnesota. Although the densely-populated center of the study area exhibits, on average, three times higher severe weather frequencies than suburban and rural portions of the area, these discrepancies clearly result from the well-documented clustering of severe weather spotters around major urban areas. The center of the area actually becomes a relative frequency minimum for "extreme" events, indicating that clustering of spotters has the effect of "catching" more marginally severe weather episodes. Analyses of radar and atmospheric sounding data indicate that extreme severe weather episodes within this dense urban center are associated with larger values of instability and wind shear than similar episodes in a nearby, non-urban control area. This combination of relatively low extreme event frequencies and higher convective parameter values raises the possibility that such high-end events have lower overall probabilities in major urban areas than neighboring non-urban areas.

Keywords: Severe weather, urban hazards, urban climatology, thunderstorms, extreme events

Mark Allan Blumler, SUNY-Binghamton. Email: mablum@binghamton.edu; *Fire, Grazing, and Environmentalism*

Both fire and grazing constitute "disturbances" in traditional as well as modern succession theory. American ecologists' beliefs re the role of fire in ecosystems have undergone radical reassessment, whereas thinking re grazing has remained more consistent. In contrast, in parts of Europe the trends have been almost reversed. Environmentalists' beliefs have had strong influences on ecological (scientific) thought. When and where fire was/is viewed negatively, the purported harmful effects are strikingly similar to those proposed to result from grazing. In the western US today, there exists the same certainty regarding the supposed harmful effects of livestock grazing that formerly prevailed concerning fire. As was the case for fire, it may be time to re-think the proper role of grazing in ecosystems.

Keywords: succession, grazing, fire

Aaron Bobrow-Strain, Whitman College. Email: straina@whitman.edu; *White Bread of a Different Color: Race, Class, and the Politics of Artisan Baking*

This paper explores race and class politics in the artisan baking movement, with particular emphasis on constructions of whiteness.

Keywords: Food, Race, Bread, Diet, Artisan Baking

Béatrice Bochet, University of Lausanne Switzerland. Email: beatrice.bochet@unil.ch; *Residential aspirations, back to the city and new urbanism: what is at stake in Swiss cities?*

As with most other European countries, the processes of urbanization have accelerated in Switzerland over the last few years. A new system of urbanization would seem to have imposed itself over the last three decades. It is characterized by the formation of urban spaces that have been increasingly diluted, heterogeneous and fragmented, not only by the greater intensity of flows and dependence on the car, but also by the ever greater ecological imprint of cities. These patterns of spatial development indisputably emerge at the heart of environmental issues. Our main objective being in fine to describe the process of urbanization in Swiss cities and show that the future of such sprawling territories is not fixed. Our research on the ground revealed an evolution in the modes of habitat related to ways of life, work organization and mobility that suggest the possibility of the return of a part of the population to the center of cities (end of the rule of the model of the individual home). The successful implementation of a global policy of control of urban sprawl's negative effects is highly influenced by the adaptation of property offer to the demand of new habitat models satisfying both the necessity of urbanization cost controls (economical, social, environmental) and people's emerging aspirations. These results allowed us to define a strategy to curtail urban sprawl and identify the applicability of principles of new urbanism on the territory of the lausanne agglomeration.

Keywords: urban sprawl, residential aspirations, new urbanism, quality of life

Judith K. Bock, Elmhurst College. Email: judyil@aol.com; *Haps And Mishaps - Experiences of Undergraduate Teaching*

Teaching geography at the undergraduate level has long been permeated by lectures. Undergraduates often take geography classes as part of a required sequence, view it as a requirement, and so are less likely to appreciate its importance to their lives. Utilizing a variety of teaching strategies provides unique ways in how the college student interacts with geography. Integrating geography topics with various disciplines, as well as current events, provides relevancy of geography to the student's life. Fieldwork, which is the essence of geography, engages students in meaningful geographic and educational experiences. Use of technology to enhance - not necessarily teach - geography also

broadens a student's understandings. Meaningful lab assignments, using the "tools of the trade," and discussions using the Socratic method provide extensions to the text. With updated teaching strategies, students begin to see the relevance of geography to their understanding of and interactions in the world.

Keywords: Geography Education

Annemarie Bodaar, University of Amsterdam. Email: A.Bodaar@uva.nl; *Delivering urban renaissance through the revitalization of ethnic neighborhoods as places of leisure and consumption*

In recent years, the commercialization of ethnic neighborhoods has become an important focus of local government agendas aimed at delivering and/or sustaining urban renaissance. Various inner city neighborhoods with high concentrations of immigrants are - despite the accumulation of social problems - revealing itself as breeding grounds for ethnic entrepreneurship or as attractive sites for leisure and consumption. Examples are Brick Lane (London), Kreuzberg (Berlin) or Belleville (Paris). More and more travelers, leisure seekers and others indulge in ethno-cultural events and festivals and gravitate to the centers of immigrant ethnic commerce. Hence, ethnic neighborhoods are playing an increasingly important role in urban revitalization. Under particular circumstances, the commodification of cultural features helps foster the inclusion of both highly skilled and unskilled immigrants in the emerging service economy, and, at the same time, allows them to boost the urban economy. Under which conditions do these ethnic neighborhoods evolve as tourist destinations, which factors contribute to its success and what are the intended and unintended consequences? What is the role of the state and other parties with an interest in these developments in steering this process? And what are the implications for the urban landscape? These questions will be addressed drawing on fieldwork collected in two ethnic neighborhoods in Amsterdam and The Hague in the Netherlands, which in recent years have made a transition from no-go area to areas for tourism and consumption.

Keywords: Immigration, ethnic neighborhoods, tourism, cities, ethnic entrepreneurship, cultural economy

David J Bodenhamer, The Polis Center at IUPUI. Email: intu100@iupui.edu; *Developing a Humanities GIS*

This presentation imagines a future for the use of GIS in the humanities arising from the cultivation of interfaces between the humanities and social sciences. Specifically, it calls for a re-envisioning of the humanities through exploration of theories and technologies of spatialization, that is, through critical consideration of the ways in which the "spatial turn" in the social sciences?and its nascent form in the humanities?can constitute a bridge between these two avenues of investigation into self, culture, community, and humanness. The result will be a fusion of disciplines and methods capable of taking advantage of a uniquely constructed Humanities GIS.

Keywords: humanities, GIS

John E. Bodenman, Bloomsburg University. Email: jbodenm2@bloomu.edu; Georg Grassmuck, Penn State University. Email: ; Stephen M. Smith, Penn State University. Email: ; *The Restructuring of U.S. Hardwood Furniture Industry Production: Pennsylvania Hardwood Processing Industry Market Changes.*

In the global economy, targeted or niche marketing is essential for higher cost producers in the United States. Competing in mass markets with undifferentiated products is difficult, as these markets are more price sensitive, and producers such as China can produce much more cheaply. While government policy cannot reverse global and technological forces, it can help the industry adapt to the challenges and opportunities. Knowledge of what Pennsylvania's markets are, how they are changing, and where the greatest competition lies is necessary to devise strategies to maintain the market or access new markets. The main goal of this project was to determine what markets Pennsylvania hardwood processors currently access, how these processors see their markets changing, and how they view their future. The research included analysis of secondary data and information from a mail survey of the hardwood processors themselves.

Keywords: hardwood processing, industry, markets

Paul Bodnar, Vector Research Group, LLC. Email: paulbodnar@vectorresearchgroup.com; *A Novel Approach to Geographic Profiling*

Current geographic profiling models utilize predefined equations or algorithms to predict the offender's home location. These models are limited because they do not effectively incorporate important environmental conditions into the prediction algorithm. The addition of environmental conditions to the geographic profiling model results in a more accurate analysis requiring less data than needed using other models. With this novel method, in some cases only two or three sites are needed to obtain an accurate geographic profile. This presentation covers the details of the new methodology, and specific case studies will be

presented.

Keywords: Geographic Profiling

Yosef Bodovski, The Pennsylvania State University. Email: yosefb@private.as; Chris Benner, The Pennsylvania State University. Email: cbenner@psu.edu; Racial Segregation in Urban-Rural Continuum: Do Patterns Vary by Geographical Region?

Most research comparing racial segregation across the country takes metro areas as the primary unit of analysis, neglecting the compare differences in segregation at smaller scales within metro areas. Research that does go deeper typically focused on differences between the central city versus the rest of the metro area. Yet classifications between city and suburb are becoming somewhat problematic. As inner ring suburbs have become older, denser and more racially diverse, Central City boundaries no longer reflect real division between what are typically considered urban and suburban areas. This project takes a different approach, using population density as a basic measure for urban-suburban continuum. I use Census 2000 and 1990 block data for White, Black, Hispanic and Asian race groups. Each metro area is divided into four sub areas based on block population density. The information theory index (H) is calculated for each of these sub areas. This index is probably the best measure of spatial segregation since it takes into account all major race groups. It is based on 'entropy' which is a measure of race diversity in particular area, and calculates weighted average deviation of each unit's entropy from the study area entropy. The comparison between four H measures inside particular metro area gives an idea how spatial segregation changes with the level of urbanicity. Comparing areas with the same level of population density in different metro areas one can make a conclusion how different is the race segregation in similar urban areas throughout the country.

Keywords: Race, Segregation, Metro Area

Darcy L. Boellstorff, Ph.D., Bridgewater State College. Email: dboellstorff@bridgew.edu; Soil Carbon and Agricultural Land Management in a Typical Semi-Arid Region of Central Spain

Soils in semi-arid agricultural lands are at high risk of desertification due to a combination of environmental factors that may be further compounded by social and political conditions. The same types of soil management practices that help reduce carbon losses have been shown to convert degrading soil regions into areas where soil organic matter is aggrading. This connection could stimulate the development of payments for farmers under national and regional policies aimed at reducing atmospheric CO₂, while having the added benefit of soil restoration and improved agricultural sustainability in semi-arid regions. However, there is a need for better understanding factors causing spatial variation of certain types of soil carbon to determine regional estimates and farmers potential for involvement semi-arid might have in emissions-trading policy. During June 2006, 42 soil samples under different long-term land management types and landscape positions were collected in the Torrijos region of Castilla-La Mancha, Spain. Preliminary results from lab analyses show significant variation in soil carbon related factors under the different soil management and landscape position types. These results are being used in a geographic information system (GIS) to estimate medium to long-term soil carbon storage for a typical catchment in this region under different long-term land management scenarios.

Keywords: semiarid, agriculture, desertification, soil carbon, GIS

Jeff Boggs, Department of Geography, Brock University. Email: jeff.boggs@brocku.ca; Ivo Mossig, Institut fuer Geographie, Justus-Liebig Universitaet Giessen. Email: ivo.mossig@geogr.uni-giessen.de; Spatial Shifts of Employment in the German Publishing Industries 1993-2002

This paper examines the locational dynamics of employment change in the German publishing industries. The examination is conducted using Kreise-scale data from the years 1993 and 2002 in addition to other secondary and primary sources. This time and place is chosen for three reasons. Firstly, data at this geographic scale enable us to identify patterns of regional specialization that should arise if agglomeration economies exist at the scale of the city-region in this industry. Secondly, data at this temporal scale allow us to identify the medium-term effects of German reunification on this cultural industry. Thirdly, data at this geographical and temporal scale allow us to observe if patterns of employment change emerge that indicate that processes of circular and cumulative causation are at work in this cultural industry. The paper closes by discussing market size as the limiting factor on regional specialization, and if this explains the patterns we observe in these data.

Keywords: cultural industries, Germany, publishing industries, concentration and clustering

Rian Bogle, United States Geological Survey. Email: rbogle@usgs.gov; Pat Chavez, US Geological Survey. Email: pchavez@usgs.gov; Miguel Velasco, US Geological Survey. Email: mvelasco@usgs.gov; Ground Based Remote Sensing Systems for Ecosystem Monitoring

Landscape and habitat monitoring at high temporal resolutions, via satellite or airborne imaging systems, is often technically difficult and prohibitively expensive, resulting in the frequent need for low-cost, high-availability field-based instrumentation and data collection systems. The USGS Southwest Geographic Science Team in Flagstaff, Arizona, has designed and developed several field-based systems to address this need. Utilizing low-cost embedded linux-based computers, off-the-shelf commercial data loggers, cellular modems, and radio frequency systems, these systems allow for the placement of networks of field-based digital cameras and environmental/weather monitoring stations in remote locations such as the Mojave Desert and Hawaiian Islands. These systems are being used in studies as diverse as dust-storm genesis and coral-reef health, and have potential across a wide range of landscape and climate change applications. With these systems we are not only able to update and maintain the stations remotely, reducing costs in physical maintenance and data collection, but also monitor landscapes in near real time, retrieving high-density data (such as images) on demand or on regular automated schedules in a secure manner.

Keywords: Monitoring, Remote Sensing, Landscape, Climate, Ecosystem, Instrumentation, Imagery, Data Collection, Automation

Maria Boile, Rutgers, The State University of New Jersey. Email: boile@rci.rutgers.edu; Sotiris Theofanis, Rutgers, The State University of New Jersey. Email: stheofan@rci.rutgers.edu; Empty Marine Container Logistics

With the global container population approaching 23 million TEU (20-foot container equivalent units) and the annual production of new boxes exceeding 2.5 million TEUs, it is estimated that 2.0-3.0 million TEU of empty boxes are sitting in yards and depots around the world waiting for use, depending on the very dynamic nature of container transportation, container building and leasing industries. Stockpiling of containers at the port terminals or at nearby areas is often considered to be a potential environmental hazard and is said to consume valuable land for businesses. On the other hand, efficient container operations, influenced by international practices and governed by global trade patterns indicate that storage of empty containers near by a port is unavoidable. The presentation addresses the very dynamic and multidimensional problem of empty marine container management in a port megacity region, with special reference to the NY-NJ region. The two major aspects of empty container management, namely effective use of empty equipment with empty trip minimization, and empty container accumulation, will be discussed, with a focus on the later. Global experiences and trends and regional challenges for NY-NJ will be presented.

Keywords: maritime transportation, shipping, empty container

Luis A. A Bojórquez-Tapia, Insitute of Computational Earth System Science, UCSDB. Email: luis@icess.ucsb.edu; Sensitivity Analysis to Minimize Linguistic Uncertainty in Regional Integrated Assessments

Significant progress has been made in the integration of geographic information systems and multicriteria decision analysis (GIS-MCDA) to solve spatial decision problems involving participatory policymaking, conflicting goals, and incommensurate evaluation criteria. Yet, the multi-dimensional nature of policymaking poses some methodological challenges for sensitivity analyses aimed at reducing the inherent linguistic uncertainty that is typical of integrated environmental assessments. This uncertainty arises from imprecise categorizations of areas, such as "high impact" or "low impact," and its reduction is a key element in consensus building efforts. We present here a framework used for dealing with linguistic uncertainty in the cumulative impact assessment of two urban watersheds in Mexico. It combined the Analytical Network Process and a fuzzy-pattern recognition procedure to identify areas according to the cumulative impacts. The sensitivity of the category thresholds was handled through the application of psychophysics principles, which allowed us to identify those thresholds that conveyed the most meaningful information to stakeholders and policymakers, and enabled consensus concerning the cumulative impacts in the study region.

Keywords: Integrated Assessments, MCDA, GIS, Land Suitability Assessments

Peter K. Bol, Harvard Univeristy East Asian Languages and Civilization Department. Email: pkbol@fas.harvard.edu; Guoping Huang, Harvard Center for Geographic Analysis. Email: ghuang@cga.harvard.edu; Modelling Population Distribution in Chinese History: a case study of Zhejiang Province in twelfth century

Chinese population data go back 2000 years. The challenge is to distribute this population across the landscape in a manner most likely reflects patterns of settlement, rather than assuming that population density within an administrative unit is uniformly distributed. For this reason, an automated model is created

for combining political and physical geography. Using SRTM data this model generates slopes and stream flows which, when taken together with the locations of administrative seats from the China Historical GIS project and historical population data, provides a means of distributing population. Testing with far more detailed contemporary data has shown that the model can predict settlement patterns with very high degree of accuracy. Much in history is directly tied to the spatial distribution of population, the most important resource governments had available to them.

Keywords: GIS, population, China

Alana Boland, University of Toronto. Email: boland@geog.utoronto.ca; *From factory to field: Managing urban water pollution in socialist China*

This paper explores the environmental underpinnings of China's socialist development through a study of water quality issues that emerged in the wake of rapid industrial and urban expansion in the 1950's. I examine the state's discursive and material responses to water pollutions problems - and the limits of these responses - in the urban centers of Jiangsu province. How did infrastructure investment priorities and urban development strategies change due to water pollution in and around cities? How was (political) sense made of water pollution during this period? What were the efforts taken to extract value from wastewater that was being produced at an unprecedented scale? And what in turn were the institutional and biophysical limits of a socialist industrial ecology strategy applied to water?

Keywords: Water management, China, urban political ecology

Barbara Boland, . Email: bboland@uark.edu; *Improved Blue Oak Mapping in the Central Coast Ranges*

California blue oak (*Quercus douglasii*, Hook. & Arn.) is emerging as an important species for research based upon the climatic sensitivity of its annual growth rings, for its old-growth status and its conservation needs. Dendrochronologists have found it to provide an excellent proxy for precipitation, streamflow, San Francisco Bay salinity, and Sacramento-San Joaquin delta null zone location. Though not widely acknowledged as ancient woodlands, blue oak may actually constitute the largest old growth hardwood forests in California. And, with very low regeneration rates across the last half century, it is alarming to consider that we may be looking at the final stands of this lovely and valuable endemic tree. A methodology for single species mapping employing Landsat 7 ETM+ imagery, mapped at a smaller minimum mapping unit than is currently available, is presented here. The problems posed by medium resolution data, the normally sparse canopy coverage of blue oak, and variable understory composition are addressed with a hybrid approach using several percentage canopy coverage classes with different understory types in the study area of the Interior Coast Ranges of San Benito County.

Keywords: biogeography, vegetation mapping, hardwoods, California - Interior Coast Ranges, blue oak (*Quercus douglasii*), remote sensing, Landsat 7 ETM+

Bob Bolin, Arizona State University. Email: bob.bolin@asu.edu; Timothy Collins, University of Texas, El Paso. Email: twcollins@utep.edu; Kate Darby, Arizona State University. Email: Kate.Darby@asu.edu; *Pumping Groundwater, Draining Rivers: A Political Ecology of Water and Development in Rural Arizona*

This paper examines emerging environmental, political, and legal conflicts over the exploitation of groundwater resources in the central highlands of Arizona. Our focus is on the 14,247 sq km Verde River watershed in north central Arizona a region which contains the Prescott Active Management Area, one of five zones in the state in which groundwater is regulated by state law. While the study area hosts one of the few perennial streams in Arizona, residents in the watershed depend almost exclusively on groundwater, a resource now being mined at rates in excess of recharge. A host of environmental issues have catalyzed civil society groups across the region, each variously seeking to stop, control, or mitigate impacts of rapid development in the region. Based on in-depth interviews, public fora transcripts, government and civil society group documents, media accounts, and scientific reports, we examine the competing water resource discourses and scalar politics of key citizen groups, government and development interests in the region. The growing political and legal controversies over interbasin groundwater transfers into the PrAMA and claims of projected future impacts on Verde River flows in downstream areas are highlighted. We examine the uses of science and expert knowledge by contending groups as they construct scalar claims. We conclude by discussing the socioenvironmental implications of groundwater mining and growth on the vulnerability of people and places in the study area.

Keywords: water, political ecology, environmental conflicts

Gerald Edward Bolthouse, Graduate Student, Western Washington University. Email: jebbolt@hotmail.com; *Reconstructing Satoyama: Metaphor and the Production of Agricultural Landscapes in Japan*

Recently, the spatial and cognitive dimensions of the Japanese term satoyama have been greatly expanded. Originally, satoyama was used to indicate managed woodlands near villages; however, the term is now used to symbolize the rural agricultural landscape at large. The spatial expansion of satoyama has resulted in the internalization of the nostalgic traditional village and, in addition, modern ecological ideas of sustainability and symbiosis. As a result of this internalization, satoyama has become a potent metaphor. This research examines both how and why the satoyama metaphor has been constructed. What emerges is that satoyama has been articulated through scientific discourse and volunteer action as a response to socio-ecologic change. As a by-product of its construction, the satoyama metaphor is fostering positive change in local communities and adjacent landscapes. Therefore, I argue that satoyama offers an excellent example of the ways in which metaphor can: (1) facilitate communication between scientists and the public and (2) actively propel the reshaping of material landscapes.

Keywords: Japan, Social Construction of Nature, Rural Landscape

Liz Bondi, The University of Edinburgh. Email: liz.bondi@ed.ac.uk; *Empathy, interpretation and reflexivity: applying psychoanalytic ideas to interviews*

The use of psychoanalytic ideas to make sense of other people's lives has the potential to deepen understanding but also raises concerns about the abuse of power and interpretive violence. This paper argues for the potential of modest and reflexive applications of psychoanalytic ideas in relation to research interviews, illustrated with respect to a single interview. Attending to what was said during the course of the interview, I illustrate convergence and overlap between empathic responsiveness and (partial) interpretation. Using my own affective response (counter-transference) I push interpretation beyond what was said and in so doing offer a psychoanalytic version of reflexivity.

Keywords: psychoanalysis, reflexivity, interviews

Anne Bonds, University of Washington. Email: abonds@u.washington.edu; *A rural-urban divide?: Mass incarceration and the interconnected geographies of crime control*

In the last two decades, the US prison population has exploded by 400 percent and now exceeds two million. Scholars argue that the mass incarceration trend is transforming geographies of both rural and urban spaces. Rural spaces are increasingly associated with rising prison development and the criminalization of rural communities of disadvantage. By contrast, the majority of individuals who populate these prisons are people of color, primarily drawn from urban spaces. Even further, constructions of crime in urban spaces are often linked to justifications for rural prison expansion. In this paper, we explore the interconnections between rural and urban geographies of incarceration and the ways in which these geographies are linked to material and discursive constructions of criminality. We argue that these constructions are produced and mobilized geographically to legitimate prison expansion, increasingly hyperpunitive social and criminal justice policies, and the retrenchment of racialized and classed inequality. Further, we argue that the spatiality of these constructions act to obscure the central dynamics that race/ethnicity and class play within the monumental expansion of criminal justice over the past thirty years.

Keywords: prisons, criminality, inequality

Dudley B. Bonsal, Department of Geography, The Ohio State University. Email: bonsal.1@osu.edu; *Urbanization Influences and Wildland Impacts of Land Transformation Along the Wildland-Urban Interface in Northeast Ohio*

Urbanization often results in fragmentation of wildlife habitat as forest and wetlands are transformed by the expansion of human activity, for reasons ranging from economic and population growth to a desire of individuals for improved quality of life and infrastructure. Because urban form is a consequence of such social and economic forces, patterns of fragmentation will therefore be associated with socioeconomic factors. Exploratory analyses of land cover data for the Cleveland-Akron-Elyria Combined Statistical Area will reveal whether urban configuration has changed over time, and whether such changes have a significant effect on the vitality of habitat along the urban-rural interface. Systematic land use changes in the region are calculated, and a regression analysis is performed in order to understand the relationship between socioeconomic factors associated with land use change and patterns of fragmentation. Socioeconomic factors of interest include educational attainment, per capita income, and age of the housing stock. The potential impact of land use change and fragmentation on wildlife habitat, through the utilization of landscape metrics such as perimeter-area ratio and contagion, is also examined.

Keywords: land cover, landscape ecology, wildland-urban interface

Mark Bonta, Delta State University. Email: markabonta@yahoo.com; Covert Geographies?

While the “invisible world” of covert political activities has been amply and critically examined by academicians outside of geography, it has rarely been subjected to spatially-informed theoretical approaches within the discipline. The Cold War activities of the CIA, MI-6, NATO, Wall Street firms, and other organizations have been minutely analyzed through several excellent recent texts (e.g., D. Ganser, NATO’s Secret Armies: Operation GLADIO and Terrorism in Western Europe; A. McCoy, Politics of Heroin; F. Stonor Saunders, Who Paid the Piper? The CIA and Cultural Cold War; S. Dorril, MI6), and our knowledge of parapolitics is growing exponentially thanks in large part to the declassified documents available online at sites such as The Memory Hole and National Security Archives. The ramifications for geography and geographers of the multitudinous activities of so-called “invisible governments” or “secret states” are quite broad and often startling; this paper seeks to open a dialogue not only on the geographicality of the covert world, but also on its effects on our research practices.

Keywords: secret government, CIA, Cold War, Gladio, covert geographies, Honduras

Christopher G Boone, Arizona State University. Email: cgboone@gmail.com; Environmental equity, parks, and accessibility in Baltimore, MD

Rising obesity levels, and an associated rise in diabetes mellitus, in the western world have caused many to examine the role of built form in reducing opportunities or incentives for physical activity. A number of studies have shown that having access to parks and recreation areas increases physical activity. From a public health perspective alone, it is critical to ensure that individuals have access to safe, accessible places for recreation and exercise, and parks are one important component of that goal. As an environmental amenity, the distribution of parks in relation to where people live is also an environmental justice issue. This paper examines access to parks and open space in Metropolitan Baltimore using census data, PRIZM lifestyle clusters, and responses from the annual telephone survey of the Baltimore Ecosystem Study. Accessibility metrics are measured against a needs-based assessment for recreation. This paper is part of a larger study on the long term dynamics of environmental equity being conducted for the Baltimore Ecosystem Study, an Urban Long Term Ecological Research site.

Keywords: environmental justice, Baltimore, parks, GIS

Kevin Borden, University of South Carolina. Email: kevinborden@hotmail.com; Spatio-temporal Trends in Natural Hazard Mortality among U.S. Counties

Deaths caused by natural hazards represent a permanent effect hazard events have on populations. However, the lack of a comprehensive, reliable dataset has hindered research related to such deaths. Studying hazard-induced mortality over time and across space will lead to a greater understanding of its geography, and ultimately lead to identification of factors that contribute to hazard mortality’s spatial patterns. With this understanding of hazard-induced mortality, we can explore linkages between pre-event vulnerability, and hazard mortality as an indicator of a post-event outcome. The purpose of this research is to examine the human burden of hazard events by analyzing the spatial and temporal patterns of hazard-induced mortality in order to better understand the relationship between pre-event social vulnerability and post-event outcomes (hazard mortality). The research design will consist of 1) creating a county level geo-referenced database of hazard induced mortality for the United States; 2) using these data to reveal and analyze hazard induced mortality patterns among U.S. counties; and 3) analyzing the spatial relationship between pre-event vulnerability and post-event hazard mortality. The questions that guide this research include: What spatial and temporal patterns are evident in hazard-induced mortality? How does hazard induced mortality manifest itself with respect to seasonality, urban / rural nature of the county, and the extreme versus chronic nature of the event? Is there a spatial relationship between pre-event social vulnerability and hazard-induced mortality as an outcome?

Keywords: Hazards, Mortality, Vulnerability

Dale R. Borders, Ph.D., Grand Valley State University. Email: bordersd@gvsu.edu; The Effect of Kinship on the Settlement Patterns of the Southwest Michigan Frontier

The Effect of Kinship on the Settlement Patterns of the Southwest Michigan Frontier The role of kinship in the social organization and settlement evolution of an agricultural frontier in nineteenth century North America is examined using a case study of twenty townships from southwest Michigan. Low population density of frontier society required the rapid creation of a supportive social network to maintain settlement integrity and hence viability. Nuclear families supply that minimum demographic imperative. Kinship’s role as a

principal element of social organization on agricultural frontiers in southwest Michigan specifically, is examined. The nuclear family and larger kin-based organizations known as “kinship clusters” that evolved from nuclear families were a specific social adaptation for settlement of agricultural frontiers. Several researchers have referred to this as a “clustering phenomenon.” These “kinship clusters” could also provide a focal point that would attract other settlers to the area. The significance of kinship clusters as an adaptive strategy in agricultural frontier settlement and the resultant settlement pattern that developed was supported with statistical testing. Nearest neighbor analysis using census and other records and point data from Calhoun County maps from 1831 to 1840 demonstrated a trend in settlement patterning that showed initial clustering followed by random settlement. This analysis revealed that initial kinship clusters acted as a focal point for subsequent settlement on the frontier. This paper confirms the importance of kinship in the spatial structuring of initial settlement on the frontier primarily as a vehicle for establishment of spatially constrained cooperative and integrative social networks.

Keywords: Kinship, Settlement patterns, Michigan-southwest, GIS

José Antonio Borello, Universidad Nacional General Sarmiento, Instituto Del Conurbano. Email: jborello@ungs.edu.ar; Diego Silva Failde, Universidad Nacional General Sarmiento. Email: dsilva@ungs.edu.ar; Hernán Mohorland, Universidad Nacional General Sarmiento. Email: ; Geographical Aspects of Interactions in Production Networks: Results from a Field Survey of Steel Making and Automobile Production in Argentina

The paper analyzes geographical aspects of the structure and contents of interactions in production networks of semi-industrialized countries. By comparing two networks with a different geography (automobile is more dispersed; steel is more concentrated) the paper looks at the effect of geography on interactions and on the creation of technical competencies within firms and production networks. A series of indicators were developed of both interactions (within firms and networks but also between them and institutions such as S&T units, universities, and firms’ associations) and competencies (by looking at work organization, quality systems, R&D efforts). We focus on the steel production network lead by the major Argentinean steel-maker, Techint? a multinational conglomerate with steel mills in several parts of the world and operations in other industries (oil, engineering, telecommunications). The sample of firms surveyed includes suppliers of a number of inputs and services (stratified in terms of their relevance for the nucleus of the network) and a variety of local clients. As for automobile production, the sample includes about one hundred makers of autoparts. The paper draws on a recent field survey of 200 firms located in and around Buenos Aires and Córdoba. This survey is part of a larger study of production networks in Argentina funded by the Argentinean Undersecretariat of S&T and coordinated by Univ. Nac. Gral. Sarmiento (it includes wine-making, fruit-processing, software for the agricultural sector, energy, and the suppliers’ network of INVAP? Argentina’s producer of satellites and nuclear reactors).

Keywords: production networks, interactions, competencies, steel making, car manufacturing

Michael Erec Borger, The University of Hawai’i at Manoa. Email: michaelborger@gmail.com; The Case of Jetty Construction at Oregon Inlet, North Carolina

In 1970, Congress authorized the Army Corps of Engineers to construct twin mile-long jetties on both sides of Oregon Inlet, NC in order to stabilize the inlet and prevent its natural southward migration. The jetties were proposed to make the inlet safer to navigate for commercial and recreational fishing boats, provide access to the ocean from Pamlico and Albemarle Sounds, to develop the regional fishing industry and to increase the lifespan of the Bonner Bridge. They were also pitched as a more economical way to stabilize the inlet than continued dredging of the channel. To build the jetties, the Corps needed permits from the Department of Interior which was unwilling to issue them due to potential harm to adjacent Federal lands. Along with the National Marine Fisheries Service, which is administered by NOAA and the Department of Commerce, other non-governmental environmental groups and recreational users, the jetties were contested on both environmental and economic grounds for their potential erosional effects on adjacent Federal lands, disruption of larval transport and lack of economic justification over dredging. As required by NEPA, Environmental Impact Statements were issued by the Corps and, in turn, contested by the jetty opposition, most effectively by the Inman Panel and NMFS. The case was presented to the White House Council on Environmental Quality in 2001. The CEQ, Corps and NOAA reached an agreement in 2003 not to proceed with the jetty construction and instead aim for deeper dredging and timelier, publicly available navigation information.

Keywords: coastal, policy, inlet

Daniel Borough, Ph.D., California State University, Los Angeles. Email: dborough@calstatela.edu; *Linking Home Values to Elderly Migration and Neighborhood Transition in Southern California*

Traditional theories related to neighborhood transition and the life course suggest that as newer, cheaper housing is created in more remote suburbs younger families leave their traditional White neighborhoods and thereby create housing opportunities for African Americans and other ethnic minorities. This typically results in older, Anglo residents temporarily co-residing with younger, ethnic minorities and the eventual transition of the neighborhood from White to non-white. The recent housing boom in the United States and especially Southern California may have changed this traditional pattern. Anecdotal evidence suggests that higher home values in urban areas may have resulted in increased mobility among the elderly. The purpose of this paper is to present the preliminary results of research into how home values influence elderly migration and, by extension, neighborhood transition and community structure in urban communities in Southern California. Using statistical and mapping methodologies, I investigate how home values relate to elderly mobility and how the resulting mobility influences neighborhood transition and community character. This study relies upon data from a variety of sources and looks at both historic and contemporary patterns. The results of this study could prove useful for researchers and policymakers in multiple ways including: improved understanding of elderly mobility, advancing understanding of the neighborhood transition process, and providing city planners and other agencies with a model to predict future population needs.

Keywords: Urban geography, elderly mobility, neighborhood transition

Soheil Boroushaki, University of Western Ontario. Email: sboroush@uwo.ca; Jacek Malczewski, University of Western Ontario. Email: jmalczew@uwo.ca; *GIS-based multicriteria evaluation: Implementing an AHP extension using Fuzzy Linguistic Ordered Weighted Averaging (FLOWA) operators in GIS for group decision analysis*

Spatial decision making problems typically have three major characteristics: multicriteria, multi-participants and fuzziness. This paper focuses on the integration of GIS and an extension of Analytical Hierarchy Process (AHP) using Fuzzy Linguistic Ordered Weighted Averaging (FLOWA) procedure for a group decision making setting. AHP-FLOWA is a multicriteria combination operator. The nature of the FLOWA depends on some parameters, which are expressed by means of fuzzy linguistic quantifiers. By changing the parameters, FLOWA can generate a wide range of decision strategies. We propose a GIS-multicriteria evaluation (MCE) system through implementation of AHP-FLOWA within ArcGIS, capable of aggregating linguistic labels and measuring consensus for a group spatial decision making. We suggest that the proposed GIS-MCE would simplify the definition of decision strategies and facilitate an exploratory analysis of multiple criteria with a group of decision makers.

Keywords: GIS, Linguistic quantifiers, Multicriteria Evaluation; Analytical Hierarchy Process; Ordered Weighted Averaging; Group Decision Making

Maria Borovnik, PhD, Massey University, New Zealand. Email: m.borovnik@massey.ac.nz; *The Shipping Industry as a Global Force on Seafarers' Labour: Global Pressure on Local Labour Unions*

This paper considers maritime space as dynamic and multiply inhabited, and seafarers as a transversally circulating group bound in a transnational framework in which the steady flow of remittances are a regular link to home families and communities. Added to the transnational dynamic in the seafarers' framework has to be the globalisation efforts of the shipping industry in attracting workers from countries, such as Kiribati (in the central Pacific), that are on the global periphery. Shipping agents argue that the benefits are two way. Shipping lines earn efficiency by employing foreign workers for low wages, but foreign workers simultaneously earn a job in a highly competitive environment. International labour unions, however, have faced some difficulties in having to negotiate wages between the industrialised "old" seafarers' work force and the new mass of workers from the developing world that are willing to be employed under difficult circumstances in order to provide for their families. Drawing on the example of Kiribati this paper will explore the issues that local labour unions have to face in being squeezed between employment agencies, international labour unions, and seafarers supporting their families.

Keywords: seafarers, shipping industry, labour unions, transnationalism

Claire G Boryan, USDA/National Agricultural Statistics Service. Email: claire_boryan@nass.usda.gov; David M Johnson, USDA/National Agricultural Statistics Service. Email: david.johnson@nass.usda.gov; Rick Mueller, USDA/National Agricultural Statistics Service. Email: rick_mueller@nass.usda.gov; *A Link Between GIS and Remote Sensing: A Florida Citrus GIS and a Florida Cropland Remote Sensing Classification*

A Florida Citrus Geographic Information System (GIS) and a Florida (2004) Cropland Data Layer (CDL) remote sensing classification were produced by the

USDA's National Agricultural Statistics Service (NASS) and NASS' Florida Field Office (FFO). The Citrus GIS was created to modernize the methodology for maintaining and conducting the biennial census of Florida's commercial citrus trees. Trees in production, acres planted, variety, and planting dates were documented in the GIS. Citrus grove location information was stored, historically, by the FF0 using paper-based maps and known grove boundaries were drawn by hand. The repetitive redrawing of groves with each census was no longer needed with the development of the modernized Citrus GIS. Additionally, grove boundaries and attribute information were physically linked in the GIS. The Florida Cropland Data Layer Product (2004), a remote sensing land cover classification, was produced using the Citrus GIS and Farm Service Agency (FSA) Common Land Unit (CLU) data as sources of ground truth information for the classification. See5 Decision Tree software was used to perform the classification. The spatial distribution of agricultural crops across the state was captured in the Florida CDL. Agricultural crops classified in the Florida CDL include; corn, upland cotton, grass/pasture, peanuts, citrus, sugarcane, sorghum, soybeans, winter wheat, rye, oats, millet, watermelon, trees, and other fruit/vegetable. Non agricultural information was derived from the 2001 National Land Cover Database (NLCD) which was produced by the Multi-Resolution Land Characteristics Consortium (MRLC).

Keywords: agriculture, citrus, GIS, remote sensing, landcover classification

Keith Bosak, Georgia Southern University. Email: kbosak@georgiasouthern.com; *"Going Global: Ecotourism and globalization in the Niti Valley, Garhwal Himalaya, India"*

The local Bhotiya people of the Niti valley have experienced dramatic changes in their livelihood options over the last fifty years. Prior to 1962, the Bhotiya practiced transhumance and trade with Tibet. When the border with Tibet was closed in 1962, the Bhotiya continued to practice transhumance in a more limited geographic area. In 1974, Nanda Devi was opened to western mountaineers and the Bhotiya began earning money as porters and guides for expeditions. Unfortunately, the mountain was closed to all people in 1982 following serious concerns of environmental degradation from too many visitors. The Bhotiya had to return to farming and grazing animals. In 2001, after almost twenty years of economic and cultural decline, the Bhotiya began an ecotourism initiative with the goal of providing a livelihood option that would promote conservation and equity while providing an income for local people. This project explores the way in which the Bhotiya have operated within and across scale and constructed scale in order to adapt to the changes brought about by globalization.

Keywords: ecotourism, mountains, globalization, scale

Ron A Boschma, Utrecht University. Email: r.boschma@geo.uu.nl; Frank Neffke, Utrecht University. Email: f.neffke@geo.uu.nl; *Relatedness and Related Variety as Sources of Regional Growth*

Evolutionary Economic Geography is an emerging field of research that aims to bring together insights from evolutionary economics and economic geography. In our paper, we aim to apply EEG to the macro-level of the spatial economic system as a whole. The economic development of regions may be analysed as an aggregate of sectors in a region. This sectoral logic underlying the evolution of spatial systems is known as the process of structural change. Regions that are capable of generating new industries with greenfield technological opportunities giving rise to new product lifecycles and expanding demand will experience growth, while regions that are locked into earlier specialisations with mature lifecycles will experience decline. A major concern in this literature is whether specialized regions or diversified regions are more capable of developing new sectors and sustaining older sectors. So far, life cycles of individual industries have been analysed mostly in isolation. We intend to go a step further. Starting from a macro perspective, we suggest introducing a topology of technological relations that link industries together. In this paper, we use concepts like related variety and relatedness to explain how related industries may provide growth opportunities for regions. In addition, we intend to use these concepts in a dynamic way, as we hypothesize that related variety and relatedness (and thus the industrial topology of technology) change over time through branching processes. It is these shifts in relatedness that we expect to have major impacts on the long run opportunities for future development of industries in regions.

Keywords: relatedness, related variety, industry life cycle, dynamics, evolution, economic geography,

Ron Boschma, University of Utrecht. Email: r.boschma@geog.uu.nl; Bjorn T. Asheim, University of Lund, Sweden. Email: Bjorn.Asheim@keg.lu.se; phil cooke, cardiff university. Email: cookepn@Cardiff.ac.uk; *Constructing regional advantage: policy platforms based on related variety and differentiated knowledge bases*

The paper presents an alternative regional innovation policy model, based on the idea of constructing regional advantages. This policy model brings together concepts like related variety, knowledge bases and policy platforms.

Recent experiences have called into question though the way regionalization of innovation policy has been implemented. Technology and innovation policy has been, and still is primarily focused on enhancing R&D, particularly in Europe. Copying of best practices, as identified by benchmarking studies, is popular amongst policy makers but bound to fail, as illustrated by regional policies aimed at creating new growth sectors (like biotech) or simply imitating successful models like Silicon Valley from scratch. There is awareness that 'one-size-fits-all' regional policy models do not work in a highly fragmented, globalizing economy, if they ever did, because these policies are not embedded in their spatial settings. One reason for these policy failures is that there is little understanding of how regions move into new directions or start up new growth paths, and to what extent public policy may affect this renewal process, and how. This paper will present a policy framework that takes up this challenge, building on new theoretical concepts. The objective of the paper is to provide an alternative regional innovation policy model, based on the idea of constructing regional advantage. We bring together three key notions that have recently been introduced in the literature: related variety, differentiated knowledge bases, and policy platforms.

Keywords: related variety, innovation policy, regions

Eric Boschmann, Ohio State University. Email: boschmann.1@osu.edu; Mei-Po Kwan, Ohio State University. Email: kwan.8@osu.edu; Socially Sustainable Urban Transportation

Drawing upon relevant literature, this paper examines the concept of socially sustainable urban transport. The paper argues that sustainability, when more broadly conceptualized, necessarily incorporates the social, and subsequently considers how urban transport influences the achievement of social sustainability in urban regions. Socially sustainable urban transport is defined along parameters of social equity, social exclusion, and quality of life. While this research literature is in its infancy, several other well-established research areas provide potential theoretical, methodological, and applied insight into the development of future socially sustainable urban transport research agendas, including: urban form, location- and individual-based accessibility, and city/regional planning for sustainability. Finally, the implication of socially sustainable urban transport upon sustainable communities is explored.

Keywords: urban, transportation, social equity, sustainability

Fernando J. Bosco, San Diego State University. Email: fbosco@mail.sdsu.edu; Stuart C. Aitken, San Diego State University. Email: saitken@mail.sdsu.edu; Tom Herman, San Diego State University. Email: ; "A Kid has a Right to Speak to Anybody They Want to in the World": Children as Institutional Brokers in a Border Community

This paper was inspired by a California State Assembly Bill to prohibit the use of immigrant children as translators and interpreters in public institutions or in any public or private agency, organization, or program that receives state funding. The study focuses on young people and their families in Chula Vista, a community of San Diego contiguous to the Mexican border. By analyzing how young people exert a continual and subtle influence on the knowledge and perspectives of immigrant adult family members, we suggest some of the ways immigrant families overcome barriers to assimilation and citizenship and become involved in their communities. We suggest that in this context, young people take on huge familial and community responsibilities and are powerful conduits and catalysts for cultural transformations. The efforts of children and young immigrant people, however, are being actively resisted and contested. Children's family responsibilities are being replaced by new marketized relationships that represent the commodification of family care. In the context of neo-liberal reform and diminished state support for immigrant families, it is the state itself, through legislative efforts, that is leading the efforts against immigrants' strategies for settlement and belonging. We critically link our findings to a broader discussion regarding immigrant experiences of citizenship and civic and community incorporation in the context of neoliberalism in the United States.

Keywords: immigration, children, citizenship, neoliberalism

Pablo S Bose, University of Vermont. Email: pbose@uvm.edu; Reclaiming World City Status: Transnational Subjects and the Transformation of Kolkata

Once a central node in the command and control functions of the British Empire and a world city in the age of colonialism, the Indian metropolis Kolkata has fallen increasingly into the periphery through the last century. More recently however, the trend towards decline has been arrested. The arrival of new service industries, redevelopment initiatives and especially the explosive growth of new housing construction are apparent heralds of renewal. Nowhere is this more apparent than on the eastern fringes of the city, bordering a large wetlands region home to a thriving informal economy. Luxury condominium complexes and their attendant facilities are being built in this area at a fast pace and on a grand scale. The political, economic and ecological implications of such developments are considerable, yet within the city the construction of these condominiums is

accepted by most. Moreover, a major market for these housing projects is wealthy overseas Indians; the complexes are accordingly built with assumed transnational aesthetics and sensibilities in mind for transnational Indians or those closer to home that wish to live like them. I argue in this paper that it is the idea of diasporic Indians and their transnational lifestyles that are important influences on local civic leaders, city planners, private capital, and social movements alike. The mythic power of the diaspora is in this sense a crucial catalyst for transforming both the political and physical landscape of the region and a central part of the strategy to help Kolkata regain its former global prominence.

Keywords: Diaspora, transnationalism, peri-urban development, displacement

Bethaney Bosley, Kent State University. Email: bbosley1@kent.edu; Debra Mokaren, Kent State University. Email: dmokaren@kent.edu; Implementing inquiry-based activities in Louisville Middle School, Ohio

The Kent State NSF-funded GK-12 project entitled "North East Ohio Geoscience Education Outreach (NEOGEO)" has created partnerships with middle and high schools throughout Stark County, Ohio. The role of NEOGEO Graduate Fellows is to help improve the quality of Earth Science education by incorporating the use of real world data, technology, and inquiry based learning into the curriculum through hands on activities, and to help provide professional development for teachers. This poster highlights inquiry based activities written and implemented by NEOGEO fellows in seventh grade classrooms at Louisville Middle School in Louisville, Ohio. The activities written for Louisville Middle School focus on expanding content knowledge, identifying multidisciplinary connections, and incorporating technology using hands on student driven projects. All activities were written to adhere to seventh grade Ohio Science Standards and to also support the current seventh grade curriculum of Weather and Ecology.

Keywords: K-12, geography education, inquiry

Robert Bothmann, Minnesota State University, Mankato. Email: robert.bothmann@mnsu.edu; Mapping Graduate Research

Many graduate research projects have a geographic focus in which the research is conducted. Sometimes graduate students have ideas for research and find that such research was previously conducted or may want to review similar research topics. Catalog librarians create descriptive and analytic metadata that describe resources held by a library. The metadata contain geographic information in standardized language for topical and geographical terms, as well as coded geographic data. The catalog records for Minnesota State University, Mankato graduate students' theses and alternate plan papers dealing with topics in Minnesota were extracted and converted into a format usable in GIS, in which the subjects of the research were mapped. The data show the areal extent of past research by topic. The data are useful to graduate students and faculty to explore graduate research by geographic areas. Likewise, unmapped areas show where a research topic would be original. This application is also extensible to other types of library catalog metadata, such as cartographic resources or books.

Keywords: GIS, metadata, graduate research, library catalog

George F. Botjer, University of Tampa. Email: gbotjer@ut.edu; Marsh Drainage and the Third River Project in Iraq, 1991-2003

Saddam Hussein's drainage of the al-Hammar, Central and al-Huwaizah marshes, after the Gulf War, was widely condemned on humanitarian and political grounds. Viewed principally as economic warfare against the Shi'ites, the emptying of the marshes was presumed to have little or no constructive purpose. In fact, this massive water diversion had been anticipated since the days of King Faisal I, when it was called the Third River Project. Phase I of the 1991 hydrography plan involved draining about 80% of the vast marshland that lay close to the juncture of the Tigris and Euphrates rivers. That phase was completed just before the 2003 invasion. Phase II would have entailed the channelization of the Tigris-Euphrates overflow (the erstwhile marsh water) into a 120 mile- long waterway, emptying into the Persian Gulf about 40 miles west of the Shatt al-Arab. Phase III was a development program based on the new hydrography. Reclaimed land would make the country less dependent on food imports, and the oil which had been discovered beneath the marshes could be exploited more efficiently. Also, a new "gateway" city (a latter-day St. Petersburg?) would be dredged out of the coastal plain, on the banks of the "third river." The feasibility of resuming this project will be discussed.

Keywords: Economic Geography

Giulio Bottazzi, Scuola Superiore Sant'Anna. Email: bottazzi@sssup.it; Giovanni Dosi, Scuola Superiore Sant'Anna. Email: giovanni.dosi@sssup.it; Giorgio Fagiolo, Scuola Superiore Sant'Anna. Email: giorgio.fagiolo@sssup.it; Angelo Secchi, Scuola Superiore Sant'Anna. Email: secchi@sssup.it; Modeling Industrial Evolution in Geographical Space

In this paper we study a class of evolutionary models of industrial agglomeration with local positive feedbacks, which allow for a wide set of empirically-testable implications. Their roots rest in the Generalized Polya Urn framework. Here, however, we build on a birth-death process over a finite number of locations and a finite population of firms that, first, choose to locate their activities among existing production sites that are heterogeneous in their intrinsic attractiveness and, second, select where to settle under a regime of dynamic increasing returns depending on the number of firms already present in each location. We explicitly characterize the stationary distribution, i.e. the probability of finding a given number of firms in each location, and we study how the properties of the limit configuration depend on the interplay between the distribution of agglomeration economies and intrinsic attractiveness among locations. Then, we present two examples of small economies to illustrate the model and we analyse their asymptotic behaviors. Finally, we discuss a number of empirical applications of our theoretical framework. The basic model, once taken to the data, is able to empirically disentangle the relative strength of technologically-specific agglomeration drivers (affecting differently firms belonging to different industrial sectors in each location) from site-specific geographical forces (horizontally acting upon all sectors in each location).

Keywords: Industrial Location, Agglomeration, Dynamic Increasing Returns, Markov Chains, Polya Urns.

Hiba Bou Akar, Department of City and Regional Planning, UC Berkeley. Email: hiba@berkeley.edu; Reproduction of Spaces of Power: Hezbollah after the War

Is Hezbollah a terrorist organization, a non-governmental organization, a philanthropic institution, or a Lebanese political party? Such categories often get blurred between politics, militarization, service provision, all of which characterize Hezbollah as seen from different perspectives: what is a militia for the international community is a housing provider for the urban poor in the southern suburbs of Beirut. By intervening in the production of low-income housing for the civil war displaced Shiites, Hezbollah plays a primary role in reconfiguring post civil war Beirut's geographies of power and spaces of control. The party has been using market mechanisms (ex: information transmission and investment incentives), 'neoliberal tools', to channel supporters from their informal shelters to these housing projects, creating ethnic enclaves in contested sectarian terrains. My paper will focus on how such an organization plays a role in shaping post-conflict urban territories, and on how ideologies and mechanisms of control affect urban reconciliation in divided cities. The recent war in Lebanon cannot go unnoticed. Most Shiite neighborhoods in the southern suburbs of Beirut, mainly Hezbollah-affiliated enclaves, have been destroyed. The paper will argue that the damaged urban spaces will be an opportunity for the party to "re"-produce spaces of control and power, using not only religious ideology and state apparatuses but also the market itself. The new spaces of contestation will challenge the hegemony of the state and international community by creating a localized counter-hegemony using infrastructure provision, housing production, microcredit loans, education, as well as religious identity and ideology.

Keywords: Hezbollah, war, housing, market

Michelle A. Bouchard, South Dakota State University. Email: Michelle.Bouchard@sdstate.edu; Wetland loss in the Prairie Pothole Region of Eastern South Dakota

Since 1780, over 50% of wetlands in the United States have been drained. Many of the agricultural states have had much higher losses, with some states losing up to 90% of their wetlands. Although Eastern South Dakota's lands are heavily used for agriculture, only ~35% of wetlands have been drained. This presentation will look at how settlement patterns, transportation, environmental conditions, and regulations have affected wetlands in Eastern South Dakota and why wetland loss has not been as great as in other agricultural areas.

Keywords: South Dakota, wetlands, wetland loss

Julie-Anne Boudreau, University of Quebec. Email: julie-anne.boudreau@ucs.inrs.ca; Nathalie Boucher, University of Quebec. Email: nathalie.boucher@ucs.inrs.ca; Political subjectivities in spaces of circulation: Bus rides and domestic work in Los Angeles

Based on fieldwork in Los Angeles, this paper attempts to understand the degree to which political mobilization is grounded in everyday experience, specifically the experience of moving through the city. Domestic workers living in Eastside neighbourhoods, commuting daily to their work places in the mansions of the Westside (a one-way trip of a minimum of an hour), cross

contrasted spaces and interact with people they see daily in the space and time given by the bus ride. Systematic observation on busses and in-depth interviews have revealed interesting patterns in the formation of political subjectivities. What does it mean when people circulate? What type of political beings are domestic workers when on the busses and when they step out? How empowering or disempowering is it to move through space? How are those circulatory spaces politicized?

Keywords: mobilization, everyday life, bus

Larry S. Bourne, Professor, University of Toronto. Email: bourne@geog.utoronto.ca; Changing Dimensions of Income Inequalities in Canadian Cities

Contemporary processes of urban growth and change continue to produce new sources and geographies of social inequalities within cities. This paper outlines a continuing project on the changing determinants of inequalities in income and employment opportunities, and an investigation of the shifting spatial scales at which these inequalities are expressed. The analysis examines variations in household income among and within Canada's metropolitan areas over time and links these changes to shifts in local and regional economies, demographic change, and public policy. The results confirm the importance of embedding local changes within a framework of broader forces operating and the urban system and global scales.

Keywords: Canada, cities, inequalities, income

Mark W. Bowen, University of Kansas. Email: mwbowen@ku.edu; Human Constructs, Channel Morphology, and the 100-Year to 500-Year Flood along the Colorado Front Range

High-magnitude floods, while rare, have potential to inflict catastrophic change; as more landscape becomes altered by humans this potential increases. Impacts of bridge construction on the natural environment were analyzed for one high-magnitude flood along two mountain streams in the southern Colorado Front Range. Penrose, CO received over six inches of rain in two hours, which, depending upon estimates, resulted in a 100-year to 500-year flood along 8-Mile and Brush Hollow Creeks. Bridges for U.S. Highway 50 constrict flow through lower reaches of both streams, which caused Highway 50 to flood. Also, high energy flow washed out several roads downstream. For both streams, cross-sectional surveys and Wolman pebble counts were conducted across the floodway, and longitudinal profiles were surveyed upstream and downstream of Highway 50. 8-Mile Creek displays a unique pattern in channel morphology upstream and downstream of the bridge due to the constriction of flow backing up water upstream and increasing erosion downstream. Flow was constricted to such a degree that Highway 50, situated 6 meters above the stream bed, was overtopped. Brush Hollow Creek channel morphology was not impacted by Highway 50 even though flow overtopped the bridge. A small check-dam installed approximately 2 km downstream of the bridge initially restricted flow but was subsequently breached, controlling upstream channel morphology. This dam, when breached, caused considerable, rapid downcutting as evidenced by several knick-points along the stream. Thus, human constructs in these watersheds have significantly altered natural channel response to high-magnitude, low-frequency flood events.

Keywords: fluvial geomorphology, Colorado Front Range, Flood-100-year

John T. Bowen, Jr., University of Wisconsin-Oshkosh. Email: bowenj@uwosh.edu; A People Set Apart: A Supply-Side Perspective on the Spatial Development of the Airline Business Class

Beginning in the 1980s in the transatlantic market, air carriers developed business class as a separate, highly lucrative product. Today, business class is a crucial source of profits for airlines across much of the world. In this paper, the spatial expansion of business class services and their contemporary spatial organization are analyzed. The latter analysis reveals that, among densely traveled routes, the share of business class seats is greatest on secondary intra-Europe routes but comparatively low on routes linking the dominant world cities. And yet the most recent chapter in this story has been the emergence of all-business-class carriers, including start-ups on the New York-London route. Earlier all-business-class ventures failed but the international liberalization of the airline industry and shifts in the air travel market have fostered a more favorable outlook for their success this time. Much as such airlines may represent the culmination of the decades-long development of business-class service in the air, new business traffic-oriented terminals and airports may be the culmination of a similar trend on the ground. The implications for the established full-service network carriers and for the airline industry more generally are examined. Although the recent proliferation of low-cost carriers has been hailed for its democratizing effect, the elaboration of business class services attests to the persistence of the airline industry's "caste system".

Keywords: business travel, air transportation services, airline networks

Sophia R Bowlby, University of Reading, UK, University of Reading. Email: s.r.bowlby@reading.ac.uk; Susan Gregory, University of Edinburgh, UK, University of Edinburgh. Email: s.gregory@ed.ac.uk; Linda McKie, Glasgow Caledonian University, Glasgow Caledonian University. Email: l.mckie@gcal.ac.uk; *Spacing and timing informal care across the lifecourse*

In this paper we consider the practical significance of informal care across the lifecourse. 'Care' is the product of feelings of anxiety and concern about others and informal care is the practical application of care in terms of unpaid work and activities that takes place in social settings, places and spaces. These caring feelings and activities reflect the experiences of people in families and relationships, employment, organisations and institutions, and are subject to a range of policies both directly and indirectly related to acts of care. We show that care can involve mutual dependence in all settings and all points of life for all members of the human race and so focus on interdependencies across the lifecourse, at different spatial scales, expressed through a variety of forms of communication and experiences. These include expressive embodiment, talk, text, email and institutional rules (for example, bullying and harassment). In exploring these ideas we draw on empirical research from two bodies of work: migrant care workers (drawing on empirical work on by McGregor (2006) and volunteering (drawing on a study of volunteering conducted by Bowlby and Lloyd Evans, 2006). Seeking to theorise the nature and form of interdependencies and care across the lifecourse, we have used theoretical and empirical work to develop a conceptual framework, namely caringscapes, (McKie et al 2002) through which these concepts and their ethical implications might be understood.

Keywords: Care, lifecourse, time, space

Erik Bowles, Kansas State University. Email: ehb7705@ksu.edu; *A New Heat Wave Classification Model*

Intensity and frequency of heat stress hazards have been increasing worldwide, and are expected to continue to increase over time. The nature of this hazard is difficult to universally define because of the variations in local climate norms and acclimatization by people over space. This study proposes a new heat wave classification model of events on a qualitative scale from 1 to 5 using heat index stress measures. The model is applied to several locations representing differing climatic regions in the United States. Hourly heat index values are calculated and analyzed to provide a daily categorization that identifies event intensity, duration, and frequency. Analysis is based on the twenty-year period from 1981-2000. Results provide a better appreciation for local exposure levels to annual heat hazards and their extremes.

Keywords: Heat waves, classification, climate extremes

Jerrod K Bowman, University of Alabama. Email: bowma012@bama.ua.edu; *Regional Commissions as Agents of Social Justice*

This paper examines the recent upsurge of regional commissions forming in the South, such as the federal Delta Regional Authority, Alabama's Black Belt Commission, the attempt to form a federal Southeastern Crescent Authority, and the attempt to form a Gulf Opportunity Zone in the wake of Hurricane Katrina. The paper considers whether regional commissions are capable agents of social change and social justice. The paper then utilizes traditional spatial segregation measures to quantitatively determine the Appalachian Regional Commission's success in reducing economic segregation in the area. These measures suggest that economic segregation in the region remained relatively constant during the study period, which in turn suggests that the Appalachian Regional Commission may not necessarily serve as an effective agent of social change and social justice.

Keywords: social justice, regional commissions, segregation measures

Caru Bowns, Ph.D., Pennsylvania State University Dept Landscape Architecture. Email: cub10@psu.edu; *Community Development in Brazil and the New Republic Initiatives for Social Reform*

Between the 1960s and 1990s Brazil experienced a series of major changes in population growth, industrial development and social structure that impacted the character of interior communities and urban settlements. Since military rule in the 1970s, the return to democratic government has been associated with the growth of civil society and a reformist agenda for the social sphere. The agenda has been hampered by the larger political context of (re)democratization, economic instabilities and institutional reform but has not prevented social reformists from introducing several significant changes to Brazil's social landscape: acknowledgement of social rights; universal access to social programs, and establishment of minimum benefits. These new trends in public and institutional processes in Brazil have been the subject of research by both political and social theorists. More difficult to assess is the "geography" of Brazil's civil society and the New Republic's policy impacts. Today Brazil is a predominantly urban nation having transitioned from 70 percent rural in 1940 to currently 80 percent urban. This paper addresses the question: "How has community development and the quality of life in Brazil's interior communities

and ex-urban settlements been effected by the new social policies?" Social science data, anthropological and settlement research inform a material manifestation of social reform in Brazil's settlement landscapes. According to Draibe 2002, areas of housing, basic sanitation and public transport are virtually excluded from the federal reform agenda. The research reveals that however oblique federal funding for community development efforts, patently modest achievements are taking root to stabilize many disturbed communities.

Keywords: Brazil, community development, social reform, civil society

Ronald Boyce, Seattle Pacific University and Bakke Graduate University. Email: rboyce1045@aol.com; Ronald Boyce, Seattle Pacific University and Bakke Graduate University. Email: rboyce1045@aol.com; *Contrary Conclusions of City Origin: A Biblical Perspective*

Speculation about the origin of the city is varied and controversial. Some say the first city simply evolved with advancements in agriculture and metallurgy. Others have questioned this thesis and have suggested that the rise of the city preceded critical advancements in farming and metallurgy. The Bible suggests a hunter originator for the first city rather than a farmer, but careful study is required. In fact, either thesis of origin can be argued from a biblical perspective.

Keywords: city origin, Cainite civilization, Nimrod's Kingdom

Emily Boyd, Dr, James Martin 21st Century School Fellow. Email: emily.boyd@ouce.ox.ac.uk; *Privatizing the commons: why carbon offsets are a cause for concern?*

This paper examines the concept of carbon governance, in particular focusing on the role and nature of property rights. Governance of public goods such as the Earth's atmosphere and tropical forests calls for multiple level interactions between institutions, yet these interactions have yet to be fully understood. A text book example is that of carbon offsets and land use change, which continues to be one of the most hotly debated contemporary international issues. In particular, much deliberation has taken place on the impacts of so-called carbon sinks projects on local livelihoods. Less attention however, has been paid to the underlying property rights and institutions that frame these offsets. Drawing on institutional theory from International Relations and Common Property Resources, the paper argues that the current carbon governance framework is driven by a property rights paradigm. This paradigm legitimises a hierarchy of values and supports exclusionary approaches, resulting in tensions with local efforts to protect the commons. It also remains unclear whether such a framework helps or hinders development and for whom?

Keywords: carbon offsets, property rights, development

Richard Boyden, National Archives & Records Administration. Email: richard.boyden@nara.gov; *National Archives Geospatial Data Preservation*

Preservation of geospatial electronic records is a challenge for data owners and data archivists. The National Archives is working on a number of approaches to this problem: in the short term, working with the Federal Geographic Data Committee to come up with workable data transfer standards and a GIS archival profile; in the long-term, developing new technology to manage persistent objects in an Electronic Records Archives.

Keywords: gis

John Boyer, Virginia Tech. Email: joboyer@vt.edu; *Losing Geography: Impacts of 'False' Terroir on the Virginia Wine Industry*

While currently topical, the concept known as terroir is not a new concept. Terroir refers to the natural and cultural features of a geographically delineated body of land which interact to create a unique set of conditions that in turn confer specific characteristics on the wines produced there. Key factors include climate, topography, geology, soils, varietal selection and wine-making practices. In many countries, the identification of viticultural terroir is undergoing serious study, due in part to an increasing demand by consumers for knowledge and understanding of the origin of each wine produced. However, in many newer viticultural production areas in the New World, terroir areas default to, and are defined by, political borders as opposed to any real homogeneous natural or cultural features. This practice is becoming increasingly problematic for wine producing areas having to compete in an ever-increasing globalized market. The marketability of over-generalized products is decreasing rapidly in an industry where specific wine description for specific regions and specific vintages has become the norm. The Virginia wine industry faces just such challenges in its modern history. Having grown successfully and rapidly for three decades, it likely will begin to stagnate soon due to increased competition and 'false' terroir labeling, leading to consumer confusion about what it means to be a 'Virginia wine.' This paper provides an analysis of geographic delineation of the wine regions in Virginia; their past, present and future potential; and how the industry may already be irreparably damaged by losing its geography.

Keywords: Terroir, viticulture, wine, grape, Virginia

Kate Boyer, Rensselaer Polytechnic Institute. Email: boyerl@rpi.edu; *breast pumps, live/work balance and new geographies of care*

This paper ties together efforts in cultural geography to re-conceptualize agency in a more-than-human world and destabilize nature/culture dichotomies; as well as interest in space as it's experienced through emotion and the body, as signaled in some strands of non (or, more-than) representational theory. Building on the work of Philo, Conradson and others, I'm interested in the role of objects in human activity as a way to shift concerns of non-representational theory away from elite kinds of performances (like dance and theatre) and toward the 'amazing yet ordinary' performances of everyday spatial practice. I suggest that THIS amazing yet ordinary activity challenges commonplace understandings not only of the workplace, but of nature and technology as well; destabilizing the coherence of body-boundary and the 'naturalness' of nursing, and opening the possibility new ways of folding carework into the wage workplace.

Keywords: live/work balance, carework, technology

Max Boykoff, James Martin Research Fellow, Oxford University Centre for the Environment. Email: maxwell.boykoff@eci.ox.ac.uk; Michael K Goodman, King's College London. Email: michael.k.goodman@kcl.ac.uk; *An Inconvenient Celebrity? Promises and Pitfalls of Celebrity Involvement in Climate Change Science, Policy and the Public*

What is the relationship between public celebrity involvement in climate change and greater discursive traction on this issue in science, policy, and the public? From musical groups promoting 'carbon neutral' tours, to actors and former politicians starring in big screen global warming feature films, high-profile personalities have appeared to amplify concerns about human contributions to climate change. Many feel that prominent figures substantially contribute to greater public understanding of climate change science, as well as catalyze climate policy cooperation. However, critics posit that increased involvement from the entertainment industry has not served to influence substantive long-term advancements in these arenas; rather, it has instead reduced the politics of climate change to the domain of fashion and fad devoid of political and public saliency. Widening our purview to examine the role of climate change-related celebrity activities at the interface of climate science, policy and the public, this paper examines how the (de)legitimation of celebrity politicians and politicised celebrities influences unfolding discourse on climate change. Moreover - situated in contemporary (consumer- and spectacle-driven) carbon-based society? we interrogate various effects that this particular set of personalities has on debates over climate change causes, consequences and action. In theorising on/within the carbon economy, this paper seeks to tease apart some of the promises, pitfalls and contradictions of this increasingly entrenched set of non-state actors we deem 'an inconvenient celebrity'. Thus, ultimately? as a form of climate change action? we ask, is it more effective to 'plant' celebrities instead of trees?

Keywords: celebrity, climate, media, science-policy, public, discourse

Paul Boyle, University Of St Andrews. Email: p.boyle@st-andrews.ac.uk; Daniel Exeter, University of Auckland. Email: d.exeter@auckland.ac.nz; Zhiqiang Feng, University of St Andrews. Email: zf2@st-andrews.ac.uk; *The Influence of the Modifiable Areal Unit Problem on Spatial Clusters of Suicide in Scotland*

Suicide rates among young adults (15-44 years) in Scotland increased dramatically between 1980 and 2000 and there is growing political and academic concern about the possible causes. We explore whether suicide clusters geographically and, hence, whether there is any evidence that suicide behaviour may be 'contagious'. In Scotland, there is anecdotal evidence suggesting that suicide clusters may exist but no study has explored this statistically. Using suicides distributed across 10,058 specially constructed small zones which are 'consistent areas through time' (CATTs), and controlling for age and sex, we find a large, significant and surprisingly persistent spatial cluster of suicide in East Glasgow in 1980-2, 1990-2 and 1999-2001. However, it is possible that the scale and arrangement of the CATTs may have influenced the results -the 'Modifiable Areal Unit Problem' (MAUP). We therefore repeated our analyses for different configurations of the CATTs. We show that the East Glasgow cluster was statistically significant in every configuration, confirming that this suicide cluster is not an artefact of the zone geography. This raises the question of whether contagious processes influenced this cluster. We therefore extended our analysis to control for socio-economic deprivation and show that the cluster becomes insignificant in every spatial configuration. Rather than relating to contagious processes, the cluster reflects an area of severe deprivation which is strongly related to suicide behaviour in Scotland among young adults. The significant policy implications of these results are discussed.

Keywords: Suicide, clusters, Scotland, MAUP

Alexandra Bozheva, Ryerson University. Email: bozheva@yandex.ru; *The New Wave of Immigration from Russia to the USA: New Faces and New Places*

Collapse of the Soviet Union and instability in economic and social conditions caused the increase in the migration from FSU abroad. International emigration from Russia was directed mostly toward three countries: Germany, Israel and the USA. This study is focused on pull factors related to attractive sites in the USA. In the recent decade, immigration from Russia to the USA underwent significant changes. The structure of permanent and temporary migration flows evolved from the prevalence of refugees toward the intellectualization of immigration. The spatial pattern of immigration had changed toward extending of settlement geography and its increasing variety, first of all, due to less concentration around New York area. The similar trend was true for temporary immigration, as the number of Russian arriving through New York port decreased. The combination of pull factors that determines the distribution of Russian immigration through out the USA, has also drastically changed. At the beginning of the new wave, the existing distribution of Russian foreign-born population served as the only decisive factor. At the modern stage, the destination choice of immigrants from Russia is also influenced by employment opportunities created by in research and development sector. However, the presence of the Russian foreign-born population will continue to be the major factor. Regarding temporary immigration from Russia, the combination of pull factors is more complicated. Along with distribution of Russian foreign-born population and funds for R&D, the percentage of population employed in 'professional specialty' occupational group is another factor that plays no less important role.

Keywords: immigration, pull factors, brain drain

Kathleen E. Braden, Ph.D. Geography, Seattle Pacific University. Email: kbraden@spu.edu; *The Impact of Nature Tourism on Biodiversity Change in the Russian Federation*

With more than twelve percent of the earth's land area, the Russian Federation's situation for species conservation will inevitably impact the biodiversity of the planet. Since the devolution of the Soviet state, biodiversity has been poorly maintained in Russia, with an increasing number of species under threat of extinction. The Russian Ministry of Natural Resources, international environmental NGOs, the United Nations Development Programme, and the World Bank Global Environmental Facility have all earmarked the tourism sector to provide alternative incomes and alleviate some of the stress on biological resources. These plans are examined, particularly related to nature tourism, the Russian system of zapovedniki (reserves), the ability of the Russian state to attract foreign tourists, and the role of the wealthy tourist class emerging within the Russian elite.

Keywords: tourism, Russia, biodiversity, nature reserve

Danielle Bram, CSU Northridge. Email: starturtle_75@hotmail.com; *A Spatial Analysis of Fennel (Foeniculum vulgare) in the Santa Monica Mountains*

Invasive plant species are a tremendous concern for land managers, as the detrimental effects of these noxious invaders have a huge impact on the surrounding environment in multiple ways. Alien plant invasions can reduce native species richness, change the local fire regime, alter hydrological patterns and compromise water quality. Fennel (*Foeniculum vulgare*) is an extremely aggressive invasive plant species spreading rapidly in the native sage-scrub community in the Santa Monica Mountains of Southern California. I used a combination of logistic regression analysis and Geographic Information System (GIS) tools to create a habitat suitability model which predicts the potential spatial distribution of fennel. Presence/absence data for fennel was obtained from a vegetation mapping project performed by the National Park Service and USGS. The environmental variables analyzed were elevation, slope, aspect, road and trail proximity, hydrologic networks, distance to development, and fire frequency. Elevation, road, trail and stream proximity, and fire frequency were found to be strongly correlated with the presence of fennel. When validated using additional field data, the final predictive raster maps proved to be a reliable indication of the potential distribution of fennel. The results of the study could provide land managers with a more targeted approach in their quest to control and/or eradicate fennel in a proactive and efficient manner.

Keywords: gis, predictive model, invasive species, Santa Monica Mountains

Allison Bramwell, PhD Candidate, University of Toronto. Email: abramwell@lincsat.com; *Under the radar: local workforce development networks and economic development in Hamilton and Ottawa, Canada*

This paper examines the impact of political conflict and consensus among local civic associations, educational institutions, and municipal governments on new economy growth and workforce development initiatives in Hamilton and Ottawa, Ontario, Canada. Like many other industrial city-regions facing the challenge of economic restructuring, Hamilton seeks to diversify its economy to counteract the erosion of its traditional manufacturing base. In contrast, Ottawa

has a strong high tech sector. In both cases, knowledge-intensive industries such as advanced manufacturing and biotechnology in Hamilton, and ICT in Ottawa require a high level of skills in the local labour market. While Ottawa has a critical mass of highly educated knowledge workers, Hamilton struggles to create, attract and retain highly skilled workers, coupled with a higher than average population of people requiring social assistance. Consensus exists among local actors around the importance of workforce development initiatives to support knowledge-intensive economic activities, but policy ambiguity rooted in federal/provincial jurisdictional conflicts has resulted in serious gaps and overlaps in worker training and education in Ontario. Recent research in Hamilton and Ottawa suggests that a variety of actors are successfully involved in the design and delivery of regionally sensitive and socially inclusive education and training to adult workers at the local level in spite of larger institutional barriers. There are links between economic development and workforce development in both cities, but of particular significance is the existence of a robust local network between civic associations, educational institutions, and the municipal government in Hamilton.

Keywords: workforce development, networks, local economic development

Daniela Brandt, University of Berne. Email: brandt@giub.unibe.ch; From Geography to Strategy: Internationalisation of wireless services in Switzerland - An Evolutionary Economic Approach

When it comes to explaining internationalization strategies of mobile communication incumbents the existing literature is largely derived from business and management studies. In management studies internationalisation strategies are explained by rational, static norm strategies, which tend to proclaim a global marketplace with more or less footloose companies. A few remarks on company internal factors and home, as well as host markets aside, general dynamic aspects and a wider contextuality are still neglected in much of this literature. However, recent work in evolutionary economics and economic geography has shown that contextuality provides a valuable framework for the analysis of the development and change of strategic routines. Especially telecommunication incumbents are still influenced by national institutions. Additionally, as national institutions are the outcome of power-relationships with important actors within the national industrial complex, the framework for strategic developments not only has to be context-sensitive, but dynamic too. Empirical work on the former Swiss monopoly player 'Swisscom Mobile' shows that while international industry trends undoubtedly play an important role in shaping internationalization strategies the national path and place dependent elements have to be added to the model in order to reach an overall satisfactory explanatory framework.

Keywords: Internationalisation Strategies; Evolutionary Economics; Institutionalism; National Network Embeddedness; Mobile Telecommunications Industry; Incumbents

Christian Brannstrom, Texas A&M University. Email: cbrannst@geog.tamu.edu; State and Private Environmental Policymaking on a Neoliberal Agricultural Frontier

South America's "neoliberal frontier" (Hecht 2005) is defined a region of relatively recent (post-1980) export-oriented mechanized farming resulting in high rates of clearing, mainly of tropical dry forests and savannas, that have failed to attract conservation policies. This paper evaluates Hecht's "neoliberal frontier" in the context of export-oriented mechanized farming of the savanna ecoregion in northeastern Brazil. Land-use and land-cover changes are analyzed for ~12,000 km² study region in northeastern Brazil's soy-cotton belt (1979-1986-2000-2005). The results indicate that savanna covers ~50% of the study region and continues to occupy relatively large fragments amid farms often exceeding 5,000 ha. Underlying drivers of land-cover change include soybean markets and subsidies, agronomic technology, and permanent migration of southern Brazilian farmers to the region; significant obstacles to production, in the form of land-tenure insecurity, poor transport, and infertile soils, remain. Since 1990, a private farmers' organization has developed environmental policies that often outpace state agencies, which lack resources and personnel. Various aspects of private and state policies are summarized in the context of land-change maps, and categorized in terms of activity, information, agenda-setting, and discourse. The study area differs from Hecht's "neoliberal frontier" of northeastern Brazil notion in three main ways: (1) the development of an endogenous environmental debate; (2) the leadership role, in practice and discourse, of a private farmers' organization; and (3) the striking pattern of land-use and land-cover outcomes.

Keywords: Brazil; savanna; agriculture; neoliberal; environment; policy

Boris Braun, University of Bamberg. Email: boris.braun@ggeo.uni-bamberg.de; Alexander Bloechl, University of Bamberg. Email: alexander.bloechl@ggeo.uni-bamberg.de; Land-use, natural hazards and economic loss: lessons from a landslide-prone area in Southern Germany

Urban sprawl has become a typical and increasingly important consumption pattern in many Western countries. Inadequate land usage and rocketing property prices have led to a severe scarcity of space in many agglomerations pushing urban development in areas that are not particularly suitable for building. Moreover, in many mountainous areas attractive hillside locations are in high demand leading to building activities on steep slopes that are prone to landslides. Housing developments in high-risk areas result in an over-consumption of natural resources and in an increasing risk of economic losses due to landslides and other natural hazards. An important aim of modern hazard research is to assess and to reduce economic losses caused by extreme natural events. This paper will present results of an integrated study of landslide risks for settlements and infrastructure on the Swabian Alb in Southern Germany. New methods to estimate the potential damage and economic losses have been developed within this project. GIS-based techniques for mapping landslide hazards allow the development of detailed landslide risk maps that can be used on both the regional and the local level. By using this detailed information planning institutions are able to refine and to adopt future strategies for more sustainable urban land-use planning. Environmental economic geography, in collaboration with physical geography and other geosciences, can be an important contributor to these efforts.

Keywords: economic geography, natural hazards, landslides, Germany

Jeff Bray, Florida State University. Email: jbray@mailers.fsu.edu; Gay-Straight Alliances: The Politics of Constructing Space and Identity in Public Secondary Institutions

Public schools are saturated with socio-spatial competition and dissension. Institutions of public secondary education are collectively engulfed in an ongoing power struggle to define the experience of educational space. Opposing conceptions of social justice and traditional values, as well as the resulting power struggles which work to deny or institutionalize them within the educational space, are clearly present within the current debates concerning Gay-Straight Alliances in American public high schools. Gay-Straight Alliances are student led and organized extra-curricular groups designed both for gay and straight students as a means for communication, friendship, and support. These groups have sprouted throughout the United States, and have garnered intense opposition from social conservatives. The struggle for and against Gay-Straight Alliances is one fought at many scales and by numerous actors within the fabric of American society, turning high schools across the country into battlegrounds within a much broader culture war. This presentation serves as an interconnected series of case-studies and critiques concerning the geographical dynamics of education, policy, public space, and cultural-politics with respect to Gay-Straight Alliances in American public high schools.

Keywords: Geographies of Sexuality, Political Geography, Cultural Justice

Anthony J. Brazel, Arizona State University. Email: abrazel@asu.edu; Donna Hartz, graduate student, Arizona State University. Email: hartzda@yahoo.com; Shaping of an Arid City's Microclimates, Phoenix, Arizona, USA

It is well-known that microclimates on the earth's surface vary as a function of local scale factors such as terrain, surface land cover, moisture, wind systems, and in urban environments through processes related to anthropogenic activity and morphology and composition of the built environment. The "shaping" of microclimates in human-dominated systems, in addition to site and situational aspects of these environments, comes about by legacy effects evident in the landscape, inadvertent development consequences, and outright attempts at mitigating unwanted parts of the microclimate variance from place to place. In arid environments, often climate conditions are near upper thresholds important to maintaining sustainable features of the urban environment without considerable strain on resources to ameliorate vulnerable components of the urban ecosystem. Health, comfort, energy costs, water stress and drought are all elements that are related to past and present "shaping" of urban environmental microclimates, in addition to the general climatic setting and background global/regional changes that take place. Several ongoing projects in Phoenix, AZ demonstrate the shaping of past and present microclimates, the relevance of understanding this shaping, and the specter of future changes for this arid environment. As mentioned by several researchers of arid environments, lessons can be learned from legacies and past successes in arid environmental settlements and the role of careful design of urban areas for the future.

Keywords: microclimates, mitigation, legacy effects

Sebastien Breau, McGill University. Email: sebastien.breau@mcgill.ca; *Exploring Changes in the Geography of Income Inequality in Canada, 1981-2001*

This paper examines changes in the spatial distribution of income inequality across Canada. Recent evidence suggests that income inequality has increased significantly over the 1990s yet we know little about the geographic patterns of such a trend. Public use microdata files (PUMFs) and exploratory spatial data analyses are used to assess patterns of income inequality across census divisions in Canada between 1981 and 2001. Panel methods are also used to investigate possible factors behind the increase in income inequality across provinces and census metropolitan areas (CMAs).

Keywords: Income inequality, Canadian regions, panel methods

Christopher Brehme, University at Buffalo. Email: cbrehme@buffalo.edu; *Identifying factors that contribute to spatial decision-making strategies among lobster fishers*

This research elicits and examines the mental models used by different lobster fishers to establish and refine their trap placement strategies and compares these models to current scientific theories and spatial databases of fishing patterns. The research is based on field work in Maine and Western Australia, which share a reputation for effective management and a high level of fisher-scientist cooperation. Trap placement strategies are expected to vary based on a number of factors: fishing experience, use of geospatial technologies, level of engagement in current scientific research, and social networks. The research involves a mixed methods approach that includes spatial analysis in GIS, ethnography, participant observation, and historical research. Sources include spatial data from government logbook programs, historic records of individual fishermen, reports, oral histories, and interviews with fishers and scientists in Maine and Western Australia.

Keywords: fishing, GIS, Maine, Western Australia

Jason Bremner, Carolina Population Center. Email: jbremner@email.unc.edu; *Livelihood Diversification among Indigenous Peoples of the Ecuadorian Amazon*

Throughout the Amazon, new roads, infrastructure, oil pipelines, colonist settlements, and mechanized agriculture suggest an uncertain future for indigenous peoples. Case studies reveal that indigenous people of the Amazon are facing intense socio-economic, demographic, and cultural changes. This research proposes an examination of the determinants of a very important aspect of change reported to be occurring among indigenous populations: the adoption of non-farm employment, which is often referred to as livelihood diversification. Livelihood diversification may have unforeseen impacts, both positive and negative, on families, communities, and resource management institutions, and thus the future of indigenous lands and peoples. I therefore, seek a deeper understanding of the factors that contribute to these livelihood decisions. Specifically this research addresses the question, "What are the individual, household, and contextual factors that lead indigenous households to decide to diversify livelihoods and participate in non-farm employment?" I answer this research question using survey data collected from 500 households of five different ethnic groups and model both the decision to participate in non-farm employment and the level of participation using a Heckman's selection model. I suspect that indigenous households respond to changes in different ways related to their assets, capabilities, and available opportunities, and that these responses are mediated by social institutions and local context. Consequently, I expect that different ethnic groups will show different levels of participation in non-farm employment even when controlling for household and community level determinants. As such this study will highlight the importance of cross-cultural analysis when studying livelihoods.

Keywords: Indigenous, Livelihoods, Amazon

Chris Brennan-Horley, University of Wollongong. Email: chrisbh@uow.edu.au; Chris Gibson, University of Wollongong. Email: ; Andrew Gorman-Murray, University of Wollongong. Email: ; Gordon Waitt, University of Wollongong. Email: ; *Exploring the qualitative economy of a rural festival: beyond quantitative impact evaluations*

Conventional stories about the economic dimensions of festivals are expressed in terms of commercial impact, and quantified using specific methodologies. Researchers in tourism and event management have employed multiplier analysis, visitor survey and business impact methods to model direct and indirect economic contributions of festivals. In this paper we seek to broaden discussions of the economic dimensions of festivals. We explore results from field work conducted at ChillOut, Australia's largest Gay and Lesbian festival held outside a major capital city. Our approach revolves around understanding qualitative economic dimensions of festivals and special events, paying particular attention to both to meanings and identities created by festivals, and the context in which they take place. We analyse the economic dimensions of the ChillOut festival in

terms of direct commercial impact, and contrast this with other qualitative themes: place identities, belonging and acceptance, heteronormativity and 'the pink dollar', and situated knowledges of festival economies. We present the qualitative economy as a concept that provides a contextualised interpretation of economic dimensions of festivals, beyond numerical estimations.

Keywords: Heteronormativity, festivals, qualitative economy, economic geography

Ludger Brenner, El Colegio de Michoacan, A.C.. Email: brenner@colmich.edu.mx; *Management of Protected Areas in Mexico*

The poster presentation shows the problems that larger Latin American countries confront in the area of managing Protected Areas. In the case of two Mexican Biosphere Reserves, the interests, strategies and specific actions of a variety of actors involved in Protected Area management are identified. Special emphasis is placed on the spatial level(s) on which their actions take place and conflicts among different stakeholders. The study revealed that the existence of a large number of actors with conflicting interests and opposing strategies was not just an obstacle to a more integrated and participative form of Protected Area management, but also to sustainable tourist development. It was further noted that organizations -both governmental and non-governmental- are often inadequately conceived and poorly-coordinated. Thus, despite large amounts of investment, it has not yet been possible to enhance regional development or local participation. In order to resolve these complex problems, it is suggested that a formally constituted Round-Table with crucial decision-making power be installed, in which legitimate representatives from all stakeholder groups involved and concerned could express and negotiate their interests.

Keywords: Protected Areas, Management, Tourism, Mexico

Neil Brenner, New York University. Email: Neil.Brenner@nyu.edu; *Rescaling processes and the urban question: reflections on the geographies of 'urban' change under globalizing capitalism*

Since the early 1990s, questions about the scalar constitution of contemporary political-economic processes have attracted intense interest among social scientists. Interdisciplinary debates on the global/local interplay, the "glocalization" of capital accumulation, the rescaling of statehood and the politics of scale have resonated broadly and deeply throughout the social sciences. This presentation evaluates and sharpens certain key elements of this "new political economy of scale" in order to investigate the changing character of the urban question under contemporary "globalizing" capitalism. I argue that contemporary scalar transformations necessitate a fundamental rethinking of the urban. This proposition is developed, in a first step, through a critical evaluation of the apparent "scalar turn" within the contemporary social sciences. Second, and on this basis, I consider several realms of sociospatial restructuring in post-1980s capitalism that have profoundly transformed the scalar configuration of urban processes. While I insist that the contemporary urban question cannot be grasped entirely with reference to scalar transformations, I suggest that such transformations have fundamentally altered the geographical and institutional terrain within and through which the process of urban development unfolds. Therefore, the urban question and the scale question are today intertwined in ways that require sustained theoretical, methodological and empirical scrutiny. A brief conclusion underscores some of the basic limits to a scalar perspective on the urban question: the geographies of urbanity are polymorphic, and cannot be reduced to any one dimension.

Keywords: Scale, rescaling, urban question, sociospatial theory, globalization, neoliberalism, Europe.

Thomas Brenner, Max Planck Institute. Email: brenner@econ.mpg.de; *Determinants of the Spatial Distribution of Industries - Theory and Empirical Evidence for Germany*

The aim of this paper is to understand the factors that determine the location of firm sites. To this end, a model is developed that predicts the probability of a location in a specific region dependent on local externalities and the co-location of industries. The model is then fitted to the empirical data for each 2-digit industry separately. A number of other factors, such as university education, public research, population density, and the industry specialisation of the region are included in the analysis. The study allows to examine to what extent the location of an industry is determined by the interaction within the industry.

Keywords: Local externalities, spatial distribution, local resources

Alexander Brenning, University of Waterloo, Department of Geography, Waterloo, Ontario, Canada. Email: alexander.brenning@alumni.hu-berlin.de; Michael Grasser, Friedrich-Alexander-Universität Erlangen-Nürnberg, Institut für Geographie, Erlangen, Germany. Email: xgrassermichaelx@aol.com; Donald A Friend, Minnesota State University, Department of Geography, Mankato, MN, USA. Email:

donald.friend@mnsu.edu; *Quantifying the Significance and Modeling the Distribution of Rock Glaciers in the San Juan Mountains, Colorado, USA*

The quantitative significance of rock glaciers is assessed and their spatial distribution patterns are analyzed in the San Juan Mountains, Colorado/USA (2874 km² above 3400 m a.s.l.). Statistical estimation techniques and generalized additive models are used to efficiently evaluate a set of 2933 surface points obtained by random sampling and air photo interpretation. Results show that active and inactive rock glaciers in the study area occupy an estimated area of 70 km², which corresponds to a water equivalent of 0.50-0.76 km³, and estimated rock glacier debris volumes imply postglacial denudation rates (vertical lowering rates) of 0.5-1.1 mm per year within the talus sheds of rock glaciers. The generalized additive model, which is able to represent both linear and nonlinear effects, is based on topographic attributes derived from digital elevation models of the Shuttle Radar Topography Mission (SRTM). The model structure indicates that the covariables of local slope, slope of the contributing area, local curvature and size of the contributing area are among the main factors controlling rock glacier distribution. The predictive capabilities of the models for mapping rock glaciers regionally are further improved by combining terrain attributes and Landsat Enhanced Thematic Mapper (ETM) remote sensing data.

Keywords: generalized additive modeling; rock glacier; terrain analysis

Stefano Breschi, CESPRI-Università Bocconi. Email: stefano.breschi@unibocconi.it; Francesco Lissoni, CESPRI-Università Bocconi and Università di Brescia. Email: francesco.lissoni@unibocconi.it; *Mobility of inventors and the geography of knowledge spillovers. New evidence on US data*

In the past 20 years, research on the geography of innovation has revolved largely around the concept of "localized knowledge spillovers" (hereafter LKSs). For long supported only by circumstantial evidence, the LKS hypotheses was first tested by Jaffe, Trajtenberg and Henderson (1993; hereafter JTH). The three authors argued that knowledge spill-overs may be measured by the "citations to prior art" contained in most patent documents, and produced a statistical experiment showing that such citations come disproportionately from the same geographical area of the cited patents. The JTH experiment relies on the assumption that technological knowledge is largely tacit, so that face-to-face contacts are the necessary vehicle for its diffusion; in turn, geographical proximity is a necessary condition for those contacts to take place. In this paper we exploit new data on US inventors in Chemistry, Pharmaceuticals, and Biotechnology from EP_CESPRI database, and show that the key variable affecting knowledge diffusion is the social distance between patent inventors, which results from inventors moving across firms and/or marketing their research services. These ties are key vehicles for knowledge; to the extent that they are localized, knowledge flows are localized too. We also show that social distance explains the results obtained, by Thompson and Fox-Kean (2005), who have recently questioned the validity of the JTH experiment, on the basis of what they regard as a technical detail; namely, that the technological classification chosen by JTH to produce the control patent sample is so loose that their experimental evidence should be discarded as spurious.

Keywords: scientific productivity; university patents, technology transfer

Caroline Bressey, Dr, UCL. Email: c.bressey@ucl.ac.uk; *Geographies of work, race and anti-racism in England and Wales 1890 - 1945*

The idea of a nation opposed to racism is entrenched in the ideals of the British imagination, especially as a part of memories of the Second World War. Paradoxically this is coupled with a whitening of British history, including a lack of recognition of Black people's contribution to the Home Front. Also highlighted by conflicts during both World Wars, areas of work were often sites of struggle and provide moments of insight into British attitudes to race. When Black seamen in Cardiff went on strike in response to changes in employment structures in 1911 they were supported by the majority of their peers. By the time the League of Coloured Peoples investigated the experience of seamen in the city in the 1930s, racial prejudice had become embedded within union ideology and institutionalised by the British government. Yet critiques of racial prejudice had begun as early as the 1890s when the anti-racist movement in Britain was evolving as a political and social movement. The geographies of British anti-racism need to be placed in this broad historical context. This paper seeks to place the experiences of the Black community at the centre of a consideration of the early anti-racist community in England and Wales, and its focus on the exploitation of labour, 'at home' and in the empire, as a site of resistance.

Keywords: Anti-Racism, Black Britons, Race, Labour

Isaac Brewer, Penn State University. Email: isaacbrewer@psu.edu; Chris Weaver, Penn State University. Email: cweaver@psu.edu; Mark Salvatore, Penn State University. Email: mrs5002@psu.edu; *Visualizing Critical Infrastructure Data for Stadium Security at Penn State Using Improvise*

The development of software tools that focus on emergency response scenarios is a recent research focus in geovisual analytics. What makes this research challenging is the multidimensional, multiscale, multisource nature of the geospatial, temporal, and abstract information components that characterise such scenarios. The goal is to enable exploration and analysis of this information in a flexible, integrated, interactive environment that requires minimal training. In the Improvise visualization environment, users build and browse multiple coordinated information displays. Improvise is unique in its allowances for precise control over how interaction affects data appearance in and between multiple maps, scatter plots, tables, and other views. Building and browsing activities are integrated in a live user interface that supports incremental design. Users rapidly modify and extend their visualizations to develop hypotheses and exploit discoveries during ongoing exploration and analysis. Improvise is open source Java software freely available on the web; its visualizations are saved as regular XML documents in a self-contained, platform-independent format for easy sharing and dissemination of results. This paper describes how we are using Improvise to build tools for exploring and analyzing how campus critical infrastructure impacts stadium evacuation scenarios. The spacetime display and querying capabilities of Improvise allow us to combine information sources that describe campus infrastructure in ways that support interactive experimentation on the effects of stadium layout, seating variations, blocked exits, traffic and parking patterns, and other scenario variables on the ability of campus planners and emergency personnel to respond to disruptions by identifying and exploiting available resources.

Keywords: emergency management, critical infrastructure, visual analytics

James A. Brey, Ph.D., University of Wisconsin-Fox Valley - AMS. Email: james.brey@uwc.edu; Ira W. Geer, Ed.D., American Meteorological Society. Email: geer@ametsoc.org; Joseph M. Moran, Ph.D., American Meteorological Society. Email: moran@ametsoc.org; William A. Porter, Ph.D., Elizabeth City State University. Email: wporter@mail.ecsu.edu; Harris L. Jasper, Ph.D., North Carolina Central University. Email: jharris@nccu.edu; *The AMS Education Program's Approach to Promoting Diversity in the Geoscience Workforce*

The American Meteorological Society (AMS), representing the atmospheric and related oceanic and hydrologic sciences, conducts educational programs aimed at undergraduate students and in-service pre-college teachers. These programs, conducted with NOAA as a major partner, emphasize the development of public scientific literacy and the promotion of diversity in the geoscience workforce (including teaching). The AMS has developed with NOAA assistance two undergraduate courses, "Online Weather Studies" and "Online Ocean Studies," which are being introduced to minority-serving institutions through NSF-funded faculty enhancement workshops conducted primarily at NOAA facilities. Students at more than 100 minority-serving institutions have benefited from these courses that emphasize the use of Internet-delivered current environmental data.

Keywords: minorities, diversity, workforce development, atmospheric science

Shiri M. Breznitz, University of Cambridge. Email: sb443@cam.ac.uk; *How do power struggles impact the technology transfer ability of universities? Reflections from Cambridge, UK.*

The University of Cambridge, UK is known for its academic research and its contribution to local economic growth. However, this contribution was not the result of an official university policy, but based on social networks of individual entrepreneurs from the university and industry. Examining the changes in the university technology transfer policy and organization, which were implemented in the late 1990s, explains how political conflicts impacted the Cambridge biotechnology cluster. Power struggles between the UK government and the University of Cambridge, as well as conflicts inside the university, had a negative impact on the university's technology transfer ability. This impact is measured through the university's contribution to the local biotechnology industry.

Keywords: University-Industry relationships, power struggles, Biotechnology, Technology Transfer

Scott A Bridwell, University of Utah. Email: scott.bridwell@geog.utah.edu; Harvey J Miller, University of Utah. Email: harvey.miller@geog.utah.edu; *Disclosure limitation methods for activity-travel data*

Recent innovations in positioning technologies, such as GPS and location-aware mobile telephones, are greatly increasing our ability to track the locations visited by individuals at detailed spatial and temporal resolutions. The data derived from these tracking technologies offer tremendous potential for studying

activity-travel behavior, but also present significant privacy concerns. In this paper we present methods for developing privacy safeguards for densely-tracked objects within activity-travel data. Our methods focus on limiting disclosure threats while maintaining the usability of released datasets. Disclosure occurs when unintended information—usually of an identifying or sensitive nature—can be attributed to the individuals within a released dataset. Our disclosure limitation methods adapt geographic masking techniques for time geographic representations. Geographic masks limit disclosure threats by applying data transformations to sensitive spatial data but are limited to a static perspective in which people are represented as static points; this is insufficient for limiting disclosure when capturing dynamic sequences of interdependent stationary and moving behaviors as is the case for most activity-travel data. Our methods conceptualize people as space-time paths. We demonstrate methods for constructing and masking space-time paths from a GPS activity-travel dataset. We explore the degree to which the masks limit disclosure possibilities and also assess the sensitivity of analytic results in response to different mask implementations. The results indicate that our masking methods are useful for data management entities considering the implications of releasing detailed activity-travel data, as well as analysts considering the potential biases present within the data.

Keywords: privacy, time geography, space-time, activity-travel behavior, spatiotemporal GIS

John Briggs, University of Glasgow. Email: john.briggs@ges.gla.ac.uk; Indigenous knowledges and development: experiences from Bedouin communities in southern Egypt

Indigenous (or local) knowledge has been seen to offer an alternative means of reducing rural poverty in many parts of the Global South. Its use and deployment in development, however, can be problematic. Drawing on evidence from Bedouin communities in southern Egypt, this paper explores some of these difficulties.

Keywords: indigenous knowledge, development, Egypt

Eddie Bright, Oak Ridge National Laboratory. Email: brightea@ornl.gov; Phil Coleman, Oak Ridge National Laboratory. Email: colemanpr@ornl.gov; Budhendra Bhaduri, Oak Ridge National Laboratory. Email: bhadurib@ornl.gov; LandScan: Status and Direction

Accurate representations of population distribution are critical for a wide variety of research needs including resource management, policy analysis, risk analysis, and emergency preparedness. Multi-variable, dasymetric population distribution models developed at Oak Ridge National Laboratory (ORNL) apply GIS and Remote Sensing data and technologies to spatially and temporally disaggregate census counts producing a non-uniform distribution of the population. LandScan, a global high resolution (~1km) population distribution data set, is improved annually reflecting new census counts, spatial data, and imagery modifications to the distribution models. Research areas include automated urban land cover mapping utilizing ORNL's high performance computing capabilities. LandScan USA is a very high-resolution (~90-meter cell) population distribution project depicting nighttime (residential) population as well as daytime population distributions throughout the U.S. The integration of demographic and transportation models with LandScan USA allow the unique capability of estimating time-variant population dynamics which can greatly enhance the analytical capability for numerous applications. Future development will include seasonal and event-driven population distributions and demographic characterizations.

Keywords: Spatial Modeling, GIS, Remote Sensing, Population Distribution

Christy Briles, University of Oregon. Email: cbriles@uoregon.edu; Cathy Whitlock, Montana State University. Email: whitlock@montana.edu; Patrick Bartlein, University of Oregon. Email: bartlein@uoregon.edu; Postglacial vegetation and fire dynamics on different substrates in the Klamath Mountains, NW California

The role of climate in maintaining the biological diversity of the Klamath Mountains of northwestern California since the last ice age (~15,000 cal yr BP) is not well understood. Vegetation records from the region either show little or a lot of vegetation change since the last ice age, and at many sites the sedimentation rates are too slow to capture individual fires. Therefore, a network of vegetation and fire histories, using pollen and macroscopic charcoal preserved in lake sediments, was developed to compare with the preexisting records to help clarify the vegetation and fire history of the region. The differences are likely the result of different geologies of the sites. Campbell lake is underlain by mudstones and metavolcanics, Taylor Lake by granodiorite and Bluff and Cedar lakes (Mohr et al., 2000; West, 1989) by ultramafics which pose severe nutrient limitations to plants. The vegetation records on non-ultramafics have very similar vegetation records dominated by haploxylon Pinus, Abies and Tsuga mertensiana during the late-glacial period, haploxylon Pinus, Cupressaceae, Quercus vaccinifolia and Roseaceae during the early Holocene, and haploxylon Pinus, Abies and Pseudotsuga during the late Holocene. Sites on ultramafics are

dominated by diploxylon Pinus, Artemisia and Poaceae in the late-glacial period and diploxylon Pinus, Cupressaceae and Quercus vaccinifolia in the early and late Holocene. On millennial time scales, fire histories are very similar at all sites, however on shorter time scales, they show different patterns.

Keywords: Vegetation history, fire history, paleoecology, biodiversity

Robert Brinkmann, Ph.D., University of South Florida. Email: rbrinkmn@cas.usf.edu; Philip Reeder, Ph.D., University of South Florida. Email: preeder@cas.usf.edu; Philip van Beynen, Ph.D., University of South Florida. Email: vanbeyne@cas.usf.edu; Characteristics of the Western Edge of the Brooksville Ridge, Florida

The Brooksville Ridge is part of a north-south parallel ridge system in peninsular Florida. The ridges are small, karst-modified cuestas that erode on the edges during high sea level stands. The surfaces of the ridges have been exposed longer than any other areas in the peninsula due to their relative height and thus exhibit some of the most advanced karst features in the region. This area of the peninsula has extensive caves, the greatest local relief due to sinkhole formation on the ridges, and the greatest density of springs. Ridges also contain complex uvalas, solution valleys, and disappearing streams. During high sea level stands, the ridges were islands in late Cenozoic seas. In this setting, the ridges can be thought of as similar to current karstic islands in shallow marine environments, such as the Bahamas Islands. This poster explores the western edge of the Brooksville Ridge to evaluate the presence or absence of coastal features one would expect to find on the shores of karstic islands. To accomplish this task, a digital terrain model of the western edge of the ridge was created and paleoshoreline features were identified. The results indicate that the paleoshoreline can be classified into features such as bays, beaches, and dune fields. However, it is noteworthy that the edge was irregular compared with the edges of modern karstic islands like the Bahamas. This is largely because the edge of the Brooksville Ridge contains many paleoembayments that are part of karstic solution valleys or ancient spring runs.

Keywords: karst, Florida, geomorphology

Dustin Brocato, University of North Alabama Geography. Email: ddbrocato@una.edu; Historical and Spatial Analysis of Tornado Occurrences in the Huntsville, AL forecast area

This project concerns the history and spatial distribution of tornadoes that have occurred in the service area of the National Weather Service station in Huntsville, AL since 1874. This area includes 11 counties in northern Alabama, and 3 counties in southern Tennessee. A spatial analysis using geographic information systems will be conducted concerning the relationship between relief, hydrology, and the distribution of the tornadoes, the dispersal of the tornadoes relative to certain historical time periods, and the distribution of multiple occurrence areas over the forecast region. Ultimately, the end result of this project will be a presentable map to be displayed on the National Weather Service website for public viewing.

Keywords: Alabama-northern, tornado, Tennessee-southern

Timothy J. Brock, UGA Marine Extension Service. Email: tbrock@uga.edu; Balancing Economic Development and Environmental Quality: A Case Study of the Georgia Coastal Green Subdivision Program

Coastal Georgia is one of the fastest growing regions in the United States. The population growth and increased development in this region has had many negative impacts on the environmental quality of the coast, most specifically water quality. The once forested coastal watersheds are being depleted by a surge of residential development, which impairs the fragile estuarine ecosystem. These estuaries, which are highly productive habitats, are now at risk. To lessen this environmental impact, Georgia has implemented a program to promote green development in the region. The Georgia Coastal Green Subdivision Program consists of an outreach program to encourage local developers to implement aspects of green development and better site design principles into their plans; and a certification program that recognizes green subdivisions in the area. The program seeks to educate local developers on the economic and environmental benefits of green development and will also develop more immediate and tangible incentives from municipal and county officials. This paper examines the social, economic and environmental issues being addressed by the Georgia Coastal Green Subdivision Program, as well as, the current progress and future plans of the program.

Keywords: Green Development; Georgia-Coastal; Water Quality; Development-Coastal Growth

Boris Michael Brodsky, University of Texas-Austin. Email: ; Monica D. Bosquez, University of Texas, Austin. Email: ; Scott Grantham, University of Texas, Austin. Email: ; Sunshine Mathon, University of Texas, Austin. Email: ; Jean Niswonger, University of Texas, Austin. Email: ; Suzanne Russo, University of Texas, Austin. Email: ; Mariana Montoya, University of Texas, Austin. Email: ; Zachary Stern, University of Texas, Austin. Email: ; Elizabeth Walsh, University of Texas, Austin. Email: ; Scott Alan Ford, University of Texas, Austin. Email: ; Xin Zhang, University of Texas, Austin. Email: ; Jasmin Ebony Montoya, University of Texas, Austin. Email: ; *Furthering University/Community Partnerships for Environmental Justice: Children's Health and Safety in Low-income Neighborhoods in East Austin, Texas*

The urban environment has long been an arena of contestation and the focus of activist demands: for fairer distribution of environmental services, for removal of polluting industries, for rezoning of industrial areas. Such demands for greater "environmental justice" increasingly influence planning and policy-making and have become the focus of a growing body of academic and policy-oriented research. Environmental justice research is often community-driven and participatory in nature, involving qualitative methods such as interviewing, participant observation, mental mapping, and participatory GIS. By incorporating formal, scientific knowledge with local perspectives on urban space, environmental justice has become a powerful approach to understanding and negotiating the sometimes conflicting interests of activist groups, neighborhood organizations, policy makers and corporate interests. This service learning course, offered by the program in Community and Regional Planning in the School of Architecture, introduced students to the origins, theories, and methods of environmental justice, focusing in particular on environmental issues in marginalized, low-income and ethnic neighborhoods in the United States and in Latin America. For our final class project, we collaborated with neighborhood organizations, the activist environmental justice group PODER, and city planners to investigate environmental justice concerns in East Austin, specifically health and safety concerns associated with industrial sites. We jointly developed a research methodology, conducted field research and gathered data, and produced a GIS, a DVD, a report, and posters to assist different actors engaged with environmental policy-making in East Austin.

Keywords: environmental justice, children, sustainable development

Mary J. Brodzik, NSIDC/CiRES/University of Colorado. Email: brodzik@nsidc.org; Richard L. Armstrong, NSIDC/CiRES/University of Colorado. Email: rlx@nsidc.org; Elizabeth C. Weatherhead, CIRES/University of Colorado. Email: betsy.weatherhead@noaa.gov; Matthew H. Savoie, NSIDC/CiRES/University of Colorado. Email: savoie@nsidc.org; Kenneth Knowles, NSIDC/CiRES/University of Colorado. Email: knowlesk@colorado.edu; D A Robinson, Rutgers University. Email: drobins@rci.rutgers.edu; *Regional trend analysis of satellite-derived snow extent and global temperature anomalies*

The extent and variability of seasonal snow cover are important parameters in climate and hydrologic systems due to effects on energy and moisture budgets. Northern Hemisphere snow cover extent, comprising about 98 percent of global seasonal snow cover, is the largest single spatial component of the cryosphere, with a mean maximum extent of 47 million square kilometers (nearly 50 percent of the land surface area). During the past four decades, much important information on Northern Hemisphere snow extent has been provided by the NOAA weekly snow extent charts, derived from visible-band polar orbiting and geo-stationary satellite imagery. Since 1978, satellite passive microwave sensors have provided an independent source for snow monitoring, with the ability to penetrate clouds, provide data during darkness, and the potential to provide an index of snow water equivalent. We see both positive and negative trends in snow cover derived from these data sets, depending on region and time of year. We continue to search for attribution of these trends. We present regional trend analysis of both snow cover data sets, and comparisons with gridded temperature anomalies from the NASA GISS Surface Temperature Analysis data.

Keywords: snow extent, global temperatures, trend analysis

Loona Brogan, MS student, Environmental Thought and Culture, University of Vermont Rubenstein School of Environment and Natural Resources. Email: she.loves.trees@gmail.com; "Talking Trees:" historic photographs + oral histories = tree-centered sense of place

"Talking Trees" is an oral history and image gathering project designed to utilize and supplement an existing on-line historic photo archive with complementary 'now' images and oral history recordings focused on the life stories of four individual trees and three publicly-held treescapes in Montpelier, Vermont. How have they endured or changed over time, both physically and in our cultural perceptions of them? Do certain trees' life stories and treescape histories give depth to the history of Montpelier, and can the internet provide an effective means of eliciting and conveying such? I consider trees individual living beings,

and treescapes communities of individual trees. In this digital era of increased human alienation to the rest of the living world, I aim to use the internet as an archival research tool to 'meet' and 'get to know' a few trees and treescapes personally. I will then use the same tool—the world wide web—to introduce them (and my experiment) to others. My goal is to provide a pilot interdisciplinary methodology by which fellow tree enthusiasts and place-based educators can discover and articulate the stories of their communities' great trees and treescapes. So many of us want to feel more connected with the places we inhabit and the communities of other beings we live here with; it is my hope that this interdisciplinary research method, dendrography (which draws on dendrology, oral history and archival document and imagery analysis), will facilitate deeper relationships between people, trees, and our evolving history together through time.

Keywords: environmental history, dendrography, trees, oral history, historic photos, local history, digital archives

Justin Michael Brolley, Florida State University. Email: jbrolley@coaps.fsu.edu; James J. O'Brien, Florida State University. Email: jim.obrien@coaps.fsu.edu; *The Effects of ENSO, NAO, and PDO on Monthly Extreme Temperature and Precipitation in North America*

The El Nino-Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO), and the Pacific Decadal Oscillation (PDO) produce conditions favorable for monthly extreme temperatures and precipitation. These climate modes produce upper level teleconnection patterns that favor regional droughts, floods, heat waves, and cold spells, and these extremes impact agriculture, energy, forestry, and transportation. The above sectors prefer the knowledge of the worst (and sometimes the best) case scenarios. This study examines the worst and best case scenarios for each phase and the combination of phases that produce the greatest monthly extremes. This study examines extreme monthly temperature and precipitation for each combination of the phases of the three climate modes. Data from nearly 740 stations in Canada, Mexico, and the United States are gathered from the Global Historical Climatology Network (GHCN) and the United States Historical Climatology Network (USHCN), and 55 years from these stations bootstrapped to produce larger time series. The bootstrapped data are sorted, and the tenth and ninetieth percentiles are analyzed. It has been found that the magnitudes of temperature and precipitation anomalies are greatest in western Canada and the southeastern United States during winter. Summertime temperature anomalies are weak, but precipitation anomalies are strong in the eastern United States. The magnitudes of the anomalies and the corresponding phase combinations vary regionally and seasonally.

Keywords: climate, extremes, ENSO, NAO, PDO, North America, short-term climate variability

Ava Bromberg, M.A. Urban Planning 2007, UCLA Department of Urban Planning. Email: avab@ucla.edu; *What Could Require More Creativity: The Role of Neighborhood Spaces in the Development of Noncapitalist Social Relations.*

My paper examines the creativity of neighborhood spaces that advance social forms and economies outside the current regime of capitalist accumulation. I will introduce Mess Hall, a locally invested, globally networked neighborhood cultural space in Chicago that operates on an economy of generosity to host exhibitions, skill-sharing, lectures, meals, and more. I present Mess Hall as part of a continuum of contemporary spaces such as the Garment Worker's Center in Los Angeles and Mother's Centers International, and historically Jane Addams's Hull House and Margaret Kohn's Radical Spaces. These spaces - in choosing to operate outside the dominant social, economic, and political framework but with a critical awareness of what is lacking from inherited political, social, and economic structures of their time - present a radical synthesis. In so doing, they advance a kind of creativity not captured by most the Creative Economies and Cultural Industries literature (Florida 2002, Scott 2001, Pratt 1997) because their value cannot be comfortably reduced to economically quantifiable impacts within the capitalist framework. Yet, I will argue, these spaces have crucial social and democratic functions that raise fundamental questions about where and how we gain access to the kinds of knowledge and fun that can be synthesized into new meaningful (and transformative) social, political, and economic forms. These spaces face formidable challenges to maintain their critical and creative function over time in the face of institutionalization. They raise interesting questions about how policies might ensure access to creativity in this expanded sense.

Keywords: creativity, neighborhood spaces, spatial theory, democracy, public space, culture, cultural policy

Lars Bromley, American Association for the Advancement of Science. Email: lbromley@aaas.org; *Geospatial Intelligence Networks for Human Rights Organizations*

Since early 2006 the American Association for the Advancement of Science (AAAS) has been documenting and developing applications of geospatial technologies to human rights work. With funding from the MacArthur Foundation and in collaboration with non-governmental organizations, AAAS has created customized information products on human rights violations in Darfur, Zimbabwe, Colombia, Burma, Lebanon, Israel, and elsewhere. AAAS is also documenting potential applications and methods on a project website to create the basis for training materials. Applications thus far largely exploit high-resolution imaging satellites and publicly available data sources to provide inputs into advocacy and legal campaigns. Longer-term goals seek to develop geospatial intelligence networks and early warning systems to assist non-governmental organizations in preventing and responding to human rights violations. This session will provide a brief survey of AAAS activities to date and collect information from audience members on other relevant efforts and applications.

Keywords: gis, high-resolution remote sensing, data integration

David M. Brommer, The University of Alabama. Email: dmbrommer@bama.ua.edu; *An Analysis of Seasonal Precipitation Duration Throughout the Conterminous United States*

The changing character of precipitation has been the focus of numerous climate change studies. Variations in the intensity, amount, timing, and frequency of precipitation, whether frozen or liquid, have important implications on the physical, chemical, and biological processes on Earth. While intensity, frequency, and the amounts of precipitation throughout the United States have been thoroughly analyzed, the variation in precipitation duration has not. This research focused on precipitation duration for the conterminous United States, characterizing the spatial and temporal variations in precipitation duration and evaluating duration's relationship to changes in surface temperature anomalies. Data were collected from 87 first-order National Weather Service weather stations throughout the conterminous United States for the period from 1949 through 2004. Through a series of statistical tests, it was noted that precipitation occurrences during the cold season and in the annual average decreased in length throughout the period of record in response to warmer atmospheric temperatures. The spatial and temporal variation in precipitation duration in relation to surface temperature anomalies reveal the intricate relationships between the processes for precipitation development on local, regional, and continental scales and identifies precipitation duration as an important variable in the study of climate change.

Keywords: Climate, Climate Change, Precipitation

David H. Bromwich, Professor, Ohio State University. Email: bromwich.1@osu.edu; Andrew J Monaghan, Dr, Byrd Polar Research Center. Email: monaghan.11@osu.edu; *Recent changes in snowfall and near-surface temperature over Antarctica*

There are only a handful of continuous snowfall and temperature records spanning more than a decade in Antarctica, a continent that is 1-1/2 times the size of the United States. Considering that climate is known to fluctuate on timescales longer than a decade, it is critical to reconstruct these records for an extended period over the entire continent in order to put Antarctic climate variability in the context of the longer-term changes observed across the globe. Here, we exploit the spatial and temporal continuity of simulated snowfall and temperature fields from an atmospheric model to 'fill in the gaps' in the sparse observational records of these variables. The result is a ~50 year reconstruction of spatially-resolved snowfall and temperature fields over Antarctica. We examine the relationship between temperature and snowfall, the impact of Antarctic snowfall on sea level, and implications for future climate scenarios.

Keywords: snowfall, temperature, Antarctica, global sea level

George A. Brook, University Of Georgia. Email: gabrook@uga.edu; *Stalagmite Evidence of Droughts in Belize at the Time of the Classic Maya Collapse*

The Maya civilization peaked in population density and socioeconomic complexity during a Classic Period extending from A.D. 25 to 900, but declined abruptly over the years from A.D. 750 and 900. Reliably-dated reflectance, luminescence and stable isotope data from a stalagmite from western Belize provide a 3300-year record of climate change encompassing the Maya Preclassic, Classic, and Postclassic periods. The stalagmite record indicates that a series of droughts, forming the most prolonged dry interval in the 3300-year record, lasted from A.D. 700 to 1135 and thus coincided with the collapse of the Maya civilization. In addition, two earlier droughts coincided with Preclassic Abandonment and the Maya Hiatus, also periods of decline in the Maya civilization. Comparison of the stalagmite record with distant records shows broader-scale climatic teleconnections with Central and South America, and two major

segments of the record coincide with the Medieval Warm Period and Little Ice Age. Correlation of the stalagmite record with variation in solar irradiance, as well as with distant paleoclimate records, suggests that the droughts inducing both the temporary declines and the final collapse of Maya civilization were driven by large-scale changes in ocean-atmosphere conditions across the North Atlantic and the Bermuda Rise.

Keywords: Classic Maya Collapse, Belize, stalagmites, drought, caves, paleoclimates

Sheere K Brooks, London School of Economics & Political Science (LSE). Email: S.Brooks@lse.ac.uk; *Do we really need more tourism in Jamaica? Exploring the highs and lows of merging tourism with agriculture in the bid to create alternative livelihoods*

Background to the paper: In recent years, the tourism industry in Jamaica is a key sector for economic growth for the island in recent years. Infrastructure development across the island, such as the North-coast Highway, should create easier linkages between tourist towns while broadening the holiday experience of tourists to the island. Hence, the opportunity for widening and introducing other typologies in the tourism product, away from the traditional package of sun, sea and sand is now favourably pursued. Policy objectives in the Master Plan for Sustainable Tourism Development (2001), indicates will result in a more inclusive tourism sector by engaging more local participation in tourism, while creating opportunities for alternative livelihoods. Issues: The implications of these proposals brings into focus the willingness on the part of young people to adopt agriculture as alternative livelihoods in view of the mainstream tourism industry's perceived image of glamour and ease of informally making a living. This raises several questions; can these plans be construed as necessarily positive for communities located in the tourism passage; should the tourism agenda be used to engender the creation of alternative livelihoods in agriculture? Aim of the Presentation: This paper will discuss the potential of new developments outside the traditional nexus of agriculture and trade, by considering new opportunities for forging partnerships between the tourism and agriculture sectors. The paper aims to take the debate surrounding 'linkages and leakages' between tourism industry and other sectors in the economy to another level in light of global economic changes.

Keywords: Caribbean; tourism; agriculture; alternative livelihoods

John O. Browder, Ph.D., Virginia Tech. Email: browder@vt.edu; Robert T. Walker, Ph.D., Michigan State University. Email: rwalker@msu.edu; Marcos A. Pedlowski, Ph.D., Universidade Estadual Norte Fluminense. Email: pedlowma@uenf.br; *Globalization, Deforestation, and the Expansion of the Cattle Industry Into the Brazilian Amazon: A Research Strategy*

Deforestation in the Brazilian Amazon represents a real threat to global environmental security principally through impacts on the global carbon cycle and loss of biological diversity. Satellite image analysis indicates that 12-15% of the region's natural forest has been converted. Cattle ranching in Amazônia has been the subject of a substantial amount of econometric and ethnographic research, in large part because of its prominent role in tropical forest conversion. Recently, Brazil's cattle industry has expanded at nearly exponential rates becoming one of the world's largest suppliers of various animal products. Most of this growth is attributed to beef product exports, surging from \$234 million in 1990 to \$1.3 billion in 2003. This paper presents a research strategy to systematically examine the functional linkages between Brazil's increasingly globalized cattle industry and the Amazon's booming livestock sector.

Keywords: deforestation, cattle sector, Brazilian Amazon, globalization

Barbara Brower, Portland State University. Email: browerb@pdx.edu; *"A Region Should Play the Hand that Nature Dealt It": Rethinking the arguments for restoring Glen Canyon*

There seems to be a recurring story that captures the division within American environmentalism: a story about big dams on wild rivers. Glen Canyon Dam, one controversial component of the Colorado River Storage Project, replaced an extraordinary stretch of wild river known to a passionate few with a power plant and flat-water reservoir beloved by millions. The inundation of Glen Canyon, "place no one knew," represented a tragic loss for some environmentalists of the late 20th century akin to the damming of Hetch Hetchy reservoir for John Muir and his Sierra Club friends a generation earlier. But as it was with Hetch Hetchy, the Sierra Club has been divided over what to do about Glen Canyon Dam. A resolution passed by the national SC board in 1996, calling for dam removal, infuriated local SC chapters working on other issues in the desert Southwest. They saw their work undermined by a policy considered abhorrent—even whacko—within the region. But prolonged drought has dropped the level and diminished the usefulness of Lake Powell, while resurrecting Glen Canyon. Projections of global warming suggest a new, water-scarce reality for the booming states of the Colorado basin, and provide a new suite of arguments, untainted by the offending "drain-it!" rhetoric, to deploy in the restoration of a

living Glen Canyon.

Keywords: conservation landscapes; American West; Glen Canyon; environmentalism

Allison Brown, Department of Plant and Soil Sciences, University of Massachusetts, Amherst. Email: broccoli1313@yahoo.com; Michael Montesano, PhD, The National University of Singapore. Email: ; *Small Volume Agriculture Auctions Play a New Role in Rural Development*

In much of the agriculture marketing world, the small-volume produce auction has been supplanted by other selling mechanisms deemed to be more efficient. However, in some places, in particular Pennsylvania, small-volume produce auctions have persisted over time. Like farmer-to-consumer farmers markets, auctions are proving their continued usefulness in the agriculture marketing system of developed market economies. Other contexts have newly witnessed the introduction of low-volume wholesale auctions as means of marketing and of price determination. Among these contexts is the rubber sector of southern Thailand, historically dominated by a small number of large corporate concerns and affiliate marketing networks. State efforts to foster rubber auctions in the Thai South appear to have challenged these networks and thus brought benefit both to smallholders and to the region's rubber sector. Their putative success raises important questions relating both to the efficiency of low-volume wholesale produce auctions in competitive sectors and to the possibility of fostering such auctions for the benefit of producers. This paper presents Pennsylvania wholesale vegetable auctions and Thai low-volume rubber auctions as case studies and proposes a theoretical construct explaining the possible mechanism by which this "inefficient" market mechanism remains useful in a competitive modern market. It suggests a series of research activities to evaluate the auction mechanism and to assign it a place in the marketing system in developed and less-developed market economies. Finally, it considers approaches to fostering the development of low-volume wholesale auctions in contexts to which they remain alien or unknown.

Keywords: agriculture auctions, produce auctions, farmers markets, rubber markets, vegetable auctions

Amie Brown, King's College, London. Email: amie.brown@kcl.ac.uk; *Policing, Citizenship and the New Public Management: The Neighbourhood Policing Agenda in the UK*

Since the turn of the century, the UK police service has undergone significant reforms which have altered the governance of policing. Reforms have increasingly revolved around the 'citizen focused' agenda of Neighbourhood Policing which seek to involve local communities and individuals as active citizens in reducing crime and anti-social behaviour. At the same time the police are being subject to a wider public sector reforms from the government which are having significant impacts upon policing, particularly at the local level. This paper examines the shift towards the principles of this New Public Management and the implications it has had on how the police manage, implement and deliver police reform. It argues that the police are being simultaneously pushed to drive for the efficient and effective use of their resources, whilst also being expected to engage with an ever increasing and wider range of 'communities' in the governance of policing. I will draw upon empirical research from two case studies in the Thames Valley to explore how the police are reacting to, translating and implementing various reforms. I conclude by examining what the changing nature of the police service can tell us about the current management of the public sector, concepts and practices of policing, and geographies of governance.

Keywords: Policing communities, Citizenship, New Public Management, United Kingdom

Christopher Brown, New Mexico State University. Email: brownchr@nmsu.edu; Quita Ortiz, NMSU Department of Geography. Email: marqorti@wrri.nmsu.edu; *The Impacts of Land Use Change on Water Resources and Traditional Acequia Culture in North Central New Mexico*

Rural areas throughout the western United States are undergoing rapid and far-reaching land use changes that impact water management, riparian ecosystems, and traditional cultures. Impacts to water resource use and management include: potential risks of groundwater contamination due to increased numbers of single household septic systems, potential overdraft of groundwater resources, surface water quality impacts, and changes in the distribution of water supplies from agricultural to municipal/industrial uses. In northern New Mexico, the acequia water use regime and attendant acequia-related cultural values are at particular risk due to increasing urbanization pressures and the potential impacts on actual water use, water quality, and riparian vegetation along irrigation ditches and streams. GIS, remote sensing, and aerial photography interpretation techniques are used to create a series of land use change maps to assess the impacts of critical water resources and local communities along the Black Mesa Reach of the Upper Rio Grande Basin. Land use maps we generate depict changes in water resource use and management, risks to groundwater, changes in acequia

management and water use, and riparian ecosystem impacts. This project provides insight to local and state planning programs with constructive methods for further research, and is also applicable to other western states with similar challenges.

Keywords: Water resources, Acequias, land Use Change

Dennis M Brown, Regional Economist, U.S. Dept. of Agriculture. Email: dennishb@ers.usda.gov; Richard R. Reeder, Economist, U.S. Dept. of Agriculture. Email: rreeder@ers.usda.gov; *Spillover Effects of Recreation-Led Growth in Rural America*

Rural areas rich in natural amenities have undergone a recreation-related boom in recent years. Much of this growth has been fueled by demographic trends, as aging baby-boomers have approached retirement age, fueling a rise in ownership of vacation properties in communities located near forests, lakes, oceans, mountains, and deserts. Population growth has been dramatic in recreation counties, with these areas collectively growing nearly three times as fast as other nonmetro counties during the 1990's. While such growth has been previously investigated, less is known about how places that border recreation areas have been affected by recreation-led development. To what degree does recreation-driven growth affect these "border counties" in economic terms? Are employment and income levels affected? Are rents being driven up in these communities, as individuals are forced to seek lower-priced housing in more distant locations? And what are the social impacts? Does recreation affect commuting patterns, poverty rates, or education levels? To what extent are health care and crime rates in these areas affected by recreation? The purpose of this paper is to investigate how border counties are affected by recreation-led development. Initially, the issue of rural recreation is described in the context of the existing literature base. Next, we discuss recent changes in key socioeconomic variables in border counties. Regression analysis is then used to identify direct and indirect socioeconomic effects in border counties arising from recreation-related development. We conclude with a discussion of the policy relevant nature of recreation for rural development.

Keywords: recreation, rural America, tourism, nonmetro

Elizabeth A. Brown, . Email: eabrown@sfsu.edu; *'You can judge a civilization by the treatment of its children': State power, benevolence and the changing geographies of childhood?*

Given recent attention to neoliberal state policies, many have remarked about the changing nature of childhood and the decline of the childhood ideal. Nowhere is this seen more clearly than in the U.S. juvenile justice system. Rational actor punishment policies, transfers to adult court, and the decline of rehabilitative services in juvenile institutions are all examples of how neoliberal rationalities infuse juvenile justice policies. Under these regimes, children are regarded as responsabilized subjects, able to clearly distinguish between the allowable deviances of childhood and adult behavior. In this talk, I place this contemporary history within a larger history of children's deviance. Between 1905 and 1930, the Seattle juvenile court actively promoted this ideal through its dispositions, dependent in part on the geography of the city. Without an appropriate domestic milieu, children were not identified as such by the court. Children from urban centers and those without the luxuries of a middle-class, single-family home were excluded from the court's benevolence. At the turn of the twentieth century, court authorities actively promoted the childhood ideal in order to secure certain norms of responsibility in the parent-child relationship. Today, these norms are largely taken for granted. I argue that the turn towards the rational actor model of criminality (or what might be referred to as neoliberal crime control) in actuality reflects the entrenchment of the childhood ideal rather than its disappearance.

Keywords: childhood, race, state power

Gavin Brown, King's College London. Email: gavin.p.brown@kcl.ac.uk; *Thinking beyond homonormativity: explorations of a diverse gay economy*

There is a danger that, as geographers engage with the concept of homonormativity, we apply it uncritically and uniformly to all mainstream expressions of lesbian and gay culture, finding everywhere the taint of neo-liberal political imperatives. In this process, we run the risk of losing any sense of geographic specificity. This paper does not reject the concept of homonormativity out of hand, and accepts that the political and economic policies associated with neo-liberalism shape many aspects of contemporary lesbian and gay politics, the commercial gay scene and the everyday lives of lesbian and gay people. However, it recognises that these processes are experienced unevenly and in very different ways depending on the geographic context. This paper will critically review recent writing on homonormativity and then, drawing on the recent work of Gibson-Graham (2006) consider the prospects for a 'weak theory' outlining the diversity of lesbian, gay and queer economic practices. To this end, the paper will examine a number of gay and queer spaces to consider the different forms of enterprise, transactions, and labour that take

place within them. On this basis, the paper will suggest that there are many forms of social and economic practices that persist within gay and queer spaces that offer alternatives to the homonormative practices of neo-liberalism.

Keywords: sexuality, queer theory, homonormativity, diverse economy, post-capitalist

J. Christopher Brown, Ph.D., University of Kansas. Email: jcbrown2@ku.edu; *The Moral Geography of Development in the Amazon*

Current debates in Amazonian environment and development studies pit the directives of the “Washington consensus” (top-down development) against strategies of local resistance that empower traditional livelihood and cultural practices that are “in tune” with their environments. The debates do not lead to any resolution, but rather lead to relativistic or absolutist positions that cannot be reconciled with one another in practice. This paper employs a critical realist, moral geographic perspective akin to Robert Sack’s “Geographical guide to the real and the good” to examine the current controversy about the expansion of mechanized soybean cultivation in the Amazon. Sack’s framework is applied in an attempt to envision a process, discussion, and place-making policies that would be based on intrinsic geographic judgments. The conclusion points out how such criteria could be applied in other human/environmental conflicts around the world.

Keywords: Amazon, Brazil, development, moral geography

Lawrence A. Brown, Ohio State University. Email: brown.8@osu.edu; Madhuri Sharma, Ohio State University. Email: sharma.113@osu.edu; *Racial/Ethnic Mixing Among US Metropolitan Areas*

This paper examines US MSAs with populations greater than 1 million, encompassing thereby both the very largest and mid-sized metropolitan areas, 49 in all. We address racial/ethnic diversity across the MSAs as a group and individually. Diversity is in terms of the major census categories of African American, American Indian, Asian, Caucasian, Hispanic, and Other. The research is motivated by knowing that US cities are becoming more diverse overall, but that this intermixing at the neighborhood-level lags behind. This separation is addressed by using Theil’s Entropy (H) index, which allows us to treat the six groups simultaneously. These are examined through cartographic analysis and also serve as a dependent variable to better understand why some MSAs are more multi-racial/ethnic in their neighborhood structure than are others. Independent variables for this exercise include MSA size and diversity score; proportion of the population who are foreign-born, below poverty level, lived elsewhere in 1995, in managerial or professional occupations, and who have achieved various education levels; median year built for houses, housing value, and household income; and a new-housing-construction index. This will enable us to distinguish variables in terms of the extent to which they explain racial/ethnic mixing at the neighborhood level and how it varies across space. Data is from the 2000 Census of Population, for each MSA and its census tracts.

Keywords: racial/ethnic mixing, housing, segregation, urban areas

Mark Brown, Statistics Canada. Email: mark.brown@statcan.ca; Desmond Beckstead, Statistics Canada. Email: des.beckstead@statcan.ca; *Comparing Science and Engineering Employment in Canadian and U.S. Cities*

In recent years, cities have become increasingly interested in their ability to generate, attract and retain human capital. One measure of human capital is employment in science and engineering-based occupations. This paper provides a comparison of the employment shares of these specialized occupations across Canadian and U.S. cities by using data from the Canadian and the U.S. censuses from 1980-1981 and 2000-2001. The paper, therefore, provides a perspective on how Canadian cities performed relative to their U.S. counterparts over a 20-year period. It also seeks to evaluate how cities of different sizes have performed, because large cities may be advantaged over smaller cities in terms of factors influencing both the demand for, and supply of, scientists and engineers.

Keywords: human capital, science and engineering occupations, urban growth

Michael Brown, University of Washington. Email: michaelb@u.washington.edu; *Animal Husbandry: Bestiality and the Making of the Human Animal*

This paper takes geographies of sexualities in a new direction, one with links to nature-society and political theory. When a man in Washington State died while engaging in bestiality, the state legislature faced a strange sex panic, immediately passing legislation to punish those engaging in sexual acts with animals. In this paper we use political theory to trace out the implicit contradictions amid the rationalizations behind the legislation about sexuality and nature. In spite of the regular trespass onto animals’ bodies that take place in the name of agriculture, domestication, and entertainment, legally prohibiting sex with an animal seemed to require several different justifications, none of which were unpacked. We do so here. This paper examines the ways that the taboo of

bestiality constructs paradoxical boundaries between human and non-human animals. The projection of human fantasy and anxiety onto the bodies of animals reflects a desire to construct humans as reasonable, civilized creatures capable of consent. The crossing of the boundary between human and animal is used symbolically as a dehumanizing act for the human and a victimizing act for the animal in ways that reflect very human anxieties about the intersections of sexuality, race, class, and place. We challenge the dominant construction of bestiality as helpful to neither man nor beast.

Keywords: sexuality, nature-society, political theory, political geography

Michael Brown, University of Washington. Email: michaelb@u.washington.edu; Claire Elaine Rasmussen, University of Delaware. Email: cerasmus@udel.edu; *Animal Husbandry: Bestiality and the Making of the Human Animal*

This paper takes geographies of sexualities in a new direction, one with links to nature-society and political theory. When a man in Washington State died while engaging in bestiality, the state legislature faced a strange sex panic, immediately passing legislation to punish those engaging in sexual acts with animals. In this paper we use political theory to trace out the implicit contradictions amid the rationalizations behind the legislation about sexuality and nature. In spite of the regular trespass onto animals’ bodies that take place in the name of agriculture, domestication, and entertainment, legally prohibiting sex with an animal seemed to require several different justifications, none of which were unpacked. We do so here. This paper examines the ways that the taboo of bestiality constructs paradoxical boundaries between human and non-human animals. The projection of human fantasy and anxiety onto the bodies of animals reflects a desire to construct humans as reasonable, civilized creatures capable of consent. The crossing of the boundary between human and animal is used symbolically as a dehumanizing act for the human and a victimizing act for the animal in ways that reflect very human anxieties about the intersections of sexuality, race, class, and place. We challenge the dominant construction of bestiality as helpful to neither man nor beast.

Keywords: sexuality, nature-society, political theory, political geography

Molly E. Brown, PhD, Science Systems and Applications. Email: molly.brown@gsfc.nasa.gov; Richard Choularton, MA, Chemonics International/FEWS NET. Email: rchoularton@few.net; Christopher C. Funk, PhD, University of California Santa Barbara. Email: funk.cc@gmail.com; *Vegetation Remote Sensing Imagery and Rainfall Data in the Contingency Planning Process triggered by Early Warning of Food Emergencies*

This talk will explore how scenarios are used in the context of contingency planning and food security early warning in Africa as governments respond to the consequences of droughts and floods. Biophysical remote sensing of vegetation, rainfall and floods combined with high accuracy digital GIS products have increased the effectiveness and accuracy of these products for day to day monitoring. Early warning of an incipient agricultural drought derived from monitoring triggers the contingency planning process at the national governmental level, supported by international organizations such as USAID’s Famine Early Warning Network or FEWS NET. Contingency planning focuses on updating relevant national contingency plans, using scenarios for drought impact on food security. These scenarios usually are described as ‘Worst Case’, ‘Mid-Case’, and ‘Best Case’, and are focused on providing guidance for humanitarian organizations’ assistance and enabling the government to launch the assistance planning process. The same information bases are used to develop scenarios as to do early warning. Early warning can trigger contingency planning, and contingency planning can help focus early warning efforts. In this context, remote sensing can help to trigger earlier contingency planning. Historical remote sensing data can also be used to model droughts or floods in a scenario building effort, although such efforts are often beyond the technical ability of local planners.

Keywords: Agricultural systems, climate variability, remote sensing, Africa

Nancy A Brown, . Email: nab212@psu.edu; *The Impact of Prescribed Fire on Biodiversity of Understory Forbs in an Old-Growth Pine Ecosystem in the upper Midwest.*

The pine ecosystems of northern Minnesota, USA developed with and were maintained by disturbance, primarily fire. Approximately 150 years ago the newly arriving European settlers began active suppression of all wildfires. The absence of fire contributed to both a significant shift in dominant tree species from pine to hardwoods, and to a lack of pine regeneration. Itasca State Park is a 12,950ha *Pinus resinosa* (red pine) - *P. strobus* (white pine) old-growth forest in northern Minnesota. Park personnel began experimentally restoring fire to the pine forest in 1997 using prescribed burns with unit size ranging from 400 to 1400ha. Yearly monitoring of ecosystem response is conducted through data collection from permanent plots. The focus is on measuring changes in conifer

and hardwood density and biomass, as well as changes in species richness, particularly of the herbaceous understory. These measurements are used to evaluate whether fire is changing the succession trajectory in the pine ecosystem. This research is investigating whether a shift in dominance of specific herbaceous understory species is occurring as a result of prescribed burning. Initial analysis of plot data indicates that fire restoration has produced an increase in species richness in the herbaceous understory, although a shift in species dominance is not as clear cut.

Keywords: fire restoration, pine ecosystems, Minnesota

Rebecca Parylak Brown, Texas State University-San Marcos, Texas. Email: rb53372@txstate.edu; *Distribution of Strong and Violent Tornadoes in Texas*

Tornadoes have occurred in all 50 states; however they are most frequent from the lower Great Lakes region southwestward through central Texas. Since 1950, Texas has averaged 181 tornadoes with 12 fatalities each year. This paper will use the NCDC database of tornadoes to develop the spatial and temporal pattern of F3 to F5 tornadoes in Texas. Characteristics including the frequency of occurrence, seasonality, monthly and decadal distributions, and injuries and deaths will be presented.

Keywords: hazards, tornadoes

Robert N. Brown, Ph.D., Appalachian State University. Email: brownrn@appstate.edu; *Cross Road Blues: Geographical Mythology and the Life of Robert Johnson*

Mississippi Delta blues musician Robert Johnson died in relative obscurity in August of 1938. Following the 1991 release of Robert Johnson: The Complete Recordings by Columbia Records, his estate has generated millions of dollars, and as Patricia Schroeder has noted, he has reached iconic status in American popular culture. Music critics consistently praise his artistic accomplishments, yet it is the mythology surrounding his life and death that has captured the collective imagination of people throughout the world. This paper explores the geographical mythology of this story. One of the central themes of this mythology is that Johnson entered into a Faustian bargain with "the Devil" to gain his superb musical abilities. The myth states that, at midnight, Johnson met a demonic figure at a lonely Mississippi Delta crossroads and entered into an eternal pact that afforded him uncommon musical abilities. Some argue that this myth bears a striking similarity to West African religious traditions. In the paper, I analyze the nature and meaning of the idealized landscapes in the myth. In addition, I explore the importance that actual Delta landscapes hold for the thousands of blues pilgrims who flock to the Delta to search out places associated with the myth of this most mysterious of bluesmen.

Keywords: blues, landscape, mythology, Mississippi

Ryan Luther Brown, University of North Alabama. Email: rlbrown@una.edu; *Spatial Distribution of Small Town Decay in Rural Alabama*

This study investigates underdevelopment in rural Alabama. Recent literature has identified indicators of small town decline across America. In rural Alabama, most notable ones include: closure of manufacturing plants; relocation of retail and wholesale businesses; deteriorating housing and healthcare; population losses and poor physical and social infrastructure among other things. This undergraduate research project seeks to answer the following research questions. Are factors for and indicators of small town decay in rural Alabama uniform across the State? What are the spatial patterns of small town decay in rural Alabama and how can they be represented within a GIS? To answer these questions, a comprehensive literature review is conducted. Also, an Alabama small town GIS database is built within ArcGIS environment. The data layers include census data, land use and land cover information, topographic data, and hydrographic layer. From these datasets, an Alabama base map is built. Preliminary results from this work reveal that the factors for small town decline in rural Alabama are not uniform across the State. The south central part of the State appears to exhibit more characteristics of decay than other parts of the State. Similarly, the GIS analysis reveals a link between small town decay in rural Alabama and ethnic concentrations. As the study concludes, the causes of small town decay in rural Alabama are both internal and external in nature.

Keywords: Rural Geography, Underdevelopment, Alabama-Small Towns

Stacey Renee Brown, Oklahoma State University. Email: brownsr@okstate.edu; **Jonathan C. Comer, Oklahoma State University.** Email: jon.comer@okstate.edu; **Thomas A. Wikle, Oklahoma State University.** Email: tom.wikle@okstate.edu; *Emergency Shelters and Socially Vulnerable Populations*

This project examines the locations of emergency and temporary shelters for persons displaced by Hurricane Katrina. A geographic information system was used to evaluate spatial relationships and patterns within the data. Pattern

analysis and location-allocation models were applied to shelter distributions to evaluate optimal locations and utilization. The results suggest the existence of "shelter deserts," or geographic areas containing socially vulnerable populations that were underserved by shelters.

Keywords: Hurricane Katrina, Shelters

Kath Browne, University of Brighton. Email: k.a.browne@brighton.ac.uk; **Andrew Church, University of Brighton.** Email: ; *Count Me In Too: Examining The Margins Of The 'Gay City'*

Lesbian, gay, bisexual and trans (LGBT) individuals and communities have long been regarded as 'sexual dissidents', resulting in their marginalisation and exclusion. Recently, however, LGBT landscapes in contemporary British cities are becoming more culturally accepted and gay villages are often seen as central to the cosmopolitanism of cities. Nevertheless, as lesbians and gay men become more accepted and acceptable in terms of legislation and funding, there is a need to explore who sits on the margins of the 'acceptable gay' including but not limited to socio-economic othering. How these margins are established, identified and lived is not uniform. Using Brighton and Hove as a case study this paper will use the results of a large scale questionnaire and focus groups to explore the possibilities as well as the 'problems' of the margins. It will examine how multiple marginalisations can be subsumed within the 'acceptable gay' identity and strategies employed to avoid the negativity and stigmatisation of otherness. The paper will also consider those who cannot pass as the 'acceptable gay' and consequently suffer intersecting forms of discrimination. In this way, the uniformness of homonormativity will be questioned alongside exploring the power relations that constitute not just the 'gay scene' but Brighton and Hove as a 'gay city' and its margins.

Keywords: Lesbian, gay, bisexual, trans, homonormativity, heteronormativity

Sue Brownill, Dr, Oxford Brookes University. Email: sbrownill@brookes.ac.uk; **Juliet Carpenter, Dr, Oxford Brookes University.** Email: jcarpenter@brookes.ac.uk; *Fit for purpose? Governance and sustainable communities in the Thames Gateway*

There is increasing debate about the role of governance within polycentric city-regions. This dovetails with debates around governance for sustainable communities. Policy and academic literature present a number of different narratives around whether networked governance is 'fit for purpose' in their realisation. Drawing on a review of governance in the Thames Gateway to the east of London, which arguably applies the model of a polycentric city-region, this article reveals the gap that exists between this policy rhetoric and the reality on the ground. The analysis points to the tensions and contradictions in facilitating sustainable communities including those between the conflicting goals of economic competitiveness and social and environmental sustainability which lay behind the sustainable communities agenda; between overall strategies and local conditions; and those that arise in attempts to 'join-up' agencies and strategies. We conclude that these tensions and contradictions and the resulting hybridity and complexity in governance forms and processes that result need to be the focus of inquiry as opposed to simple contrasts between networks and top-down governance.

Keywords: governance; sustainable communities; Thames Gateway.

Lusiana Browning, University of Delaware. Email: browning@udel.edu; **Lusiana Browning, University of Delaware.** Email: browning@udel.edu; *Self-Help Housing: The Geographic Impact of Habitat for Humanity Projects in Wilmington, Delaware*

Providing quality affordable housing for the urban poor has been an on-going concern for many countries. Since the Industrial Revolution, urbanization fueled by both natural increase and rural-to-urban migration has become an inevitable process for almost all societies. This influx of people into urban centers produces a high demand for affordable housing that the housing market is rarely able to provide. Governments are often equally unable to close the gap in demand for inexpensive housing. The result is often overcrowding and the profusion of squatter settlements. In response, the idea of "self-help" housing has been suggested as a feasible solution to housing needs. In developing countries, this approach refers to practice where low-income groups build their own dwellings through collective efforts. In the United States, the adoption of such an approach has been slower, but recently self-help housing has been considered a viable sustainable alternative to government housing assistance programs. Using case studies, the experiences of self-help housing program homeowners in two Habitat for Humanity neighborhoods in Wilmington, Delaware are examined.

Keywords: Habitat for Humanity

Alec Brownlow, DePaul University. Email: cbrownlo@depaul.edu; *Devolution, Voluntarism, and the Construction of Entrepreneurial Ecologies in Philadelphia*

In the U.S., the resurgence of urban environments in public consciousness and political discourse has largely become manifest through the practice and discourse of Restoration Ecology. From Atlanta to San Francisco to Minneapolis and Milwaukee, narratives and histories of environmental decay have been accompanied by increasingly normative calls for restoration - of waterfronts, urban parks, greenways, etc. Insofar as restoration and the creation of attractive greenspace corresponds with efforts to facilitate or increase processes of accumulation and urban competitiveness, these 'entrepreneurial ecologies' - along with the practice of restoration - are increasingly embraced by urban boosters as legitimate quality of life indicators. The growing role of the voluntary sector in producing these ecologies, however, is fundamental to the success or failure of these restored areas. In short, voluntarism maintains the capacity to either accommodate or undermine any normative meaning and significance given to the restoration process by an urban entrepreneurial agenda. This paper explores this phenomenon in Philadelphia, where ecological restoration in two urban forests has acquired political significance among local volunteers attempting to apply their own, often resistant, meaning to their restoration practices and to the landscapes being restored.

Keywords: Voluntarism, Urban Ecology, Construction of Nature

Brione Bruce, Master's of Environmental Studies candidate, York University, Toronto, ON Canada. Email: brione@yorku.ca; Melissa De Young, Master's of Environmental Studies candidate, York University, Toronto ON Canada. Email: mdeyoung@yorku.ca; *Organic Agriculture and Alternative Food Networks*

The process of globalization and industrialization of the food system has altered socio-economic, political and ideological conditions throughout the world. Several agricultural initiatives and movements have emerged in opposition of these forces, claiming alternative status in the name of the environment, social equity and long-term sustainability. This work looks to the organic movement as one such example and questions to what extent it exhibits potential to both challenge and transform the conventional agro-food system. Using Kerala, South India as a geographic backdrop, this work considers the multiple levels at which the organic movement there operates and engages in social action in an effort to clarify areas where its potentials are currently being realized. By focusing on the actions of select governmental, non-governmental and civic organizations who have mobilized around the issue of agricultural sustainability through organic production, we feel that the example of Kerala is capable of re-informing our thinking with regards to sustainability and viable alternative food systems.

Keywords: India; organic agriculture; social movements; transnational organization; globalization; alternative agriculture; alternative food systems; sustainable agriculture

Andrea Brunelle, Ph.D., University Of Utah. Email: andrea.brunelle@geog.utah.edu; *Sedimentological indicators of beetle infestation and climate from the U.S. Northern Rocky Mountains*

Paleoecological reconstructions from two lakes in the U.S. Northern Rocky Mountain region of Idaho and Montana revealed the presence of bark beetle elytra and head capsules (cf. *Dendroctonus* spp, most likely *D. ponderosae*, mountain pine beetle). Occurrence of these macrofossils during the period of time associated with the 1920/1930 A.D. mountain pine beetle outbreak at Baker Lake, Montana suggest that when beetle populations reach epidemic levels, beetle parts will be found in the lake sediments. In addition to the beetle remains found at Baker Lake, ca. 85 cal yr BP (1920-1930s outbreak), remains were also identified from ca. 8331, 8410, and 8529 cal yr BP. At Hoodoo Lake, Idaho remains were found at ca. 7954 and 8163 cal yr BP. These Holocene records suggest the infestations occurred during periods that were cooler and effectively wetter than present and are associated with the 8200 year climate event. In addition, the early Holocene infestations occurred in forests dominated by whitebark pine. These two lake records provide the first preliminary data set for understanding the long-term history of climate controls on *Dendroctonus* bark beetle activity, which may be useful for managing current and future outbreaks.

Keywords: Beetles, Pollen, Climate

Emmanuel Brunet-Jailly, Ph.D., University of Victoria. Email: ebrunetj@uvic.ca; *Canada-U.S. Relations and the Emergence of Cross-Border Regions*

Canada and the United States share a tradition of day-to-day co-operation and have developed an "intimate" knowledge of each other that is apparent in the current tradition of quiet diplomacy and low-level functional solutions in a few key policy arenas (free trade, labor, and environmental standards). For Canadians, co-operation with the U.S. always involves considerations of identity and sovereignty. Generally, Canadian officials resolve this issue by maintaining

low-key functional and effective relations with their American counterparts, which inherently limits any expansion of the supranational role of the North American Free Trade Agreement (NAFTA), but concurrently enhances other multilateral relations among Canadian and American public and private organizations. This paper draws on findings from research on the Canadian-American border led by the Policy Research Initiative (PRI) since 2004 and on the recent PRI survey of Canadian-American leaders, as well as on the author's fieldwork on multilevel governance issues arising from the emerging cross-border regions in Europe and North America. Relying on four analytical lenses?the economy, local and central politics and policies, and local cultures?this paper examines how emerging cross-border regions are changing Canadian-American relations. Specific attention is given to the varied forms of co-operation across policy fields in order to detail (1) the general and specialized and (2) the formal and informal relations and (3) the emerging border regions. The overall argument is that the appearance of cross-border regions indicates a progressive emergence of policy parallelism in a multitude of policy arenas, particularly, a specifically North American form of integration.

Keywords: Approaching the Canada-United States Border session

Stanley D. Brunn, Professor, University of Kentucky. Email: brunn@uky.edu; *Old State/New State Identities: Images on the Last Soviet and First Russian Stamps*

Postage stamps, as products of the state, represent useful measures of state definition and identity. And states that have experienced major internal changes in governance, legitimacy, political and economic alignment can be expected to see those shifts evident in visual representations. I examine the major themes that appeared on the stamps of the last years of the USSR and the first of an independent Russia. From 1989-91 the USSR issued 332 stamps and from 1992-94 there were 160 issued by Russia. The first issues portrayed themes about Lenin, the end of WW II, and Communist Party leaders. The first issues of Russia included religious themes, the city of Moscow; there were no overt military images, nor were there stamps showing Russian territory, the flag, or political leaders. Several themes were represented before and after 1991, including space achievements, Olympics, major artists, and memorials.

Keywords: images, state identity, nationalism, iconography, stamps

Jeff C Brunskill, Bloomsburg University of Pennsylvania. Email: jbrunski@bloomu.edu; *Incorporating Weather Observation Equipment into Introductory Geography Coursework*

In recent years a number of schools have made investments in weather observation equipment, particularly web-based cameras and digital observation stations. One of the primary objectives of these efforts is to bring real-time, localized, weather observations into the classroom. In this regard, many schools use the technology to post real-time webcam imagery online and collect packets of observational weather data for detailed analysis in the classroom. The focus of the current project is to develop a platform whereby schools can make more effective in-class use of the weather information they collect. One aspect of the project is to develop a database driven system that more readily integrates the imagery and data from webcams and observation stations with online sources of weather information, such as radar and satellite imagery produced by the National Weather Service. The goal is to make it easier for students and faculty to investigate past weather events by developing a system that continually collects and archives these sources of information thereby allowing users to post-process data and identify local events of relevance to classroom discussions. Ultimately the system will allow users to recall past events and easily develop summaries that include time-lapse videos, graphs of meteorological variables, and web-based imagery. A second, broader, goal of this project is to investigate how the technological approach can be incorporated into the classroom to more effectively bridge the gap between a student's everyday observations of the weather and the concepts presented in an introductory meteorology or physical geography course.

Keywords: weather, physical geography, education, meteorology

Joseph H. Bryan, UC Berkeley. Email: jbryan@berkeley.edu; *Jim Crow at the edge of Empire; a genealogy of multiculturalism on the Atlantic Coast of Nicaragua*

This paper takes up the spatialization of race and the racialization of space at the intersection of vernacular and cosmopolitan multiculturalisms in the Caribbean town of Puerto Cabezas. Tracing its rise from an outpost of North American banana and logging empires based in the Jim Crow South to the capital of a multiethnic autonomous region, I develop a genealogy of race in terms of its role in orchestrating different projects of rule. Rather than treating space as field onto which racial identities are projected, I demonstrate how contemporary understandings of space are relationally linked to struggles over identity and place. This approach affords a critical perspective on current iterations of neoliberal multiculturalism in Central America, attending to the ways in which

identity and place are remapped in terms political economy and race. In the conclusion I revisit current debates over the relationship between activist research and cultural critique, identifying possibilities for a postcolonial geography.

Keywords: Race, Latin America, Postcolonial Theory

Michelle J Brym, The University of Tennessee. Email: mbrym@utk.edu; Challenges to the Creation of a Transnational European Space along the Polish/German Border

The term "the re/bordering of Europe" has been used by scholars to describe the opening of the newest interior borders of the European Union to the movement of people and goods, while simultaneously reducing the flow across the eastern exterior borders of the EU. For Poland, a new member country of the European Union, re/bordering means tightening its eastern borders with Kaliningrad, Belarus and Ukraine, while its western border with Germany slowly dissolves. To encourage integration the Polish/German border was zoned into four Euro-Regions to facilitate cross-border economic cooperation and joint work on environmental issues. The EU discourse refers to these places as transnational European space that supports the development of a shared European identity based on cross-cultural understanding. So what does being a European citizen mean for people living in the Polish western borderland? Border scholars argue that sometimes as the physical border between the two countries dissolves the cultural border is strengthened, reinforcing, in this case, boundaries between Polish and German citizens. Drawing on my own preliminary research in the Polish border province of Lubuskie and the literature on the integration of the Polish/German border, I will develop several hypotheses on how cultural boundaries are being reproduced or dismantled by Polish residents and how these processes influence Polish expressions of national identity.

Keywords: Borderlands, National Identity, Central Europe

John Bryson, University of Birmingham. Email: j.r.bryson@bham.ac.uk; Industrial Design and Competitiveness in an Increasingly Global World

Industrial design is a service function that is fundamental to the production system of advanced capitalism; when industrial design is done effectively it can reduce costs by increasing the overall efficiency of the production process and convert a functional object into an object of consumer desire. Industrial design is one way in which manufacturing related added value can still remain grounded within the economies of the member states of the European Union - it can be a key source of competitive advantage and a source of added value. This paper explores the relationship between design and national competitiveness in two related ways. First, by developing and exploring a series of statistical indicators derived from the Global Competitiveness Report. These indicators are used to identify a ranking of national economies that have created and maintained design-based national competitiveness. Second, by exploring and evaluating national strategies intended to increase and enhance the contribution design makes to national economies. In this analysis the growth and development of design-centred regional and national policies are explored in relation to the economies of Europe as well as the Asia-Pacific. The paper highlights the current design-based competitiveness possessed by some developed market economies. It also reveals the threat that Europe is increasingly going to face from Asia-Pacific. Currently, some Asia-Pacific countries are developing national and regional policies that are intended to enhance the design-intensity of their low-cost manufacturing production systems.

Keywords: business services, competitiveness, knowledge

Susan Buckingham, Brunel University. Email: Susan.Buckingham@brunel.ac.uk; Gendered Geographies of Environmental Injustice: bodies, households, campaigns and cabinets

To date, the focus of environmental justice research has significantly been on the variables of class, race and income (unmediated by gender) and how these intersect with environmental decision making; gender has largely been conspicuous by its absence in environmental justice discussions. One of the reasons for this, the paper argues, is that geographies of gender are still not well understood by those working in environmental professions, policy making arenas and campaigns, themselves clearly demarcated along gender lines. In particular, those groups which might be expected to draw policy makers' attention to gender inequalities with regard to the environment also appear to lack a clear understanding of, or at least focus on, these geographies. Feminist research has drawn attention to the more local scales of women's activity, where they become more visible including the household and the community. Meanwhile, it is often at the most intensely small scale that environmental gender injustice is manifested: the body, the family and the household. Drawing on feminist research as well as environmental justice literature, and informed by research in Europe, the paper will argue the importance of taking into account the small scale in environmental gender injustice and its place in both environmental justice policy making and campaigning which is increasingly informing the environmental agenda. The

relationship between the neglect of this scale, and the gendering of decision making and campaigning at the national scale will also be explored.

Keywords: environmental justice, gender, feminist research, scale

Michael Buckland, School of Information, Univ of California, Berkeley.. Email: buckland@ischool.berkeley.edu; Incorporating Historical and Geographical Dimensions into a Search Interface

Web search engines ordinarily accept only textual queries. Students and researchers would be better served by a search interface that includes a map display to help define the geographical scope of a query and also as show the geographical spread of search results. For any historical work, interfaces and displays need to support navigation by place as well and time, hence the need to support the browsing of time-lines and temporally dynamic map displays. Methods for incorporating both Where and When along with What and Who will be explained and demonstrated, including a mapping between gazetteer feature types and library catalog subject headings. Also, preliminary results of methods for using XML mark-up to relate biographical texts to the historical and geographical contexts.

Keywords: Search-interface Gazetteers Time-lines Map-displays Library-catalogs

Geoffrey L. Buckley, Ohio University. Email: buckleyg@ohio.edu; Improvement and Protection Associations in Baltimore, Maryland, 1900 - 1933

Neighborhood improvement and protection associations in Baltimore, Maryland occupied a prominent position in the decision-making hierarchy prior to passage and enforcement of strict zoning laws. They were especially influential when it came to attracting amenities such as parks and street trees and discouraging or eliminating disamenities such as unwanted land uses. These associations - of which there were approximately 70 scattered across the city in 1910 ? were also known for their covenants and exclusionary housing practices. One particularly rich resource that casts light on the activities of these groups is the Peabody Heights Improvement Association file. This paper focuses on the key issues that resonated with members of the Peabody Heights Association during a period of intense settlement and development pressure as revealed in two volumes of meeting minutes preserved in special collections at the Maryland Historical Society. In addition to discouraging African-American in-migration and opposing "undesirable" development, the Peabody Heights Association supported a variety of local and city-wide initiatives, including street-tree planting and maintenance, park and playground expansion and enhancement, and strict air pollution control and monitoring. To achieve its goals, the group worked closely with other neighborhood associations and civic groups, revealing a pattern and scale of activity that heretofore has received scant attention. The records of the City Board of Park Commissioners, the city forester's office, and other improvement associations offer additional insights into neighborhood practices, priorities, and politics.

Keywords: amenities and disamenities, Baltimore, environmental justice

Patrick H. Buckley, Assoc. Prof., Western Washington University. Email: patrick@cc.wvu.edu; John Belec, University College of the Fraser Valley, BC, Canada. Email: John.Belec@ucfv.ca; A Delphi Analysis of Cross Border Environmental Issues in the Fraser Borderland

The Fraser Borderland is a unified bio-physical region that straddles the international border in north western Washington State/south western British Columbia. A recent, protracted public protest, largely Canadian based, over a proposed gas-fired power plant, south of the border, highlighted the absence of governing mechanisms to address regional cross-border issues. This was exacerbated by the confusion and multiplicity of scales that the issue invoked. Federal, State, Provincial, Regional and Local officials all claimed partial jurisdiction. With the immediate issue of the power plant now apparently resolved, questions are raised about the future of governance in the Fraser Borderland. For example, what does this issue, and its resolution, reveal about a refiguring of the hierarchy of scale levels, or deterritorialization in the Fraser Borderland? [Jessop, 2002]. To what extent is this associated with a shift from topocratic to adhocratic governance modes [Leresche and Saez, 2002]? How has it affected the development of a cross-border regional consciousness? This paper will present the results of a crossborder resource management Delphi study analysis, that was carried out in 2006. A group of key local actors, from both sides of the border, were invited to participate in the multi-round Delphi study. Analysis will focus both on a critique of the Delphi technique in such contexts, as well as on the opinion provided.

Keywords: Borderlands, Delphi Model, Resource Management

Jessica Budds, Open University. Email: jessica.budds@manchester.ac.uk; *Overground, underground: the social construction of surface water and groundwater and its implications for changing waterscapes in Chile and Peru*

Water resources management responds to a perceived need to manage water more effectively and more holistically. To achieve this, water is sub-categorized into two key resources: surface water (rivers, lakes) and groundwater (aquifers, springs). While on the one hand, the two 'waters' assume different biophysical properties, on the other, they are always inherently interconnected to varying degrees within the drainage basin. This paper seeks to reflect on the socio-scientific construction of water into surface water and groundwater and subsequently consider its practical implications. In particular, the paper analyses how surface and groundwater differentially configure control over, access to and use of water, and the implications of this for social organization around water, discourses over water management, understandings of the hydrological cycle and material changes within waterscapes. These questions are explored through empirical examples from Chile and Peru. Particularly in arid areas, groundwater extraction has recently increased significantly for economic uses, especially agriculture and mining, which has produced important social and material changes within waterscapes. This scenario raises a number of challenges for groundwater management. Important issues explored here include scientific uncertainty regarding aquifer capacity and dynamics, problems of defining groundwater rights and uneven access to these rights, challenges of monitoring groundwater levels and regulating flows extracted from private wells, lay perceptions of water quality and understandings of aquifer depletion, inequalities in access to technology for groundwater control (exploitation or preservation), and difficulties of fostering communal groundwater management.

Keywords: water resources, groundwater, hydrology, discourses, agriculture, mining, Chile, Peru

Stephanie J. Buechler, Dr., Bureau of Applied Research in Anthropology (BARA) University of Arizona, Tucson. Email: buechler@email.arizona.edu; Gayathri Devi, Faculty of Land and Food Resources U of Melbourne. Email: g.mekala@pgrad.unimelb.edu.au; *Spatial and Gender Dynamics of the Effects of Growing Urban Areas on Irrigated Agriculture in Central Mexico and South India*

This paper addresses the spatial and gender dynamics of the effects of urban centers on urban, peri-urban and rural irrigated agriculture in Mexico and India. The research for this paper was conducted in and around Irapuato city in central Mexico by Buechler from 1998-2004 and in and around Hyderabad, in southern India by Buechler and Devi from 2001-2006. After 2007, over 50% of the world's population will live in developing country cities. Ever greater volumes of water will be used to supply residential, commercial and industrial demand which will affect the quality and quantity of water available for agricultural use. The dynamics in Irapuato and Hyderabad are part of a wider pattern of urbanization and water management. The urban footprint of these two cities was found to extend beyond the urban area to the peri-urban and rural areas, and to other areas within and outside of the national borders. They exerted a strong influence on water availability, accessibility and quality for agricultural activities. The interplay between urban location on the one hand and water availability and quality on the other had a profoundly gendered effect on livelihood options. Distance from the city was an important factor in determining which crops were grown in each location. Crop preference was also gendered and women and girls played an increasingly prominent role in water management for agriculture. The gendered movement of labor across regions and across national boundaries was also integrally connected to the effect of these urban areas on water and agriculture.

Keywords: urban growth, water, agriculture, gender, south India, central Mexico

Michaela Buenemann, James Madison University. Email: buenemmx@jmu.edu; *Vulnerability of Drylands to Creeping Environmental Phenomena: An Assessment Using Three Spatial Models*

Creeping environmental phenomena (CEP) such as desertification and woody plant encroachment are posing significant challenges to the sustainable management of drylands around the world for two major reasons. First, it is tricky to disentangle the complex spatio-temporal web of human-environment interactions involved in CEPs. Second, it is difficult to predict a landscape's relative vulnerability to CEPs because they are complex and happen almost imperceptibly over long periods of time, across extensive and frequently remote areas, and within a given land cover category. This study aimed at tackling these two issues using woody plant encroachment (WPE) as a case CEP. To do so, three spatial models, each integrating both GIS and remote sensing data, were developed, evaluated, and compared: Geographically Weighted Regression (GWR), Weights of Evidence (WoE), and Weighted Logistic Regression (WLR). Results of this study show that all models could produce reasonably accurate WPE

vulnerability surfaces, with highest accuracies in the most and least vulnerable parts of the landscape. Especially when used in conjunction, these models may therefore facilitate the identification of areas for conservation, restoration, or other purposes. However, only the distinct, unique, and complementary information provided by the GWR and WoE models was useful for assessing the relative importance of factors influencing WPE. When used jointly, these two models may thus well be suitable for the generation and testing of existing and new hypotheses about the process. Overall, this study suggests that integrative GIS, remote sensing, and spatial modeling approaches have enormous potential for CEP assessments in drylands.

Keywords: land cover change, spatial modeling, weights of evidence, geographically weighted regression, weighted logistic regression

Milan Bufon, University of Primorska. Email: milan.bufon@upr.si; *Multicultural Regions And Contact Areas In The Context Of European Integration*

The European continent, the motherland of nationalism, and the part of the world where political borders and different territorial and cultural identities are mostly interrelated, is now facing new challenges regarding how best to represent its numerous interests within one system. With the increase of international integration European countries began to devote greater attention to the development problems of their multicultural regions and border areas that had to be helped to undertake certain functions in the international integration process. The fostering of a more balanced regional development also resulted in a strengthening of regional characteristics, which the new model could no longer ignore. Regional characteristics in turn have always been preserved in Europe by persistent historical and cultural elements of ethnic and linguistic variety. Therefore it is not surprising that the process of European integration based on the new regional development model was accompanied by a parallel process of ethnic or regional awakening of minorities and other local communities. The key question for contemporary Europe (though of course this is not limited to Europe) political geography is, then, how the process summarised under the twin labels of social convergence and deterritorialization will effect the persistent maintenance of regional identities and the corresponding divergence of regional spaces. Or, in other words: is the 'unity in diversity' European programme ever practicable and exportable on a world-wide scale or are we to be absorbed by a new global 'melting pot'?

Keywords: Political geography, European integration processes, border regions, minorities

Joni Bugden-Storie, Ph.D., Western Carolina University. Email: jbugden@email.wcu.edu; *Polarimetric SAR Feature Extraction for Agricultural Land-Cover Mapping in Latin America: Developing Spatial Products for Environmental Decision Systems*

The results of this project will contribute to the development and demonstration of a system for the detection of significant changes in natural, agricultural and urban ecosystems within a semi-arid region of Argentina. This system for monitoring land-cover change will be implemented into decision-making to work toward sustainable development. The goal of this project is to generate land-cover maps in order to show diverse agriculture (e.g., vines and olives in Argentina), natural areas, and urban areas in semi-arid regions. Using quad-polarimetric SAR data, the authors hope to extract not only diverse land-cover but also biophysical characteristics (crop height, soil electrical conductivity, water content) that will indicate agriculture sustainability and point to those areas most at risk of salination. Ten quad-polarimetric images will be acquired based on funding from the Canadian Space Agency - SOAR Program. The RADARSAT-2 satellite will be launched in March 2007 and acquisition of images will begin in August 2007. Activities to be completed over the next year for this project include (a) polarimetric radar workshop in Buenos Aires, Argentina; (b) field data collection; and (c) organizational meeting in San Juan, Argentina to discuss methodology, tasks and responsibilities.

Keywords: Biophysical, Remote Sensing, Polarimetric Radar, Argentina, Semi-Arid

Markus M. Bugge, NIFU STEP Studies in Innovation, Research and Education. Email: markus.bugge@nifustep.no; Arne Isaksen, Prof., NIFU STEP Studies in Innovation, Research and Education. Email: arne.isaksen@hia.no; Høgni Kalso Hansen, Department of Social and Economic Geography, University of Lund. Email: hogni.kalso_hansen@keg.lu.se; Kristina Vaarst Andersen, Copenhagen Business School, Department of Industrial Economics and Strategy. Email: kva.ivs@cbs.dk; Mika M. Raunio, University of Tampere, Research Unit for Urban and Regional Development Studies. Email: mika.m.raunio@uta.fi; *People climate, city structure and city types: Analysing the importance of quality of place for the creative class*

The creative class thesis proposed by Florida (2002) is much debated. An

important argument of the thesis is the significance attached to people climate; specific qualities of place that attract and retain creative persons in particular cities, which in turn attract firms in need of creative employees. The importance of people climate may be a particular feature of the US society with over 50 cities of more than one million inhabitants, and, thus, the fact that members of the creative class here have got many similar cities to choose from as places to live and work in. This paper analyses the importance of people climate for recruiting creative class members in societies with a quite different city structure than the US, that is countries dominated by one large city. The four Nordic countries of Denmark, Finland, Norway and Sweden all have a dominating capital region, and demonstrate quite different results as regards the importance of people and business climate from those reported by Florida. Preliminary results indicate that as creative class members in the Nordic countries cannot freely choose between several more or less 'equal' cities as regards the possibilities of urban lifestyles and job opportunities, the people climate tends to be of secondary importance. The analyses indicate that creative class members often select their place of living on the basis of where they can find exciting jobs, communities of occupationally similar workers and with wider opportunities on the labour market.

Keywords: economic geography, creative class, city structure, quality of place, people climate

Ron N Buliung, Assistant Professor, Department of Geography, University of Toronto at Mississauga. Email: ron.buliung@utoronto.ca; Joshua Mitchell, Graduate Student, MSA Program, Ryerson University. Email: ; Tony Hernandez, Director, Centre for the Study of Commercial Activity, Ryerson University. Email: thernand@research.ryerson.ca; Retail Morphology and Consumer Travel Demand in the Greater Toronto Area

The Greater Toronto Area (GTA), Canada's largest metropolitan region, has experienced extensive retail structural change since the mid-1990s. The vast majority of new retail development within the GTA market has been in the form of large format (often termed 'big-box') retailers. These big-box retailers (e.g., Home Depot, Wal-Mart, Best Buy) have clustered together in suburban locations throughout the GTA, forming a range of unenclosed power centre developments. Typically centred on a shared parking pad, power retailing has served the functional demands of suburban shoppers, with developments over the last fifteen years having transformed the retail landscape. While the growth of this retail format has been well documented, the travel impacts associated with power retailing have not been quantified and compared against traditional enclosed shopping centres. Using shopping travel observations taken from the Transportation Tomorrow Survey in conjunction with retail structure data from the Centre for the Study of Commercial Activity, several measures of consumer travel behaviour have been estimated for power centres and shopping centres in the GTA between 1996 and 2001. Results indicate that despite the rapid growth of power centres, shopping centres remain the most significant element of retail structure. Auto-use for shopping travel dominates trips to both retail formats, while transit plays a limited role in shopping travel to shopping centres, and is almost non-existent for travel to power centres. The paper concludes by discussing the regional policy context of the findings and identifies a number of areas for further research.

Keywords: retail expansion, shopping, travel behaviour, suburbs

Jacob Bull, University of Exeter, Cornwall Campus. Email: Jacob.A.Bull@ex.ac.uk; Watery masculinities: Fly-fishing and the angling male

Angling in the UK is dominated by white males, with women holding only 5% of rod licences in England and Wales. Consequentially, angling offers an important insight into how masculinity is (re)defined. With the location of angling often constructed as remote, 'rural', and often 'wild', the non-human experienced through angling could easily be considered as a site for the masculine domination of nature - the angler duels with nature and exhumes his (sic) prize from the unknowable watery place. As such the angling nature can be understood as a mechanism for the (re)defining of the anglers machismo; that by becoming hunter the savage masculinity of a pre-modern age is revisited. However, the masculinities played out through angling are more complex than previous studies have suggested. While undoubtedly, aspects of domination, mastery and competition are evident, the regulation and technology involved require the angler to engage with nature not in a heroic or brutish savage manner but through the delicate presentation of a fly; to cast with finesse; to imitate nature in a quiet, contemplative 'civilised' manner; to become a medley of encounters with the rural, forming multiple alternative masculine subject positions. As a consequence of this, coupled with the agency granted to the fish, the 'duel' may become more of a 'pas-de-deux'. Therefore, based on research conducted on the lived experience of anglers in the Southwest of England, I offer a more nuanced account of alternative and multiple masculine subject positions emergent in

encounters with fish, 'nature' and the 'rural'.

Keywords: Masculinities, Non-human

Henry Buller, University of Exeter, UK. Email: H.Buller@exeter.ac.uk; Eating Biodiversity

Drawing upon recent writings on the commodification of nature and the revival of 'nature' as a component of additional product value within the food chain, this paper presents findings from a current research project examining the way in which grassland biodiversity is integrated as an input into certain 'quality' meat and dairy product chains in Britain and France. What cows eat, and the 'natural value' of that feed is translated through the food chain into various reconstructed notions of quality, reflected not only in different dimensions of the final product but also in the nature of the production, manufacturing and retailing process and experience. Hence combinations of non-human (grass species, insect species, cow breeds and individuals) and human (stockpersons, farmers, conservationists, manufacturers, retailers and consumers) combine in the assemblage of notions of quality and in the negotiation of its 'value'.

Keywords: Nature, Biodiversity, Commercialisation

Rebecca A Buller, University of Nebraska- Lincoln. Email: rbuller1@bigred.unl.edu; The Millinery, the Manse, and Memories: The Historical, Cultural, and Contemporary Landscapes of Post Office Communities

Along the riparian woodlands and on the Sandhills' prairies of Holt County, Nebraska, nodes of settlement once dotted the maps. With the beginning of pronounced European American immigration into the area in the late 1870s and early 1880s came the need for postal services. From 1875 to 1912, seventy-seven such post offices had been established. Around some of these post offices, small unplatted communities grew. An exploration of the literal and figurative landscapes of the post office communities serves as a small window into the ways of life during the booming, yet brief, period of resettlement of the Northern Great Plains. A combination of plat maps, newspaper articles, post office records, census documents, and other historical society archives as well as mailed surveys and personal interviews aided in the reconstruction of the settlements. The historical, cultural, and contemporary landscapes reveal, years after the discontinuation of post offices, how and why some communities' landscapes endure.

Keywords: landscapes, post office communities, Nebraska- Holt County

Mike Bulthuis, University of Ottawa. Email: mikebulthuis@rogers.com; Disruptions on the urban landscape? Or young people's geographies of home in the urban environment

Youth hanging out in public spaces are sometimes regarded as a disruption to the ideal, liveable and safe urban landscape, with adult responses framed by perceptions of deviance or feelings of vulnerability. In such instances, youth are positioned as outside of the paradigmatic ideal citizen (working, stable and independently able to engage in public and private). This paper theoretically interrogates whether and how one might interpret the presence of youth in public space differently and seeks to shift an orientation from adult attitudes and values to those directed and centred by youth. How might youth use public space during the process of transitioning from parental or guardian-controlled childhood domestic environments to adult independence and private households? Might youth's intentions in public space be understood as "acts of residence" (Hartig and Lawrence 2003) within the city? varied actions contributing to "home" beyond the physical boundaries of housing? In particular, might this use of space be understood as an opportunity, even for housed youth, to experience "private" moments? a sense of home? away from the watchful eye of parents or guardians, and protected by a more anonymous public gaze? Recognizing the weak ability of many youth to independently attain the necessary resources to ensure refuge and restoration within the private, physical spaces of housing, this paper seeks to articulate a theoretical framework for empirical research to be conducted with local youth, investigating the everyday environments in which youth imagine, contest, enact and embody "home."

Keywords: youth geographies; meaning of home; public and private space

Adam G Bumpus, University of Oxford. Email: adam.bumpus@ouce.ox.ac.uk; The Governance of Carbon Offsets: Nature, Neoliberalism and New Actors

This paper provides a critical analysis of the current governance structures that are exhibited in international carbon offsets. Addressing both the clean development mechanism (CDM) and voluntary carbon offsets (VCOs) this paper highlights some of the critical geographical issues that have heretofore been omitted from the largely technical debate on offsets. I show how carbon offsets represent capital accumulation strategies through the devolution of governance over the atmosphere to the market and the use of global space for capital accumulation. Shifting governance of the atmosphere to the market also brings

with it questions of legitimacy and actor accountability in providing social and environmental protections. Despite both mechanisms being premised on the commodification of carbon, they exhibit very different governance structures. The CDM illustrates how states, influential intergovernmental organisations like the World Bank, and the private sector construct flows of capital across bureaucratic and spatial scales to help facilitate the expansion of carbon capital. VCOs on the other hand exhibit more horizontal governance structures across space that more resemble heterarchy between carbon reducers and consumers. Drawing on the literature surrounding offsets and two empirical examples from Honduras, the implications for these differences in governance are discussed in light of the rationale(s) for carbon offsets. In addition to pointing to avenues of future critical research on the issue, this paper also shows that there may be progressive possibilities that certain offset mechanisms can provide for understanding carbon reductions for development.

Keywords: political ecology, carbon governance, capital, neoliberalism, emissions trading

Kjersten Bunker Whittington, Stanford University. Email: bunker@stanford.edu; Walter W. Powell, Stanford University. Email: bunker@stanford.edu; *Networks, Proximity and Innovation in Technological Communities*

Industrial districts or regional clusters depend heavily on the networks that arise from reciprocal linkages among co-located organizations, while the physical proximity of the partners to a relationship can alter the nature of information and resource flows through networks. We consider the joint effects of geographic proximity and network position on organizational innovation using negative binomial count models of patenting activity for a sample of life science firms across a 12 year time period (1988-1999). We find evidence that regional agglomeration and network centrality exert complementary, but contingent, influences on organizational innovation. We conclude that network effects persist both independently and inter-dependently with geographic variables, and regional characteristics influence the degree to which centrality enhances innovation. One implication of our results is the degree to which the geographic features of networks may represent distinct avenues of influence. We suggest that the types of ties that companies forge locally may be those most apt to signal membership and engagement with a regional community, rather than those that most effectively direct flows of information and resources using legal mechanisms that emphasize exclusivity or secrecy. Thus, regional ties may be more porous than the more distant, arms-length ties that characterize non-regional connections. The differences in types of ties suggest how regional politics, culture, and organization alter the way that networks direct information and resource flows. We discuss how regional clusters of activity uniquely contribute to technological innovation in knowledge intensive industries.

Keywords: regional agglomeration, inter-organizational networks, innovation, biotechnology,

Frank S Buonaiuto, PhD, Hunter College. Email: fsbuonaiuto@optonline.net; *Rip Current Hazards In New York*

Rip currents are complex phenomena that pose significant danger to beachgoers worldwide. These narrow (typically on the order of 10 - 20 m) currents flow seaward from the surf zone attaining velocities greater than 1-2 m/s, and comprise part of the normal wave-driven circulation patterns derived from alongshore variations in wave height. The formation, magnitude, spacing, persistence and evolution of rip currents depend upon incident wave field properties, wind speed and direction, astronomical tides, and near shore morphology. In addition rip currents can exhibit long period oscillation or pulsing associated with surf beat and infragravity wave motion. According to the United States Lifesaving Association rip currents accounted for almost 23,000 of 71,000 lifeguard rescues in 2000, and are the third largest weather related killer behind hurricanes and tornadoes. Along the south shore of Long Island, NY there have been 41 rip current related deaths within the past decade. Although there are numerous factors that influence rip current dynamics, empirical models have been used to provide reasonable estimates of rip current intensity related to hydrodynamic, atmospheric and morphologic properties. One such model developed to forecast rip currents warnings for the southeast Florida coast has been applied to the NY metropolitan region to hindcast rip current activity from 1991 through 2005. Preliminary results from the empirical model suggest spatial variations in rip current intensity arise mainly from incident wave angle, shoreline geometry, variations in tidal range, and the presence of engineering structures.

Keywords: coastal, hazards, rip currents

Tom Burditt, University of the West of England, Bristol. Email: Tom.Burditt@uwe.ac.uk; *Of wildlife, warden and wiggly ditches: the construction of grassroots knowledge at two nature reserves in South-west England*

This paper uses a mixture of ethnographic and autoethnographic methods to explore the 'knowledge networks' at two nature reserves near Bristol in South-west England: one owned by the Gloucestershire Wildlife Trust (a local, professional conservation charity affiliated to the national Wildlife Trusts federation) at which I am the site manager, the other owned and managed by a village-based community group. I combine theoretical insights from the science studies and new social movements literatures to show how the managers of these reserves were able to construct credible knowledge about their land that aided its management and helped them to cope with uncertainties. Significantly, both groups of managers have been able to formulate problems and perform solutions that were different to those advocated by the state nature conservation agency (and their powerful science-policy-legal networks). The paper looks at how the managers were able to establish such control - by establishing credibility and trust amongst, and by exchanging knowledge with, a wide network of enrolled allies: local residents, amateur naturalists, national experts, local conservation organisations and even staff from the state conservation agency. The resulting knowledge gained (and used) by the managers is essentially 'hybrid', built up from imported (scientific) advice, site-based observation, experimentation and research, anecdotes, intuitions and chance encounters. I conclude that imported scientific research is only one strand in 'real world' decision-making; it can provide useful insights to groups of people working in local contexts; it can also be resisted or adapted.

Keywords: Knowledge, science studies, nature conservation, autoethnography, environmental management

Lacy Jo Jo Burgess, PhD student, . Email: dolphinlove@ou.edu; Dr. Bruce Hoagland, PhD, . Email: bhoagland@ou.edu; *Analysis of Invasive Species Dynamics on a Stretch of the Canadian River, Cleveland County, Norman Oklahoma*

The goals of this study were to quantify the occurrence of exotic and invasive species on a stretch of the Canadian River south of the University of Oklahoma, in Cleveland County, Oklahoma. *Saccharum ravennae*, *Tamarix chinensis*, and *Phragmites australis* were of particular interest due to the dynamics in the concentrations of these species that was found during the course of the aerial photography analysis. Historic vegetation cover was established and analyzed through a series of five aerial photographs covering the time period 1966-2001. A unique classification consisting of 11 categories was developed and used to identify specific species of interest, as well as the most dynamic landcover categories. The species composition and densities were identified through a two part floristic survey of the sight; a walking survey and a plot survey which was established along transects near the river. The walking survey was conducted biweekly throughout the field season, April-October 2005; the plots were surveyed four times throughout the season. One hundred sixty-five species were encountered through both surveys. River dynamics appeared to have the greatest impact on the invasive species.

Keywords: invasive species, biogeography, landcover classification

Melissa Burgess, Australian National University. Email: melissa.burgess@anu.edu.au; *The Geography of Fear of Crime: A Spatio-Temporal Investigation*

Regardless of whether crime is present, people avoid areas where they feel afraid of becoming a victim of crime. With the widespread adoption of this behavioural response, fear of crime has emerged as a distinct phenomenon that causes numerous problems for the individual and the community. This presentation communicates the results from a simple, yet powerful, fear mapping technique trialled in Sydney, Australia. Using a Geographic Information System, a three-dimensional visual-diagnostic technique for mapping areas people avoid because they are afraid of being robbed, beaten or attacked was applied. The fear maps revealed distinct patterns of avoidance, showing obvious fear hotspots and streets perceived as safe thoroughfares through those fear hotspots. These fear hotspots reflected areas of crime and alerted the police to unrecorded criminal activity. The mapping technique also allowed the spatial exploration of fear and avoidance triggered by different environmental cues. A number of social and physical environmental cues were mapped including the presence of drug-users and sex-workers, which are presented. The patterns of avoidance adopted by different socio-demographic groups in response to these environmental cues, for example by gender and residential status, is also discussed. The results provide new spatially sensitive insights that can be applied in practice, for example encouraging the targeting of police and government resources to critical fear hotspots and to those environmental cues that trigger people to feel afraid. This study aims to build upon the ties between geography and criminology.

Keywords: GIS, Fear of Crime

Cristin A. Burke, University of Kansas. Email: cburke@ku.edu; *Power and Identity: Implications of Borat in Kazakhstan*

Establishment of the National Oil Fund in 2001 has enabled President Nursultan Nazarbaev to increase his control over the government in Kazakhstan. In return for increased governmental expenditures on social services and infrastructure, the citizenry appears to have acquiesced to increased centralization of power within the country and to the president's depiction of a unified and modern Kazakh people without significant opposition groups. This view of the state has recently been challenged with the release of the film *Borat: Cultural Learnings of US and A for make benefit glorious nation of Kazakhstan*. Differences of opinion at the highest echelons of power on the appropriate reaction toward the film have resulted in a fracturing of the power dynamic within the government, and can have long-lasting repercussions on the country's future leadership

Keywords: Kazakhstan, identity, power relations

Kelly Burkle, University of Nevada, Reno. Email: burklek@unr.nevada.edu; *A High Resolution Reexamination of a portion of the Mission Cross Bog, Nevada record from 4,000-2,000 years ago*

The goal of this study is to reconstruct both regional and local paleoclimate within a region bordering the vegetative and hydrologic Great Basin using pollen and packrat midden analyses taken from the Jarbidge Mountains in Northeastern Nevada. The pollen record gives a regional perspective on vegetation and climate change in the area while the packrat middens provide evidence for which species were present as climate changes. The results of these proxy records will then be compared to previous research within the northern and central Great Basin to determine the local or regional scale of climate change. An 18 meter sediment core was recovered from Mission Cross Bog in July of 2005. Mission Cross Bog was previously examined at a coarse resolution by Bob Thompson and at a higher resolution for the last 2000 years by Marie Allan. Samples will be taken at consecutively higher resolutions (i.e. from every 250, 125, 60, 30 year intervals), and compared, to determine if there is a limit to high resolution sampling for pollen analysis. A high resolution record from 4,000 to 2000 years ago will identify critical climatic changes of the shorter duration wet and dry phases characterizing the Late Holocene.

Keywords: pollen, Great Basin, high resolution, paleoclimate

Adam W. Burnett, Colgate University. Email: aburnett@mail.colgate.edu; *Great Lake-effect snowfall variability and its relationship with lake and air temperature, ice cover, and regional-scale circulation*

Recently observed increases in snowfall over many sites that receive Great Lake-effect snow raise several questions. Assuming that such increases are not simply the result of data artifacts related to the way in which snowfall is measured, possible physical causes include changes in regional-scale circulation, air temperature, water temperature, ice cover, or some combination. Few studies have considered the combined relationship among these factors and lake snow. Lake-effect snowfall plays a significant role in both the environmental and socio-economic settings of the Great Lakes region. From a climate change perspective, changes in lake-effect snow may represent regional-scale manifestation of global warming. This study uses a variety of data, including: (1) 285 monthly snowfall records for the 1951-2004 period throughout the Great Lakes region; (2) associated air temperatures; (3) lake ice cover data from NOAA; (4) lake temperature information derived from near shore water intakes, buoy sites, and satellite-derived data; and (5) regional-scale circulation derived from surface observations and NCEP/NCAR reanalysis data. Single variant relationships between snowfall and these factors fail to reveal any significant relationships that are unique to lake-effect settings. However, the underlying spatial structure of snowfall variability throughout the region does reveal a lake-effect structure with coherent patterns of increasing snowfall in some, but not all, lake-effect locations. These variations appear to be circulation driven. This paper will attempt to control for the influence of circulation variability in an attempt to determine the degree to which other lake-effect controls are driving increased lake snow.

Keywords: Snow, Climate Change, Lake Ice, Circulation

Kari Burnett, Rutgers University. Email: kburnett@eden.rutgers.edu; Killian Ying, California State University, Los Angeles. Email: ; Dusan Drbohlav, Charles University, Czech Republic. Email: ; *Chinese Immigrants in Prague, Czech Republic: An Overview and A Research Agenda*

Apart from 2001, the Czech Republic has witnessed a positive net migration rate since 1971. This positive rate has shown dramatic increase since the Czech Republic became an independent country upon the dissolution of Czechoslovakia in 1993. In recent years the Chinese have represented a relatively sizeable immigrant group arriving in the Czech Republic. A majority of the newly arriving Chinese immigrants settle in the capital city of Prague. The Chinese, whose

numbers in the Czech Republic have been steadily increasing, are uncharacteristic of the typical Czech immigrant (Slovakian, Ukrainian) in their major modes of employment, such as restaurant ownership and import, distribution, and retail ventures, and techniques (or lack thereof) in assimilating and integrating with Prague's native population. This paper will give a summary of the economic and social situation of Chinese immigrants in Prague as well as their situation in various Western European cities in order to compare their experiences. The objective of this paper is to present a literature review and to construct a research agenda to be implemented later this year in Prague. The intention of this research is: (1) to investigate the increasing Chinese immigration to Prague; (2) to determine if there is a migratory pattern between Prague and specific origins in China; (3) to examine the motive behind their differences from Eastern European immigrants in employment practices; and (4) to explore various migration theories in explaining the processes of assimilation and integration and the settlement dimensions of these immigrants in Prague.

Keywords: Migration, Chinese immigrants, Czech Republic

Mark Troy Burnett, Ph.D., UCLA. Email: ; *Architecture, Monumentality, and National Identity: Contesting Memory in a Post Socialist Capital*

National identities are based in part on identification with particular places understood and contextualized in particular ways. From this assertion, this paper explores the development and changing role of Slovak national identity since independence in 1993, placed in the context of the capital city?Bratislava?and efforts to invest the urban landscape and urban milieu with a post-Czechoslovak/Communist narrative of nationhood and national identity as highlighted in contestations over architecture, monument, and urban design. Emerging from this analysis are two fundamental issues: 1) How does a "nation" that has recently acquired a "state" go about transforming a city, which has had little relevance to their national identity in the past, into "their" capital, "their" seat of government as well as a reflection and symbol of "their" higher ideals and national pride; 2) Conversely, how does Bratislava, and the imaginings of it as a capital and post-socialist city, located on the western margins of the political territory and overtly leaning toward the "West", condition Slovak national identity. Capital cities are an easily defined but poorly understood class of cities. Often marginalized in research as mere administrative centers, I argue that capitals are also symbolic theaters for national ideology, a reflection of the larger national stance towards urbanism and modernity, a catalyst of national economic development, and a bridge between local culture and the imagined community of the nation-state. Further, capital cities are highly politicized places that simultaneously structure and condition national identity and are structured by nationalist prax

Keywords: urban geography, national identity, monumentality, post socialism, europe

Dorian J. Burnette, University of Arkansas - Fayetteville. Email: djburne@uark.edu; *A New Daily Temperature Record for Kansas, July 1828 to August 2006*

A 179-year record of daily mean temperature in Kansas has been developed from historical and modern instrumental data, extending from July 1828 to August 2006. Nineteenth century temperature data were obtained from original manuscripts of the U.S. Army Surgeon General, the Smithsonian Institution, and the Signal Service, and were carefully screened and corrected. Modern hourly temperature data were utilized to correct the historical temperature data for changes in observation time routines. Overlapping daily mean temperatures from sites with the best thermometer exposures were then attached to the modern record using regression methods. The resulting reference time series reflects coherent signals from the surrounding stations, assuring homogeneity. This new dataset is rich in temperature variability at all timescales, including positive and statistically significant trends in seasonal and annual temperature since 1828. The winter warming trend in Kansas has been almost double the summer warming. This record of daily temperature from Kansas is the only record to date that has been corrected at the daily timescale, and provides the longest and most detailed record of instrumental temperature in the continental interior of North America.

Keywords: daily, temperature, Kansas

Amy C Burnicki, University of Wisconsin-Madison. Email: burnicki@wisc.edu; *Quantifying & Mapping Uncertainty in a Post-Classification Change-Detection*

The uncertainties associated with land-cover change products limit our ability to make accurate statements about the rates and spatial patterns of land-cover change. This has resulted in increased motivation within the land-use/cover change community to better understand errors associated with maps of land-cover change. This work addresses this challenge by building the quantitative methodology needed to describe both the temporal and spatial patterns of error associated with a land-cover change map produced through post-classification

change-detection. A post-classification change-analysis was conducted on Pittsfield Township, located in southeastern Michigan, using Landsat TM imagery acquired from 1991 and 1999. Measures, such as temporal correlation, cross-K statistic, and bivariate spatial autocorrelation statistics, are considered in quantifying the temporal interaction between classification errors. Additional measures were applied to quantify the spatial patterns of error for each classified map and the resulting map of change, and to identify secondary variables that exhibited significant correlations to error occurrences in the map of change. Finally, a regression model was developed to produce an associated error surface for the resulting post-classification change map indicating the probability of making a land-cover-change classification error. This map was compared to the results of a geostatistical analysis to demonstrate the utility of incorporating both error information from the individual classified maps and secondary variables when creating a map of change-classification error. The results of this study provide new insights into the quantitative, spatial, and temporal patterns of error in remote sensing based change analyses.

Keywords: uncertainty, spatial analysis, post-classification change-detection

Malcolm C. Burns, Mr., Researcher, Universidad Politecnica de Catalunya, SPAIN. Email: malcolm.burns@upc.edu; Josep Roca Cladera, Dr., Director, Centre de Política de Suelo y Valoraciones, Universidad Politecnica de Catalunya, Barcelona, Spain. Email: josep.roca@upc.edu; *The interaction value applied to air passenger flows between European cities: A new European spatial configuration*

The traditional spatial configuration of the European geography was based upon the core-periphery model. The elaboration and publication in 1999 of the European Spatial Development Perspective (ESDP) challenged this core - periphery model. European spatial planning policies, aimed at encouraging social and economic, and with ever increasing importance, territorial cohesion, seek amongst other aspects, to encourage the development of a balanced and polycentric urban system. Furthermore recent studies carried out within the context of the European Spatial Planning Observation Network (ESPON) have proposed the notion of Metropolitan Urban Growth Areas, as Functional Urban Areas capable of acting as counterweights to the Pentagon. Taking into consideration the widely cited usefulness of airline data for assessing the World (and European) City Network (Smith and Timberlake, 2001 and 2002; and Keeling, 1995, in Derudder and Witlox, 2005) the research referred to in this paper draws upon 2004 EUROSTAT compiled air passenger flows between some 28 cities within the functional European space. Rather than seeking to replicate urban hierarchies, the research proposes a gravity model application in order to examine the mutual interaction between these cities. The results indicate the strongest interaction to exist between Barcelona and Madrid, what Hall (2005) terms Spain's two "political" and "commercial" capitals. The interaction values for these cities are then combined with geographical coordinates, in order to proportion a novel spatial configuration of the European spatial territory, with London at the centre, contrasting with the traditional visual geographical form expressed through more conventional mapping.

Keywords: air passenger flows, functional distance, interaction value, spatial configuration, Europe

Scott F. Burns, Professor, Portland State University. Email: burnss@pdx.edu; *Terroir of Wines in Switzerland*

Terroir of the Wines of Switzerland Scott F. Burns, Dept. of Geology, P.O. Box 751, Portland State University, Portland, Oregon 97207 Switzerland today has 15,000 hectares in vineyards. In 1877 there were 33,000 hectares in production, but advent of pests, diseases, urbanization and the lower prices of foreign wines has reduced the hectares. Over 35 varieties are grown, but six varieties make up 95% of the vines planted in Switzerland: Chasselas, Sylvaner, Riesling/Sylvaner, Pinot Noir, Gamay, and Merlot. Chasselas makes up 45% of the planted area and 60% of the production, and this white wine is almost unique to Switzerland. It is greatly influenced by the soil and is marketed by the Swiss Romande regions of growth (Geneva, Dezaley, and Fendant). Sylvaner (6% of area) is the second leading white wine and has more body, bouquet and acidity than the Chasselas. It is grown mainly in the Canton Valais and is marketed under the label of Johannisberg. Riesling is grown mainly in the slaty soils of the region near Sion. Riesling/Sylvaner (Muller-Thurgau) (5% of area) is cultivated in the German speaking regions of Canton Valais (cooler climate in the upper valley). Pinot Noir (27% of area) is the main red variety grown in the German speaking parts of the country. Gamay (14% of area) is the second most productive and is grown near the Lake Geneva region and the Canton of Valais. In the warmer regions of the Ticino and the Graubunden one finds Merlot (6% of area) as the main grape.

Keywords: Switzerland, Geology, Soils, Wines, Terroir, Chasselas

James E. Burt, University of Wisconsin - Madison. Email: jeburt@wisc.edu; A-Xing Zhu, Ph.D., University of Wisconsin-Madison. Email: azhu@wisc.edu; Rongxun Wang, University of Wisconsin-Madison. Email: rongxunwang@wisc.edu; *Visual Spatial Data Mining Tools For Extracting Expert Knowledge from Soil Surveys*

For the most part soil mapping activities in the U.S. are directed at updating existing surveys prepared decades ago. Such surveys can be regarded as the spatial expression of a surveyor's mental model of soil-landscape relations. Although the scientist's model is seldom explicitly documented, it resides implicitly in the published map products. Recovery of the model has the potential to greatly accelerate the revision process by exposing soil-landscape concepts deployed in the original survey. To that end we have developed visual tools that extract knowledge in the form of frequency distributions of pixels within soil polygons. The distribution for a polygon indicates the range of environmental conditions over which that polygon has been mapped, and as such is similar to mental constructs often employed by surveyors. The software provides various displays and metrics for comparing distributions of one soil with another, which allows a new surveyor to identify similarities and differences in the environments occupied by those soils. In addition, frequency distributions for multiple polygons of the same soil can be compared. This provides information about the consistency of mapping, and is useful in identifying polygons that occupy anomalous environmental settings and therefore deserve special attention in the update. Editing features built into the software allow modification and formatting of the extracted knowledge for use in predictive expert systems such as SoLIM. This paper describes the new tools and their use in an ongoing update project in southwestern Wisconsin.

Keywords: data mining, gis, soils

Elizabeth Burton, Dr, Oxford Brookes University. Email: ejburton@brookes.ac.uk; Lynne Mitchell, Oxford Brookes University. Email: lmitche1@brookes.ac.uk; *Inclusive Design for Getting Outdoors*

This paper presents findings from I'DGO (Inclusive Design for Getting Outdoors), a three-year research project funded by the UK Engineering and Physical Sciences Research Council under their EQUAL (Extending QUALity Life) Programme. Conducted by a Consortium of researchers from Oxford Brookes University, University of Salford and Edinburgh College of Art, the research aims to identify ways in which the outdoor environment could be designed to improve older people's quality of life. The paper will focus on the findings from interviews with 200 older people and from the measurement of the design characteristics of participants' local neighbourhoods. Participants were recruited from cities, large and small towns and villages in Oxfordshire, Gloucestershire and the Greater Manchester area and from a variety of location types including city/town centre, urban district, suburban/edge and rural. The research found that it is very important for the majority of participants (89.5%) to get outdoors, particularly for social contact, stimulation, fresh air and exercise. However, physical ailments, frailty or a perceived lack of safety are just a few of many stated reasons why they do not use their local neighbourhoods as frequently as they would like. Yet such restrictions are often caused or at least exacerbated by aspects of design from urban form to paving materials. Our aim, therefore, is to identify design features that help and hinder older people and to provide design guidance that will improve the ability of older people to use and enjoy the outdoor environment without compromising the needs of other users.

Keywords: older people, neighbourhoods, streets, quality of life

Bryan R. Bushley, East-West Center / University of Hawai'i. Email: bushley@hawaii.edu; *Assessing the Sustainability of Community Based Natural Resource Management Systems*

During the past few decades, the world has witnessed a trend towards increased decentralization and local control over the management of natural resources. This trend has been embraced by local and indigenous communities, as an affirmation of their traditions and rights; and also supported by both national governments and international donor organizations. The broad appeal of community based natural resource management (CBNRM) initiatives lies in their promise of enhancing community livelihoods while promoting the protection and sustainable management of valuable natural resources and threatened ecosystems. Despite abundant evidence of successful CBNRM initiatives, there have also been some failures, and significant challenges remain to their long-term viability. These challenges stem from internal discord within communities, the absence of proper incentives, pressure from external forces and actors, related power imbalances, and lack of a common vision. This paper introduces the STEEPLE Framework - a conceptual planning tool for evaluating the socio-cultural, technical, economic, ecological, political, legal and ethical dimensions of sustainability in diverse public policy dilemmas ? and illustrates its use in the evaluation of CBNRM programs and initiatives.

Keywords: sustainability, environment, community, natural resources, governance, policy, planning

Kristina Bushnell, BA, University of Hawaii, Department of Geography. Email: kwbushne@hawaii.edu; Kristina W Bushnell, BA, University of Hawaii, Department of Geography. Email: kwbushne@hawaii.edu; *The Many Fires of Maha'ulepu*

This presentation follows a place-based struggle in Hawaii spanning over 125 years. Focusing on ideas set forth by philosopher Edward Casey, particularly his views on how place constitutes personal identity, or "the geographic self", this paper explores the coalescence of the ways indigenous peoples of Hawai'i carry place in themselves and the political struggle for place. At the advent of large-scale sugar cultivation on the south shore of Kaua'i in the latter half of the nineteenth century, a group of indigenous Hawaiians, Kanaka Maoli, formed a land company in Maha'ulepu to maintain lands in Hawaiian hands. Almost a century later, two more grassroots coalitions were created in efforts to preserve the contested lands of Maha'ulepu. Today, Kanaka Maoli, despite their reticence to join more formal political activity, continue to greatly influence the creation of place through their performance of place at Mahaulepu. Performance is not meant as a display for an audience, but rather as an expressive reflection of place, a way of being in place and doing place. In this way, Kanaka Maoli have played a major role in the ways subsequent settler groups have come to relate to place as well as the significance of preserving places. The roles of the body, spirit, story, sustenance and genealogy as well as pertinent political aspects such as access to place, or lack thereof are significant in approaching place-making in Hawai'i.

Keywords: indigenous peoples, place-making, performing place

Michelle Bussemey, Texas State University-San Marcos. Email: miischist@gmail.com; David R. Butler, Texas State University-San Marcos. Email: db25@txstate.edu; *Analysis of Land-use Change Illustrated through Repeat Photography of the Rio Vista Dam in San Marcos, Texas*

The use of repeat photography as a field method is a practical and simple interpretive tool to show changes in the physical landscape. The purpose of this paper shows the significance of comparing photographs as vital to understanding the temporal change of not only the physical landscape, but also change in the cultural landscape and human impact on a place. The relevancy of repeat photography as a technique in field research is addressed by the growing concerns of urban land-use, changes in the global climate, and the effects of man-made structures on geomorphic and fluvial systems. The employment of this method was used in analyzing the impact of the changes and structural improvements made to the Rio Vista Dam in San Marcos, Texas during the spring of 2006. The severe changes in the surrounding landscape and fluvial processes of the San Marcos River are examined by comparing nine sets of photographs. The results illustrate the drastic change in the riparian landscape, river channel, and public use. The enormous rise in the amount of users to the area is causing congestion in the river, muddiness of the waters, and trash to accumulate in the river and on the shore. The effects the newly constructed dam will have on the endangered gambusia and Texas wild rice could be catastrophic if the amount of users to the area continues to increase. Without proper supervision and restraints, the delicate San Marcos River system will reflect the impact of overuse and overcrowding.

Keywords: repeat photography, land-use analysis, fluvial processes, riparian landscape, field research

Steve Randal Butcher, Kent State University. Email: sbutcher@kent.edu; *Interpreting the Epistemological Stance of the United Nations Regarding Genocide: Nations, Races, Religions, Ethnicities, and the 'Tribe'*

This paper addresses genocide vis-à-vis the process of international discourse. The United Nations has defined genocide as the intent to destroy in whole or in part a national, racial, religious, or ethnic group. Definitions for the four victim group categories and the idea of intent to destroy are purposefully ambiguous. While this ambiguity provides leeway for assessors in the determination of various events as genocidal, which calls for international intervention, it also allows for political maneuvering in the assessment process which delays, and in the case of Darfur, Sudan avoids completely, criminal inquiry and humanitarian intervention. My project investigates the UN's assessment process via the concepts used to define genocide. In particular I review the use of the term 'tribe' introduced in the International Criminal Tribunal of Rwanda. My contention is that the general epistemological stance of the UN adopts an orientalist and primordialist approach to defining African group identity formation, as in the cases of Rwanda and Darfur. Moreover, I forward Doreen Massey's understanding of space as social relations and Kevin Cox's notion of the politics of dependency as an alternative to the UN's apparent theoretical position. My assertion is that geographic thought can shed light on the epistemological and ideological underpinnings of the UN's international politics vis-à-vis its discursive practices regarding criminal tribunals and humanitarian intervention.

Keywords: genocide, united nations, discourse, tribe

David L Butler, University of Southern Mississippi. Email: David.Butler@usm.edu; Perry L. Carter, Texas Tech University. Email: perry.carter@ttu.edu; Owen Dwyer, Indiana University, Indianapolis. Email: odwyer@iupui.edu; *Viewing Historical Sites through the Gaze of the "Other"*

This research examines the experiences of tourists visiting cultural sites in the southern United States. In particular the researchers examine the experiences of "white" visitors to Civil Rights tourism sites and "black" visitors to antebellum tourism plantations; turning classic tourism research of "whites" visiting stereotypical white spaces such as plantations and "blacks" visiting sites ascribed as black sites on its head. The data from the research is composed of hundreds of exit surveys and interviews with tourists at each site in the late 1990s and early 2000s. Through the examination of minorities' views of spaces of servitude, resistance, and freedom a more complex and nuanced view of how tourism sites (mis)represent the historical narrative is found.

Keywords: tourism, racism, civil rights, plantation, museum

David R. Butler, Texas State University - San Marcos. Email: db25@txstate.edu; George P. Malanson, University of Iowa. Email: george-malanson@uiowa.edu; Stephen J. Walsh, University of North Carolina-Chapel Hill. Email: swalsh@email.unc.edu; Daniel B. Fagre, U.S. Geological Survey Glacier Field Station. Email: daniel_fagre@usgs.gov; *Influences of Geomorphology and Geology on Alpine Treeline - More Important Than Climatic Influences?*

The Western Mountain Initiative seeks to identify the key variables controlling treeline at keystone national parks of the west, represented by the primary sites of Glacier National Park on the northeast, Rocky Mountain National Park on the southeast, Sequoia/Kings Canyon National Parks on the southwest, and Olympic and North Cascades National Parks on the northwest. Field examination of treeline at primary sites, as well as at numerous secondary sites (including Mt. Hood, OR; Medicine Bow Range, WY; Niwot Ridge, CO; ranges in southern CO; southern Nevada; and the White Mountains, CA), suggests that climatic influences may in fact be less significant than geomorphic and geologic influences in determining the location and shape of alpine treeline. The hypothetical role of geomorphology and geology in controlling treeline is examined through the presentation of conceptual diagrams based on field observations. The variables of geomorphology (both landforms and processes, recent past and present) and geology (including lithology, structure, and tectonic setting) exert profound influence on the distribution, shape, and elevation of alpine treeline in the American West.

Keywords: Treeline, Geomorphology, Mountains, Western Mountain Initiative

David J. Butler, University College Cork (UCC), Ireland. Email: d.butler@ucc.ie; *Southern Protestants Sidelined?: Perceptions and Experiences in Ireland since 1920*

Irish Protestants played a key initial role in the construction of Irish nationalism; later the logic of empire and communal conflict took precedence and Éire - Ireland was founded by a nationalist movement that was overwhelmingly Roman Catholic. For much of its history, the constitution and public culture of the south heavily reflected RC values, and the Protestants struggled to reconcile their communal narrative with that of the state. However, the dramatic economic and social changes that have taken place in Ireland in the recent period have opened possibilities for the building of new relationships. The empirical focus of this paper centres on two areas of the island of Ireland: West Cork, on the historical frontier of the Munster Protestant community - and North Monaghan ? forming part of the southern frontier of the Ulster Protestant community ? drawing on selected extracts from some 150 interviews gathered as part of a Higher Education Authority (HEA)-funded research project. West Cork and Monaghan saw some of the most serious attacks on Southern Irish Protestants during the War of Independence (1919-21) and Civil War (1922-23). Though many left, a significant community remains in both areas, predominantly though not exclusively on the land. This paper looks at the Protestant community in both areas today, the manner of their integration into the state and nation, and their struggle to reconcile their community narrative with the national narrative of the state and of the majority community.

Keywords: Ireland, inter-church relations, nationalism, identity

Jonathan J Butler, University of Edinburgh. Email: jonathan.butler@ed.ac.uk; Michael Summerfield, University of Edinburgh. Email: mas@geo.ed.ac.uk; Christoph Schnabel, Scottish Universities Environmental Research Centre. Email: C.Schnabel@suerc.gla.ac.uk; Stewart Freeman, Scottish Universities Environmental Research Centre. Email: TooDeep@suerc.gla.ac.uk; Rachel Walcott, University of Edinburgh. Email: Rachel.Walcott@ed.ac.uk; *Bedrock channel erosion rates from cosmogenic*

isotope data: the Augrabies Falls system of the Orange River, South Africa

Quantifying rates of bedrock channel incision is fundamental to understanding rates and modes of long-term landscape development, yet the acquisition of such data has been problematic given the episodic nature of the high magnitude flood events that are likely to be responsible for most bedrock channel erosion. The development of cosmogenic isotope analysis now provides a means of quantifying rates of bedrock channel incision over time scales that are sufficiently long to integrate the effects of high magnitude - low frequency flood events. This approach has been applied to the Augrabies Falls system, the major knickpoint of the Orange River that forms the regional base level for the upper ~650 000 km² of the Orange Basin. As a result of very low base flows (100 m³ s⁻¹ or less, compared with flood peaks of 10,000 m³ s⁻¹ or more) a range of components of the complex landscape of the Augrabies Falls system are accessible for sampling, including the beds of anabranches above the main falls, the rock surfaces of subsidiary falls, interfluvies between channels, exposed rock bars in the middle of the main channel and tributary channels below the main falls. Concentrations of in-situ produced cosmogenic ¹⁰Be and ²⁶Al in quartz from the granite-gneiss bedrock give rates of incision of ~60 mm ka⁻¹ in channels above the main falls, while the channel in the gorge below the falls is downcutting at a rate of ~6 mm ka⁻¹. Interfluvial denudation rates are ~5 mm ka⁻¹.

Keywords: Geomorphology, cosmogenic isotopes, South Africa

Ruth Butler, PhD, Univesity of Hull, UK. Email: r.e.butler@hull.ac.uk; Buses, Bodies and Bureaucracy: reconsidering accessible public transport

Inaccessible transport has been identified as contributing significantly to the barriers which confront disabled people in mainstream education, employment, and social and leisure activities. Despite this, research into accessible transport has been limited in volume and scope. Much has concentrated on the physical infrastructure of transport networks. Often taking a medical model and/or technological determinist approach it has sought solutions to individual's impairments. It has also focused primarily on people with mobility impairments, failing to acknowledge the full range of people's needs. This paper reassesses the issue of accessible public transport in a more holistic manner. Considering recent debates about the nature of the 'social model' of disability, it looks at the impact of different impairments, the social discourses with which individuals must interact and the power of large scale institutions and economic structures on disabled people's experiences of public transport. Drawing on empirical data from the UK, the paper points to how social, economic and political factors impact upon physical design, customer care, transport policy and service providers' practices. It concludes that there need to be sustained cultural and attitudinal, as well as physical changes to transport services, at both a local and national level, if they are ever to be truly accessible.

Keywords: Disability, Public Transport, United Kingdom

Tim Butler, King's College, London. Email: tim.butler@kcl.ac.uk; Chris Hamnett, King's College London. Email: chris.hamnett@kcl.ac.uk; Education, Aspiration and Gentrification - a variable geometry?

There is now a widespread literature, in the sociology of education, on parental strategies in which it is generally assumed that gentrifiers are active and successful choosers of the best education available in their respective urban markets. In this paper I question the strength of this claim. Drawing on recent research being conducted in East London amongst gentrifiers from a range of social, economic and ethnic backgrounds, I argue that different groups often pursue very different education strategies. The most affluent, living in elegant housing convenient to where they work but in areas with poor educational provision, simply do not see state provision as providing for their needs. On the other hand, middle class households in lower level, usually state, professional employment often accommodate both to their children's desire to go to a 'local school' - although both children and parents will avoid what they see as the 'rubbish schools'. This *laissez faire* approach however contrasts strongly with that adopted by many respondents from a minority ethnic background whose aspirations for their children are aggressively oriented towards upward social mobility. For this group, the prime requirements are not only schools with a good attainment record but ones in which the peer group will not act as a drag on their children. This is often articulated in ethnic terms. These variations imply that there is no simple elision in London between gentrification and the generation of public policy at least in reference to education policy.

Keywords: Education Public_Policy Gentrification London

Anya Butt, Central College. Email: anya.butt@central.edu; Where have all the geography courses gone? An analysis of programs at Iowa universities and colleges

There are approximately 40 private colleges, 20 community colleges and 3 public universities in Iowa. For a state with a population of approximately three million people, around 13% of whom are between the ages of 15 and 25, this

represents a relative high level of access to higher education. Counterbalancing this opportunity is the reality that many of these are specialized colleges (theological seminaries or focused on professional programs). While some institutions may have offered geography majors in the past, the heyday of geography as a discipline in Iowa seems to have passed. At present it is only possible to major in geography at two public universities and one community college, with the opportunity for a minor in geography at one private college. Many institutions do offer a number of geoscience related or cultural geography related courses, either through environmental science majors or, less frequently, global studies programs. While higher education institutions do not offer specific programs in geography, the education programs at the same time require a number of geography courses for the middle school endorsement, which presents a conundrum regarding the importance of geography in our educational systems. This presentation examines what, among this multitude of educational institutions the status of geographic education in the state of Iowa at the college level is, by looking at course offerings in geography, environmental science and requirements within the education major for a geography/social science teaching endorsement, as well as address the impact of GIS on curriculum development in these areas.

Keywords: higher education, college curriculum, environmental science, GIS, education endorsement

Bilal Butt, Michigan State University. Email: bilal@msu.edu; Grazing on the Edge: Pastoral Livestock Movements and the Etiology of Grazing Conflicts Around Protected Areas in Southern Kenya

Pastoralism is often described as one of the most efficient land use strategies in rangeland environments. Over the last half-century, pastoralists in East Africa have faced a series of land reductions, which have altered patterns of mobility and increased vulnerability to environmental change. One of the unanswered questions in these human-environment interactions is: What role do protected areas play in influencing the livelihood strategies of pastoralists who live along the borders of protected areas? The purpose of my dissertation research was therefore, to understand the livestock herding strategies of pastoralists who reside at the periphery of protected areas. Two research objectives were addressed to achieve this purpose. First, I sought to determine the patterns and driving processes of livestock mobility within and around protected areas. Second, I attempted to understand and contextualize the conditions under which conflicts between pastoralists and protected area managers take place. This research integrated theoretically plural perspectives on the cultural, economic, political and socio-environmental processes of resource access and control by pastoralists. These theories, combined with multi-method fieldwork (geospatial techniques, key informant interviews, oral histories, herd follows and household surveys) provided empirical evidence about the contemporary herding strategies of Maasai pastoralists around the Maasai Mara National Reserve (MMNR) in southern Kenya. This paper will illustrate the spatial and temporal dimensions of livestock grazing around a protected area and explicitly assess and contextualize the patterns and processes of livestock mobility to the outcomes of violent conflict between herders and protected area managers.

Keywords: political ecology, Kenya, protected areas, livestock, pastoralism, conservation, development

Charles E. Button, Ph.D., Central Connecticut State University. Email: buttonche@ccsu.edu; Scales of Soil Lead Contamination, Class and Race

Although the negative health effects of lead ingestion by children under the age of six has been well established, it is still an ongoing problem in the United States. In 2001 the Centers for Disease Control indicated that nearly one million children living in the United States have lead levels in their blood that are high enough to cause irreversible damage to their health (CDC 2001). This research expounds on previous research that was conducted at child day care centers in the greater Cincinnati area and discusses associations between soil lead contamination, race and class at micro- and macro-scales.

Keywords: class, contamination, lead, race, soil

Kenneth J Button, George Mason University. Email: kbutton@gmu.edu; Henry Vega, George Mason University. Email: Hvega@gmu.edu; The Effects of Air Transportation on the Movement of Labor

The effects of the deregulation of airlines markets and the new technologies that have been introduced into air transportation have been heavily studied. Much of this analysis has been on the impacts on the industry and the immediate welfare implications for passengers and, to a lesser extent, cargo consignors. This study looks at the longer-term effects of the modern air transportation system on labor markets and labor migration. The growth of the service sector, the emergence of more flexible manufacturing techniques, the reduction in trade-barriers, and the creation of more sophisticated financial markets has led to greater mobility in production and in capital movement. This has been explored to some extent. Labor is, however, also more mobile - for example since the

admission of Poland to the European Union some 465,000 of its worker have joined the UK labor market. Air transportation facilitates easier migration, makes it possible for short-term migration, and allows migrants to maintain contact with their home country. Within larger countries, such as the US, there has also been a growth in long distance "week-day" migration as spouses work in different parts of the country to be reunited at weekends. The empirical analysis makes use of aggregate data to look at trends in international labor movements and provides case study-based analysis on the impact of air transportation within the US.

Keywords: Air Transport, Labor Migration

Kent Hughes Butts, Ph.D, Army War College. Email: kentbutts@yahoo.com; *Energy and Geopolitics: the Case of China's Minerals Quest*

This paper focuses on the rise of the Chinese economy and its growing requirements for energy and strategic mineral resources, examines the inter-agency strategy that China applies to obtain its mineral imports and explores the significant geopolitical implications of this strategy. The Chinese economy grew by 10.9% in the first half of 2006; China's energy demand rises approximately one percent less than economic growth. China's steel consumption rose 35% compared to a year ago and its rising mineral demand has driven up the price of copper by 37% and oil by 33%. Moreover, China's mineral policy stresses owning the resource not buying it for the highest price on the world market, as does the United States. As a result China has bought mineral concessions in many areas of strategic importance to the United States; this practice gives China leverage over the behavior of the resource owning states and a stake in their security interests. For example, China has invested 100B in the Iranian sector and already gets 11% of its oil from Iran, it is highly unlikely that China would support meaningful National Security Council sanctions against Iran, and refused to support similar sanctions against the Sudan, from which it obtains 5% of its oil. Future tensions between the US and China over its minerals acquisition policy are possible.

Keywords: Energy, Resources, China, Geopolitics

David Butz, Brock University. Email: dbmarley@brocku.ca; *Tourism and Porterage Labour in Shimshal, Northern Areas, Pakistan*

This presentation provides an overview of how trekking porters in the village of Shimshal, Northern Areas, Pakistan understand the challenges of working as labourers in a transcultural tourism economy, and situates their understandings in the context of contemporary tourism in Shimshal. A typology of ten important 'dimensions of concern' is presented. The presentation concludes by outlining the efforts of the Shimshal Nature Trust (SNT) to manage tourism in the community in ways that deal with the issues about which porters are most concerned.

Keywords: tourism, mountain communities, labour

Stephanie A Buway, University of Oklahoma. Email: sbuway@gmail.com; *Renewable Energy Education and Awareness in Oklahoma*

Creating an energy independent nation by using our own domestic energy sources is a main goal in the United States today. From adding ethanol to gasoline to reduce our oil imports to installing solar panels on our rooftops, the quest for energy independence is gaining momentum. Where do the children of our future fit into this revolution? They will be the ones who vote on future environmental legislation and control the way the country uses its energy resources. Educating our children while they are still young will allow them to grow up with the proper environmental knowledge necessary to lead the country responsibly. As such, there is a strong push in schools today for better energy related curriculum. Therefore, I intend to determine the level of renewable energy education and awareness in the state of Oklahoma. I will have distributed a survey to high school teachers and students across the state of Oklahoma. The surveys will contain questions such as: What do you already teach/know relating to renewable energy? What would you like to see taught in the classroom regarding renewable energy? Are the students aware of the changes they can make in their own lives to conserve energy? After analyzing the surveys, I would like to make the Oklahoma school system aware of the pressing issues related to renewable energy in the state by providing suggestions for curriculum improvement as well as to make students aware of their energy future.

Keywords: renewable energy, environmental awareness, geographic education

Stefan Buzar, Dr, University of Oxford. Email: stefan.buzar@chch.ox.ac.uk; Anett Steinfuehrer, Dr, Centre for Environmental Research Leipzig-Halle. Email: ; Annegret Haase, Dr, Centre for Environmental Research Leipzig-Halle. Email: ; *Significant invisibles: flat sharers as drivers of inner-city transformation in Europe*

Flat sharers have emerged as one of the most distinct representatives of

'new' household types in developed world cities. But despite their widespread existence for some decades now, they have been marginalised both in official statistics and in housing studies. In this paper, we shed some light on flat sharing households within European inner-city areas. We discuss their entrance into the 'mainstream' of contemporary urban lifestyles. Flat sharing today is a form of collective housing of at least two childless, usually younger persons in a similar position in the life cycle. Sharing the flat and the housing costs is the basis of their relationship, but living together is a further motivation. By using survey data from recent on-site research across Europe, we discuss the spread, actors and subjective meaning of flat sharing, as well as its role in inner-city reurbanisation processes. The reviewed evidence indicates that flat sharers - though to a varying degree in different locales - visibly transform the demographic and social landscapes of European inner cities.

Keywords: flat-sharing, households, lifestyles, population geography, Europe

Michael Buzzelli, Queen's University. Email: m.buzzelli@queensu.ca; *Vulnerability and environmental justice: A spatial analysis of ambient air pollution*

This paper is concerned with developing and refining the science of environmental health hazard exposure analysis and providing new substantive insights into the micro-geographies of risk inequities. Land use regression (LUR) is used to assign annual average exposures of criterion pollutants (NO₂, NO, NO_x) to neighbourhoods in Toronto and Vancouver, Canada, and explore associations with sociodemographic characteristics. Based on comprehensive sampling campaigns (2003), validated high resolution spatial analysis shows that regulatory ambient monitoring can significantly under-represent air pollution exposures. The micro-geographies of exposure in this study also point to nuanced, and sometimes unexpected, relationships between neighbourhood socioeconomic status and chronic air pollution exposure. Accordingly, this paper joins a growing environmental justice literature outside the US that points to a range of relationships between environmental health hazards and socioeconomic markers beyond the traditional focus on race and low income communities.

Keywords: air pollution, land use regression, Toronto, Vancouver

Andrew Byerley, Department of Human Geography, Stockholm University. Email: andrew.byerley@humangeo.su.se; *The Colonial African Housing Estate: Strong Points in the Post-WWII Colonial Diagram of Power.*

Before WWII there was no planned 'African' urban housing and few industrial jobs in Jinja, Uganda. By the mid-1950s a large 'industrial complex' had been assembled comprising a dam, industrial work places, housing estates, and associated physical and social infrastructure/institutions. This transpired in a town and in a territory that, in the estimation of the creators of this 'model-modern' project, was deemed unsuitable for manufacturing industry. What ideas was this project produced from and in relation to? How and why were populations to be 'de-tribalized', socio-spatially canalized, and their relations re-coded? Jinja Town is analysed in terms of having constituted a strong point with shifting functions in a series of contested diagrams of power. Certain spatial enclosures and agents are examined in terms of having risen/fallen in terms of their deemed efficiency in actualising specific lines and modalities of power; the "African" housing estate, the "Asian" and the "Chief" being important among these. Drawing from the theoretical work of Foucault and Deleuze/Guattari, and based on lengthy ethnographic fieldwork, I analyse the colonial production of space and the making and becoming of place. This is channelled through a historical and spatial analysis of the Walukuba 'African' Housing Estate, built between 1949 and the mid-1950s. I examine this estate as having been a key disciplinary space in the transition from the pre-W.W.II sovereign diagram of power to a more disciplinary and subsequently bio-political diagram in the post W.W.II era. The paper further seeks to problemize the endeavour of 'doing Foucault in Africa'.

Keywords: Space, place, diagrams of power, colonial planning, de-tribalisation, bio-politics, Jinja, Uganda

Robyn Byers, Towson University. Email: robyn.byers@gmail.com; *Evaluating Chesapeake Bay Policy Implementation in Accomack County, Virginia*

Accomack County, Virginia, is a rural, but rapidly developing county on the Delmarva Peninsula between the Atlantic Ocean and Chesapeake Bay. In 1989, the Chesapeake Bay Preservation Area Ordinance was adopted in Accomack County, detailing steps for development within the Chesapeake Bay Preservation Area, roughly half the county. Implementation of this ordinance is a combination of permitting and site visitation. This paper evaluates the implementation of this ordinance using the number of site visits conducted over a six-month period in relation to the development permits that were approved. Databases from the county detail the permit information and the site visit information. Less than 30% of the permitted sites were visited during the three development phases: pre-development, development, and post-development. The sites visited were largely sites that received complaint calls by the public. Accomack County's

lack of support for additional staff notably impacted the implementation of this ordinance; only one staff member was responsible for all of the permitting and field visitations for this ordinance. The large number of sites not visited during construction will likely lead to the inefficient use of Erosion and Sediment Control measures and other Best Management Practices throughout the Chesapeake Bay Preservation Area.

Keywords: Chesapeake Bay; Erosion; Sedimentation; Water Quality

Karl John Byrand, University of Wisconsin-Sheboygan. Email: karl.byrand@uwec.edu; Promoting Visitor Experiences at Yellowstone's Upper Geyser Basin, 1872-1990

Cultural landscapes within national parks are not islands immune to change. They are dynamic in the sense that their cultural features have evolved to reflect transformations of external influences. Rather than being isolated, they have been molded by American culture, the national park idea, and even marketing ploys. The cultural landscape of Yellowstone's Upper Geyser Basin, the area encompassing Old Faithful Geyser, is no exception. It too has been shaped by the larger regional and cultural milieu, which in turn has generated changes in the visitor experience. Since the park's inception, the Upper Geyser Basin's landscape has been promoted widely to visitors by park overseers and concessionaires. Through time, different elements of this national park landscape were promoted not only because of the changing wants and needs of those who would visit, but also because of park administrators' changing ideas of the national park experience. As such, different "selling points" were emphasized during different stages of park development. The result of this was the creation of a cumulative, yet changing visitor experience. Travel brochures and guidebooks promoting the Upper Geyser Basin and diaries of those who have visited serve as indicators of the landscape that was sold to the visitor compared to the landscape actually experienced. These sources have revealed four distinct periods of landscape promotion of the Upper Geyser Basin between 1872 and 1990, which will be discussed in this paper.

Keywords: Historical Geography, cultural landscape, national parks

Kristin B. Byrd, University of California, Berkeley. Email: kbyrd@nature.berkeley.edu; Adena Rissman, University of California, Berkeley. Email: arissman@nature.berkeley.edu; Adina M. Merenlender, University of California, Berkeley. Email: adina@nature.berkeley.edu; The Effectiveness of Conservation Easements: Assessing Development Threats in the Lassen Foothills, California, with Uplan, a GIS-based Urban Growth Model

Land trusts have been acquiring conservation easements in greater numbers across the country in order to meet their conservation missions. However few studies have addressed the ecological and social outcomes of conservation easements. Our study addresses the question: To what extent are conservation easements effective in reducing existing threats to biodiversity, specifically from development? The Lassen Foothills region in Northern California served as a case study, as it contains endemic oak woodlands subject to subdivision, and The Nature Conservancy holds a cluster of conservation easements there. Our approach was to determine what future development might occur in the region if present-day conservation easements were non-existent. Since the study area is primarily located in Tehama County, we developed a scenario of future development in the county using the application Uplan, a GIS-based urban growth model developed at the University of California, Davis. We chose Uplan because it can project low-density rural residential growth, the development type most likely to affect the Lassen Foothills region. Consequently our results focus on projections for this land use category. Based on population predictions and present-day population distributions, by 2050 the demand for new low-density rural homes is about 560 lots over 90,000 acres (assuming a minimum lot size of 160 acres). This low demand can be met by land available for development, even with easements present. Based on the model, easements do not reduce development threats in this case, but they serve to push development away from the foothills and closer to the Central Valley.

Keywords: conservation easement, urban growth model, rural residential

Néstor D. Cabral Antúnez, Universidad Nacional De Asunción. Email: caan_9495@yahoo.com; Mapa Base Del Proyecto Uso Sostenible Del Sistema Acuífero Guaraní en Paraguay - SAG-PY

En el presente documento se exhiben los trabajos cartográficos realizados en el marco del Proyecto llevado a cabo entre la Secretaría del Ambiente (SEAM) del Paraguay y el Instituto Federal de Geociencias y Recursos Naturales (BGR) de Alemania. Este proyecto, denominado SAG-PY, contribuye como piloto al proyecto "Protección Ambiental y Desarrollo sostenible del Sistema Acuífero Guaraní" financiado por el GEF, a través de la OEA. El Proyecto SAG-PY está actualmente en fase de ejecución y requirió de la elaboración de un mapa base del área de estudio para facilitar el manejo y la normalización de los datos cartográficos georreferenciados y de un mapa Hidrogeológico del área de estudio

actualizado para el conocimiento actual de la hidrogeología a nivel regional. Estos mapas serán utilizados como input en la elaboración de un modelo numérico de la zona de estudio, por otro lado, el proyecto GEF también requirió de un mapa base del Sistema Acuífero Guaraní (SAG) a fin de satisfacer las necesidades del Sistema de Información del Sistema Acuífero Guaraní (SISAG), actualmente en fase de elaboración, quien proveerá la base técnica para la toma de decisiones con relación al acuífero, aportando el conocimiento básico para resolver problemas actuales y emergentes. Por ello el Paraguay utilizó el mapa base ejecutado dentro del proyecto SAG-PY como producto de contrapartida nacional. La base cartográfica, será volcada en la formulación de un modelo matemático de la zona de estudio, que constituirá una herramienta base para la gestión integrada del acuífero.

Keywords: Acuífero Guaraní; SAG; SAG-PY.

Kirsten Valentine Cadieux, Yale University. Email: kvcad@yahoo.com; Fertile Resistance, Using Normative Garden Spaces to Incubate Critical Urbanism

Remnants of nineteenth century garden city ideology regularly spill into current discussions of urban planning: the idea of the garden as a regulator of urban behavior is evident in calls for the preservation of open space and greenspace in and around cities. This presentation reports on ethnographic work on garden land use in the city and region of Christchurch and Canterbury, Aotearoa New Zealand, where garden suburb planning traditions inform the practices and narratives for shaping urban space. Demonstrating that the impulses to engage in interactions with the natural and cultivated environment often transcend urban boundaries, this work on urban and peri-urban gardens points to processes of exurbanization and examines the interaction of exurban aspirations and contemporary land use management strategies for containing urban sprawl and mediating land use conflicts and competitions in the urban-rural fringe.

Keywords: landscape, urban planning, New Zealand, governmentality, garden

Louisa Jane Cadman, Sheffield Hallam University. Email: Louisacadman@hotmail.com; The topology of the biopolitical decision: the politics of human rights and mental health

In recent years the work of Giorgio Agamben has proved apposite for geographers interested in paradoxical spaces of abandonment and exception complicit with liberal-democracies in the West. This paper focuses on one such paradox: the expanse, yet concomitant failing, of human rights claims in contemporary biopolitical contestations. Complicit with the formation of nation-states Agamben (2000), following Arendt (1973), argues that the so-called sacred and inalienable 'rights of man' are revealed to be without any protection once it is no longer possible to conceive of them as rights of the citizens of a state. This manifests through an inherent failure to protect those who are stripped of everything except that they are human (or bare life) - exemplified by limit figures such as the refugee and, in my focus here, those deemed of unsound mind. Analysed from a Foucauldian perspective however, Agamben's project is unable to grasp the methodological and historical importance of strategic power relations and Foucault's parallel claim that when politics becomes biopolitics (the politics of life), life itself resists? a resistance manifest here through the rise of psychiatric survivors. After outlining this theoretically contestable terrain the empirical part of this paper focuses on those seeking recourse to the Human Rights Act 1998 to contest proposals to reform of the Mental Health Act 1983 in England and Wales. Here I utilise Foucauldian understandings of political agonism to focus more substantively on political decisions over human rights violations contained in the proposals.

Keywords: Agamben, Arendt, Foucault, biopolitics, sovereignty

Caitlin Cahill, University of Utah. Email: caitcahill@gmail.com; Reframing risk: Gentrification, discourse and public policy

This paper considers the relevance of neoliberal discourse and representational practices for public policy and public understanding of gentrification. While there is a well-developed body of scholarship in the field of community participation and development that is pertinent to the grassroots project of challenging gentrification, not enough attention has been given to the role of material social practices of identification, agency, and cultural representations (Wilson & Grammenos 2005; Wilson et al. 2004; Rinaldo 2002). Wilson and Grammenos suggest that a successful anti-gentrification platform must challenge "the assault of real-estate capital on youth bodies head-on and effectively confront virulent constructions of identity and neighborhood" (2005, 309). Racial representations such as "teen moms" or "Lazy and on welfare" function as part of an "at risk" discourse by which young working class women of color are managed and produced?politically, culturally, ideologically, economically, and geographically— in the neoliberal context of the gentrifying/still disinvested Lower East Side neighborhood of New York City. In this paper I report upon the participatory action research project "Makes Me Mad! Stereotypes of young

urban women of color,” in which a research team of young women engage in the “culture wars,” developing an interpretative framework for affirming the right to self-represent (the right to their bodies, identities, and subjectivities) and their right to the city as mutually constitutive. My discussion will consider the policy implications of reframing revanchist racialized discourses and contesting the inevitability of global urban restructuring at the urban scale.

Keywords: gentrification, neoliberal discourse, young women, representations, policy

Qiang Cai, University of Iowa. Email: qiang-cai@uiowa.edu; *Controlling the Spatial Support in Disease Mapping - A Point-Based Approach*

Disease mapping is an important tool in controlling and preventing disease and understanding why some areas suffer greater disease burdens than others. Currently dominant area-based disease mapping approaches are known to suffer three problems: the small number problem, the modifiable areal unit problem (MAUP), and the problem of failing to capture small-scale spatial variation within the mapping areas. These problems arise because of the lack of control of the spatial support of the disease burden measures. This paper proposes a point-based disease mapping method that allows flexible control of the support of these measures. The method is a spatial filter-based method using geocoded disease cases and high-resolution population data. The main advantages of this method are clear rules for selecting spatial support, more reliable disease burden estimates and improved hypothesis testing capability. The method is applied on simulated disease data based on hypothetical spatial distributions of disease risk and high-resolution population data. Results support the stated benefits.

Keywords: disease mapping, spatial support, spatial filter, disease cluster detection

Yongming Cai, Clark University. Email: yocai@clarku.edu; Eugenio J. Marciano, Mount Holyoke College. Email: emarciano@mtholyoke.edu; *Simulation of Dam Break Scenario Using GIS Technique and Hydrodynamic Modeling*

Dam break causes losses of human lives, damages to the infrastructure, and interruption of economic activities. Coes Reservoir, located in North-west of Worcester, Massachusetts, was built in 1885. The design and construction of Coes Dam do not meet today's standards. Simulation of Coes dam break therefore is important to communities downstream for emergency preparedness. The research integrates geographic information systems (GIS) and hydrodynamic modeling to predict possible dam break scenario. The digital elevation model (DEM) and river geometry features, such as stream centerline, cross sections, bank lines, and flow path, were created in GIS environment. The data were used to prepare inputs into HEC RAS. In HEC RAS, unsteady state model was employed for hydraulic calculation. The floodplain boundary, inundation depths, and other outputs were transferred back to GIS for visualization and post-analysis. Federal Emergency Management Agency (FEMA) Q3 flood data were used to verify and assess the results. The results show that the ground topography and the channel shape of the river network significantly impact the spatial pattern of flooding caused by dam break. The integration of GIS and hydrodynamic modeling provides a time efficient way and greatly enhances the capacity in simulating dam break scenario. The study lends its methodology to facilitating emergency response and planning.

Keywords: GIS, Hydrodynamic model, Dam break, Simulation, Emergency planning

David M. Cairns, Texas A&M University. Email: cairns@geog.tamu.edu; Amanda B. Young, Texas A&M University. Email: amandabyoung@geog.tamu.edu; Charles W. Lafon, Texas A&M University. Email: clafon@geog.tamu.edu; Jon Moen, Umeå University. Email: jon.moen@emg.umu.se; *Climate and Reindeer at the Mountain Birch Treeline*

Forest tundra boundaries occur world wide in both Arctic and alpine locations and many have been shown to respond to changes in climate over both short and long time spans. The treeline environments of Fennoscandia are particularly sensitive indicators of climate change. They are of special interest because they occur at the intersection between both Arctic and alpine conditions, and the species that forms the treeline (mountain birch: *Betula pubescens* ssp. *czerepanovii*) is deciduous. Most northern hemisphere treelines are characterized by coniferous trees. Another interesting characteristic of these treelines is that they are impacted by reindeer herbivory. Reindeer herding is an important part of the culture of the local indigenous people (Sami) and consequently the interaction between reindeer and the treeline environment is of interest both scientifically and practically. In this study, we examine the interaction of establishment and growth with climate and herbivore populations at alpine treeline locations in Sweden. We use dendrochronological methods to determine the periods of above average establishment within the supra-treeline zone and investigate growth trends in the supra-treeline birch trees for evidence of the impacts of herbivory

from both reindeer and the autumnal moth. We hypothesize that establishment and growth are negatively affected by the presence of large herbivore populations. Here we present data illustrating the differential responses of treeline birch populations to climate under varying levels of reindeer activity.

Keywords: reindeer, treeline, ecotone

Marcellus Caldas, Michigan State University. Email: caldasma@msu.edu; Cynthia Simmons, Dr., Michigan State University. Email: simmo108@msu.edu; Robert Walker, Professor, Michigan State University. Email: rwalker@msu.edu; Stephen Aldrich, Mr., Michigan State University. Email: aldrich30@msu.edu; *Land Reform and Spontaneous Settlement Formation in the Brazilian Amazon*

Research addressing the causes of forest loss in the Brazilian Amazon has implicated many factors, ranging from the role of markets in the south of Brazil to the size of individual farming households. Much remains to be learned, however, about the social and institutional conditions underlying this massive process of environmental degradation in the Amazon basin. Specifically, poor farmers, who have grown disillusioned with the Brazilian government's promise of land redistribution, have taken it upon themselves to form settlements, or assentamentos. The paper addresses a particular type of assentamento presently affecting the most vulnerable parts of the Amazon forest, which is found on terra devoluta. The goal of the paper is to comprehend the social processes leading to such spontaneously-formed assentamentos through the application of a Logit model. It is hypothesized that spontaneous settlements are a consequence of early land reform policies that created Projetos Integrados de Colonização (Colonization Integrate Program) and stimulated in-migration to the region. Consequently, early migrants have created a second generation of settlers that now seeks its own land.

Keywords: Land reform, spontaneous settlement formation, Brazilian Amazon

Charles A Calhoun, M.A. Candidate, University of Arkansas Geosciences Department. Email: cacalho@uark.edu; John C Dixon, Ph.D., University of Arkansas Geosciences Department. Email: jcdixon@uark.edu; Jack Cothren, Ph.D., University of Arkansas Geosciences Department. Email: jcothren@cast.uark.edu; Janet Dixon, M.S., University of Arkansas Libraries. Email: jbdixon@uark.edu; *Digitization and Web Access of Historic Remotely-Sensed Imagery*

Historic remotely sensed imagery has the capability of offering the academic and research communities a vast amount of information that would otherwise be unobtainable. However, film based collections of imagery are mostly not processed digitally or cataloged and thus are not available to researchers. This project has been designed to investigate methods of cataloging and scanning film based remotely sensed imagery and to create a searchable spatial database to make this imagery available to the scientific community. The imagery processed in this project is from the following platforms: Seasat, aircraft radar, Skylab 2, 3, and 4, aerial photography, and Shuttle Imaging Radar-A. A catalog system was developed to store and categorize the canisters of film. Unique identification codes were used to distinguish the data contained on each roll of film. Scientific methods of scanning were investigated to determine the appropriate settings for scanning the transparency film. Scanning paper ground path maps of the locations of the flights is necessary to georeference the maps to the geographic coordinate system and then digitize the ground paths. Construction of a spatial database was undertaken to preserve the relationship between the film based rolls of imagery and digitized flight paths. The anticipated result of this project will be to permit researchers to select a geographic area, see what type of historic imagery is available for that area, and then download the imagery of their choice.

Keywords: remote sensing - historic, radar, gis, scanning - scientific

David A Call, Syracuse University. Email: red10dc@yahoo.com; *Impacts Associated with Ice Storms: The Shocking Truth*

Ice storms caused more than \$16 billion in insured losses from 1949 through 2000, and this arguably represents less than 20% of the total cost to the United States. However, the impact assessment for ice storms is incomplete. Researchers tend to focus on an analysis of particular sectors (e.g., insurance, forestry) and miss the larger picture. What are the primary impacts of ice storms? How have they changed through time? Are there differences between regions of the U.S.? Based on a study of major storms occurring from 1886 to 2006, I argue that the loss of electrical power, along with its associated indirect impacts, is far and away the most disruptive and longest lasting impact of an ice storm. While the inter-regional differences in impacts are small, I claim that rural areas are more likely to suffer longer power outages and transportation disruptions. Finally, I will conclude with a discussion of ways to reduce the impacts of ice storms.

Keywords: ice storm, impact assessment, hazards, severe weather climatology

Eduardo Camacho-Hübner, GIS Research Laboratory - Ecole Polytechnique Federale de Lausanne - Switzerland. Email: eduardo.camacho-huebner@epfl.ch; *Understanding the Territory as a Semantic Tool for Analysing Historical Processes*

In this paper, we deal with an original methodology developed in order to analyse urban morphological processes. This analysis is chiefly based on the construction of digital ontologies to formalize the concept of morphological process. We discuss three different issues linked to this formalization. First, we examine the interpretive approach, which is in the straight line of historiography. The historical paradigm leading to this approach is used to build a GIS-based tool for exploring urban morphological processes from archival and historical cartographic data instead of producing new data from predictive formulae. Second, we investigate the links between descriptive and explanatory concepts found in the morphological literature by extracting geographical knowledge from archival sources. These networks are called digital ontologies and are built using the archival information of the city of Geneva (Switzerland). Third, we show how the analysis of the resulting semantic networks helps us unveil transformation processes based either on the evolution of data or the evolution of concepts. The former are called instantiation processes and deal with transformations observed directly from data changes. The latter are called meta-processes and represent the evolution of the perception of the city through History. Finally, the generalization of this methodology is discussed in order to explore other fields in which geographical knowledge can be interpreted as the relationship between data and concepts in a given context as, for example, political science and economics.

Keywords: Digital Ontologies, Process, History, Geneva-Switzerland

Emilie S Cameron, Queen's University. Email: 4esc@qmlink.queensu.ca; *'Hidden Place': Race, Nature, and the Politics of Spectrality*

This paper will critically examine the proliferation of haunting metaphors in the humanities and social sciences over the past decade or so, and particularly their mobilization within explicitly post- and anti-colonial contexts. Increasingly, scholars are conceiving of indigeneity in spectral terms, often as a way of conceptualizing indigenous presence in places that non-indigenous peoples had previously constructed as empty or in which indigeneity had been imagined to be expelled, lost, or forgotten. Inspired in part by Derrida's notion of 'hauntologies', some scholars pursuing the spectral are interested in calling attention to that which 'haunts' dominant ontologies and, to that extent, the recovery of indigenous 'ghosts' can be understood as a politically progressive effort to identify the ongoing and constitutive presence of indigenous peoples in settler colonies. And yet there are risks involved in conceptualizing indigenous peoples in ghostly terms, and this paper will elucidate some of those risks through consideration of the ghost stories animating a wilderness park in southwestern British Columbia.

Keywords: haunting, postcolonialism, indigeneity

Laura J. Cameron, Dr., Queens University. Email: cameron@post.queensu.ca; *Freud in the Field: Some Early Twentieth Century Encounters in Participant Observation*

Participant observation currently is understood as a key method in the human geographer's tool kit, yet little geographical attention has been directed to its history. Anthropologist Bronislaw Malinowski often is credited with creating the revolutionary immersive approach to culture (which later became known as participant observation) when he lived with Trobriand Islanders during the period of the First World War. In this paper, the emergence of participant observation is situated in what Buzard terms the "turn-of-the-century maelstrom" of self-conscious imperialism and the "deliberate blurring of boundaries between investigator and object" in a wide range of discourses including Freud's recognition of "transference" situations. Malinowski's famous encounter with psychoanalysis is explored in relation to his fieldwork approach, but also in terms of his interactions with British publishers and the distinctive way in which Freudianism was received in Britain. The paper concludes by outlining how the repudiation of Freud would become key to anthropology's boundary-work and begins to reflect on potential geographical connections and consequences.

Keywords: psychoanalysis, participant observation, Malinowski

Nairne Cameron, University of Alberta. Email: nairne.cameron@ualberta.ca; Karen E. Smoyer-Tomic, University of Alberta. Email: karen.tomic@ualberta.ca; Carl Amrhein, University of Alberta. Email: carl.amrhein@ualberta.ca; Vladimir Yassenovskiy, University of Alberta. Email: vsi@ualberta.ca; *Oil-for-Food: Energy, Equity, and Evolution of Urban Supermarket Locations*

An era of cheap oil in the last half of the Twentieth Century has influenced the urban form and infrastructure placement in many North American cities, including de-population of inner city areas and suburbanization of populations. This paper examines grocery retailing locations as an indicator of changes in

urban form and function coinciding with the mass use of oil energy. A case study of Edmonton (Alberta, Canada) analyzes supermarket chain locations 1970-2001 in relation to changes in socio-economic characteristics of city census tracts. In Edmonton, supermarkets have expanded to the suburbs at the same time as some supermarkets in mature areas of the city have closed. Supermarkets are now beyond a walking distance of much of the population, leaving the urban retail food distribution system heavily dependent on external energy sources. Given that food is a basic need that must be consistently satisfied, what are the health, social, and environmental implications of the current configuration of urban supermarkets?

Keywords: food retail, sustainability, equity, energy, supermarkets, health, urban, Canada

Michael Camille, University of Louisiana at Monroe. Email: camille@ulm.edu; Patty Watts, University of Louisiana at Monroe. Email: watts@ulm.edu; *DAMSALS2 ITEST Project- Year Two Results*

The Mississippi Delta has the highest poverty rates and greatest degree of illiteracy in the U.S. While current information indicates that nationally the digital divide is narrowing, lagging far behind other groups are African-Americans, rural residents, persons of low socioeconomic status, and single parent families? a perfect description of the demographics of the Delta. The DAMSALS2 NSF ITEST project at the University of Louisiana at Monroe, is helping teachers, many of whom lack even the most rudimentary technology skills, begin to provide students with skills needed to prepare them for technology intensive careers?including those in agriculture. The professional development model used by the DAMSALS2 project consists of an intensive three-week institute for teachers followed by weeklong science/technology camps for students. These camps allow teachers to practice new skills in a non-threatening atmosphere with the support of their peers and project staff. During the academic year, participants are supported in the implementation process by classroom visits from project staff, on-line Blackboard interactions, and face-to-face meetings. The purpose of this presentation is to measure the project's impact on the participating teachers as well as their students. The evaluation plan designed for the project measures content knowledge, technology skills, and attitude changes of participants and their students, as well as classroom behaviors of teachers. There is credible evidence that the DAMSALS2 project is positively impacting both teachers and students. Increases in teacher technology skills and content knowledge appear to have been transferred to the classroom to result in increased student achievement.

Keywords: K-12 education, technology, Louisiana

Richard Campanella, Tulane University. Email: rcampane@tulane.edu; *Post-Katrina: Observations of a New Orleans Geographer*

Many geographers nationwide weighed in on the analysis of Hurricane Katrina and its aftermath in the season following the August 2005 catastrophe. Fewer have followed the slow and nuanced recovery process since the incident faded from national headlines, and even fewer geographers have participated in it, far outnumbered by urban planners and architects. This paper offers some observations of a New Orleans-based geographer and long-time city researcher who has been heavily involved in post-catastrophe recovery efforts. Topics will include: ? how Katrina's floods reintroduced New Orleanians to their own historical geography; ? how philosophies regarding science, engineering, culture, and humanism contest proposed locations of the "build/no-build line;" ? how and why Katrina's floods affected locally born citizens differently from transplants, and what this might mean for the future of "local culture;" ? how numerical data are used to substantiate preconceived relationships between the geographies of environmental risk and race/class; ? how one poorly made GIS map initiated one of the largest grassroots neighborhood-planning efforts in recent memory; ? how "green space" became a verb?and a dirty word; ? how narratives of cultural exceptionalism versus national assimilation, though incompatible, are nevertheless tapped simultaneously to justify and carry out rebuilding; ? how Katrina may affect popular perceptions about New Orleans' exceptionality.

Keywords: Katrina, New Orleans, Louisiana, hurricanes, disaster recovery, planning

David Campbell, Durham University. Email: david.campbell@durham.ac.uk; Marcus Power, Durham University. Email: marcus.power@durham.ac.uk; *The Scopic Regime of 'Africa'*

Visual performances are central to the construction of 'Africa' in the European imagination. Established over time, these performances reduce the plurality and hybridity of a place comprising nearly 900 million people, 57 countries and numerous cultures to a single entity marked by an iconography of despair, disaster and disease. This enactment of 'Africa' renders it, in particular places and at particular times, as an object of colonialism, imperialism, military intervention and humanitarianism. This paper will examine the historical production of 'Africa' through the varied technologies of vision (colonial

exhibitions, historical photography and contemporary photojournalism, cinema and virtual reality games) that comprise a 'scopic regime' which enacts the object it claims to describe.

Keywords: geopolitics, visibility, Africa

Hugh Campbell, CSAFE- University of Otago. Email: hugh.campbell@otago.ac.nz; Julia Hobson Haggerty, PhD, CSAFE - University of Otago. Email: julia.haggerty@stonebow.otago.ac.nz; *Reconsidering "Grass-Fed": The exposure(s) of pastoral agriculture in New Zealand and the resilience of farmers, pastures and animals*

This paper considers the environmental history of pastoral production in New Zealand with regards to the linkages between neoliberalism and intensification, two critical forces shaping the global pastoral landscape in the latter part of the twentieth century. While neoliberalism has been linked with the intensification of pastoral production in parts of the global South, in New Zealand, the influence of neoliberal economic strategies on the socio-ecological dimensions of farming converged with a long-standing history of intensification of pastoral farming systems. Intensification has been such a successful response to agricultural deregulation in New Zealand that along with commodities, the country's farming systems themselves are now being imported to places with more extensive production systems. Through a regional case study of the Southland province informed by farm-level oral histories and agricultural census data, this paper considers the socio-ecological dimensions of two critical transformations in pastoral farming in the years since World War II: the first marked by state intervention, the latter by state abdication. We describe transformations in pastoral farming with an emphasis on the ways in which elements in the regional farm landscape accommodated and/or resisted the trend toward intensification of pastoral production. Our linkage to a broader discussion of "what's new about neoliberalism?" is achieved through our consideration of the differences in agro-ecological resilience in two radically different governance contexts affecting intensification of the pastoral landscape.

Keywords: New Zealand, Neoliberalism, Ranching, Farming, Governance, Environmental History

Lisa M. Campbell, Duke University. Email: lcampbe@duke.edu; *Bottoming Out on Baselines: Scientific Uncertainty, Authority, and Morality in Ocean Policy and Management*

In 1995, fisheries scientist Daniel Pauly coined the term 'shifting baselines syndrome' (SBS), referring to the tendency of fisheries scientists to envision stocks as 'recovered' when they reach levels scientists recall from earlier in their own lifetimes. As a result, Pauly argued that scientists mismanage stocks because they tolerate gradual and incremental elimination of species, set inappropriate recovery goals, and use the wrong reference points when calculating costs of economic losses due to overfishing. The concept of shifting baselines is simple and its logic is compelling, and this helps to explain its widespread popularity in fisheries and other ocean sciences, in both the academy and among policy makers. This paper draws on social studies of science and political ecology to examine the conceptual and operational implications of SBS for ocean policy, and the less obvious but perhaps more important prescriptive and normative implications and assumptions. Using a case study fishery in the Caribbean, the paper considers how the 'science' of SBS can mask the policy preferences of the scientists and managers interested in identifying the 'real' or 'natural' baseline. Overall, the paper argues that the normative and prescriptive assumptions underlying SBS currently limit the contribution it will make to improving ocean management.

Keywords: political ecology, science studies, oceans, fisheries

Stephanie A. Campbell, Simon Fraser University. Email: sac1@sfu.ca; *Living the livable city*

Livability, as a politically powerful concept, is increasingly invoked in contemporary urban planning. Inherently geographical, livability discourse is often deployed in support of mixed-use neighborhood development projects within larger, city-region plans of constructing the livable city. However, a shallow conceptualization remains of the social, economic and political implications of the conceptual and practical linkages between 'livability' and 'neighborhood' that are made in contemporary urban policy. In this paper, I consider how livability discourse is mediated between the social and physical production of contemporary urban neighborhoods through one neighborhood in Vancouver, British Columbia. Often referred to as The Drive, this neighborhood has been identified by city planners, its residents, and other Vancouverites as an example of the livable neighborhood through its various characteristics, including the central location within the city-region, a mixture of commercial and residential uses, green spaces, walkability, and connections to multiple modes of transportation. These physical characteristics are argued to foster a vital characteristic of the livable neighborhood, a sense of community. This notion of the livable neighborhood informs three interrelated processes: (1) the production

of the neighborhood built environments, (2) the consumption of the neighborhood, and (3) neighborhood-oriented strategic activism. I argue that, through these processes, the shaping of socio-spatial inequality ranging from the scale of the neighborhood to the city-region can be explored, and the role of the neighborhood as the building block of the livable city can be critically evaluated.

Keywords: livability, neighborhood

Jessica Campos, The University of Arizona. Email: jrcampos@arizona.edu; *Practicing Borderless/Transnational Solidarities Through US-Mexico Grassroots Resistance Networks*

How are collective transnational coalitions and solidarity actions formed and practiced? Doing participatory action research, I worked with a local (Tucson, Arizona), collectively organized group that is engaged in the movement to resist the negative economic, social, and environmental pressures of the globalized economy. This US-Mexico coalition spans from Southeastern Mexico to Minnesota moving through the already existing networks of indigenous resistance circles. One project that is moving through these circles is a 'Coffee Project' (Café Para la Vida Digna/ Coffee for a Dignified Life) that worked its way from an 'Autonomous Zapatista Municipality in Rebellion' in Chiapas, Mexico to the United States. The coffee cooperative established the autonomous economy in order to create a self-sustaining income to fund education centers and health clinics. While the physical details as to how the coffee has moved through the network must remain clandestine, I explore the social/collective organizing that has begun to take shape in Tucson, Arizona. The main objective of the group is to stand in transnational solidarity with the group in Chiapas as they work together to find ways to create social change. The group believes that social change not only starts on an individual level, but also within social relations. As such, the network practices an organization that is collective. Tracking the collective organizing of the group has revealed much in the way of 'how work gets done' in an environment where all parties involved have a voice.

Keywords: autonomous economy, collective organization, us-mexico, transnational

Sarah G Cant, University of Plymouth. Email: sarah.cant@plymouth.ac.uk; *Creative togetherness: passions and spaces in improvisation*

Improvisation 'is a way of working spontaneously in response to whatever is happening? essentially the end point is unknown until it arrives' (Tufnell and Crickmay, 2004:289). This paper draws together creative cultural geographies, geographical knowledges of practice and performance, and participation in dance and experimental theatre to examine improvisation as a specific mode of creative practice. 'Working with attention to the moment by moment emergence of what is coming to form' (ibid.), improvisation draws attention to the multiple possibilities for action, space and response, from which many alternative choices may be made or intuitions revealed, instead of fixing upon a preconceived outcome. Improvisation permits the unexpected, playfulness and passions, revealing wider social and spatial impacts for improvisation as a creative practice. This paper explores the potential for improvisation as a creative geography. Specifically, the paper pays attention to the heightened senses and spaces of attachment and creativity that emerge when two people work together closely within the context of improvised performance; working relationships may be caught finely within differentiated intensities and subjectivities, affecting balances of power between individuals, and subsequently the feel of the work, the creative process, performance and relationships between selves and spaces. Roles of leading, following and co-incidence are examined, addressing moments of otherness, strangeness and a politics of difference occurring/emerging between two people. Attention to gendered subjectivities and balances of power, present through unspoken dialogues, suggest an ethics of the passions may be present within improvised creative practices.

Keywords: Cultural geography, improvisation, performance, creativity, passion

Samuel Cantu, Texas A&M University-Kingsville. Email: s0n474_4rc71c4@hotmail.com; Jaehyung Yu, Texas A&M University - Kingsville. Email: kfjy000@tamuk.edu; Marshall Saenz, Texas A&M University - Kingsville. Email: dsmaster2000@yahoo.com; *Monitoring Land-use/Land-cover change of South Texas during post-NAFTA years using Remote Sensing and GIS techniques: a Case Study of Weslaco, TX*

Since the North American Free-Trade Agreement (NAFTA) in 1994, it has been clear that NAFTA has had profound effect on US economies as well as US-Mexican environment. South Texas, due to its geographic characteristics sharing the border between US and Mexico, is one of the most highly impacted areas. This study investigates the land use/land cover changes of Weslaco, TX from 1996 to 2004 as a preliminary study. Weslaco, TX is a small border city with population of 26,935 in 2000 located at 15 miles Southeast of McAllen. Digital Ortho Quarter Quads (DOQQ) images are utilized for Land-use/Land-cover

classification. This study identifies the details of land-use/land-cover change on Commercial/industrial, water body, residential, agriculture and vegetation for 8 years during post-NAFTA period. The result indicates fast urbanization in the city and the vicinity showing around 25~30 % of land use increase in commercial and residential, and mainly the agricultural field is decreased due to urbanization showing around 40 % of decrease.

Keywords: NAFTA, Land-use/land-cover, South Texas, Classification

Lina Cao, University of Utah. Email: lina.cao@geog.utah.edu; Tom Cova, University of Utah. Email: cova@geog.utah.edu; *Hantavirus Dynamics in Deer Mice Population Using a Spatially-explicit Agent-based Model*

Hantavirus pulmonary syndrome (HPS) is characterized by acute respiratory distress with a high mortality rate (>50%). HPS was traced to the infection with Sin Nombre Virus (SNV), a strain of hantavirus of which deer mice are the primary reservoir. So far there is no vaccine or effective drug to prevent or treat the HPS. Therefore, there is a need to understand the nature of the virus host, its temporal and spatial dynamics, and its relation to the human population in order to predict the risk of the disease and design effective prevention policies. In recent years, agent-based modeling (ABM) has emerged as a very promising bottom-up modeling approach to simulate individual behaviors and their interactions at a micro-level which results in emergent phenomena at a macro-level. It provides virtual laboratories to test various hypotheses as well as to experiment with a range of 'what-if?' scenarios. A spatially explicit ABM was developed to simulate deer mice movement, their interactions and diseases transmission in habitats with various levels of disturbance. This research helps us understand the important ecological parameters of hantavirus infections in deer mouse population, and expand our understanding of the risk factors of developing HPS in humans as a consequence of SNV infection.

Keywords: Infectious Diseases, agent-based modeling, Hantavirus

David Card, University of California - Berkeley. Email: card@econ.berkeley.edu; *Local Labor Market Impacts of Immigration*

Population Specialty Group Plenary

Keywords: Immigration

Katherine F Card, School of Geography and Earth Sciences, McMaster University. Email: cardkf@mcmaster.ca; Susan Vajoczki, School of Geography and Earth Sciences, McMaster University. Email: vajoczki@mcmaster.ca; *A Comparison of Marine Turtle Conservation: Caribbean and Pacific Coasts, Costa Rica*

The aim of this research was to compare marine turtle conservation methods on the Caribbean and Pacific coasts of Costa Rica at three sites: the Caribbean Conservation Corporation site at Tortuguero and the Canadian Organization for Tropical Education and Rainforest Conservation site at Cano Palmo, and the Ostional Wildlife Refuge. These sites were selected to represent diverse approaches in the conservation movement within Costa Rica, including American, Canadian and Costa Rican. During the early 1900s many marine turtle populations around the world were near extinction due to hunting. Recently factors including nesting beach destruction due to anthropogenic use, incidental capture in fisheries, fishing practices degrading turtle feeding grounds, as well as pollution, have all been linked to declines in marine turtle populations. Marine turtles fill unique ecological roles in the ecosystems of both sea grass and coral reefs. Their absence from these ecosystems destabilizes the food web and has negative effects. Currently, all species of marine turtle are endangered, and three are considered critically endangered. Data from expert and stakeholder interviews conducted during November 2006 - January 2007 are used to compare conservation strategies employed at the three turtle nesting sites. This research enhances current understanding about marine turtle conservation methods. It describes the Costa Rican situation but has wider applicability.

Keywords: marine turtles, conservation, Costa Rica, endangered species

Scott A. Carlin, C.W. Post Campus, Long Island University. Email: scott.carlin@liu.edu; *Global Climate Change: Anthropocentric Crisis, Biocentric Solutions*

Cap and trade systems to reduce greenhouse gas emissions are a defining feature of the Kyoto Protocol and likely to be a centerpiece of upcoming U.S. legislation. Measures of global carbon dioxide in the atmosphere have risen from pre-industrial levels of 280 ppm to over 380 ppm today. If global cap and trade systems are implemented aggressively those rates will still rise to 450 ppm by 2100 using optimistic assumptions, which will significantly alter global climate systems. Other IPCC scenarios call for carbon dioxide levels of 700 or even 900 ppm. Various social movements argue against these IPCC formulations. They don't dispute the science but its cultural context. Rather than trying to sustain a global culture premised on consuming the earth's resources, biocentrists argue that we need to reorient our lives toward minimizing resource consumption and

promoting ecological sustainability. This paper will analyze the resurgence of biocentrism in recent years, examine its relevance to global warming debates, and address the question: can biocentrism offer a meaningful path forward?

Keywords: climate change, biocentrism, political geography

Jean Connolly Carmalt, University of Washington. Email: jcarmalt@u.washington.edu; *Ethics before profit: Using geography and human rights to promote social justice*

Unlike other areas of law, human rights law is fundamentally dynamic and open to input from a large variety of actors, including scholars. As such, it offers a powerful framework within which to advance a geographically informed alternative to neoliberal policies. Human rights push the boundaries of neoliberalism by legally requiring ethical considerations - such as having enough food to eat, adequate shelter, and affordable health services ? to trump any "right" to private property or profit. Particularly in the area of economic and social rights, geographic insights are invaluable. By approaching rights like food, health, housing, and work through a systemic, historically informed analysis that focuses on spatial relationships, geographers offer an effective way to translate universal norms into locally relevant standards.

Keywords: human rights, social justice, ethics

Eleanor J Carn, Royal Holloway & Bedford New. Email: e.carn@rhul.ac.uk; *The Creative Passion of the DJ*

The purpose of this paper is to explore and argue the ways in which 'DJing' is both creative and passionate. For this research 'DJ' is the term used to define those whose role it is to play, mix and manipulate pre-recorded musical tracks to constitute the soundscapes of the night-time cultural economy. Combining pre-recorded tracks and live elements to create a soundtrack to a night, building the music up and taking it down to entertain and shape the experience of those on the dance floor, is an art form. Moreover, not only is DJ-ing centrally involved in the production of the nightclub as a space for people to engage passionately with music, it also exemplifies what Amin and Thrift (2004) term a wider cultural economy of passions. Whilst structured through the markets of the night-time economy, DJ's livelihoods and labour processes are fundamentally passionate affairs. This paper aims to contribute to the teasing out of these relations between labour and love, product and passion, commodification and creativity, ambition and affect. Empirically, the paper will draw on my on-going doctoral research on the livelihoods, practices, socialities and biographies of DJs in the local 'scene' of a town in the South East of England.

Keywords: Night-time economy, dance music, cultural geography, cultural economy, creativity

Judy Carney, Professor of Geography UCLA, UCLA. Email: carney@geog.ucla.edu; *Plants of the African Diaspora*

This paper examines the neglected African components of the Columbian Exchange. Emphasis is on the role of African plants in the transatlantic slave trade and plantation societies and on the enslaved, in establishing them in plantation food fields for subsistence. The research is part of a broader investigation of the ways that food systems and commodities circulated between societies of African origins in the New World and in Africa itself. It suggests that African plants played an important role in historical memory and identity in the Black Atlantic

Keywords: Columbian Exchange, Black Atlantic, African plants, subsistence

Guigar Caroline, Temple University. Email: makati@temple.edu; *Finding Time: How Women Integrate Health ICTs into Their Daily Routines*

Abstract: It is widely regarded that women use computer technology less than their male counterparts. Yet little is known about how economically disadvantaged, minority women and mothers use information and communication technologies (ICTs) on a daily basis. The assumption that women are less interested in technology can have severe repercussions in how telemedicine systems targeted to women are designed and implemented. This paper examines how 32 women in metro Philadelphia used an Internet-based telemedicine system to manage their Gestational Diabetes from home during their pregnancies. Most of the women complied with the use of the system by sending their health data despite enormous challenges in their daily lives ? including poverty, significant health problems, full-time employment and the daily demands of raising additional children. The African-American women in the study were more likely to be high and medium compliers. Additionally women with little-or-no income found ways to comply ? and were often high compliers in the study. Finally, women with multiple children at home were more likely to be high compliers compared to women who had no children at home. The result of this study offers a radically different picture of technology compliance among women. It demands that we redefine compliance among poor women. Ultimately, women do comply but their rate of compliance looks different due to their circumstances. This

study also raises questions around the implications for vulnerable populations who access and use ICTs in connection with their daily health care.

Keywords: Health Disparities, Digital Divide, Women's Health, Telemedicine

Richard Carp, 90029940, Appalachian State University. Email: carprm@appstate.edu; *Spatial Cosmologies Embedded in Scientific Language: Ecology vs. Environment*

The metaphors and images we use to imagine the world carry meaning far beyond their specific arena of application. For example, "ecology" and "environment" embody divergent and incompatible spatialities that correspond to equally divergent and incompatible cosmologies, each with a distinct anthropology (understanding of the human). "Environment" is structured by the dynamic of center and periphery: something (the center) is surrounded by "its" environment. "Ecology" is structured by the dynamic of processual relationality: elements participate in one another and none is central. The anthropology of environment is humanistic: the human is at the center. The anthropology of ecology is participatory: the human is one element in a dynamic pattern of relationship. Thus environment and ecology participate in incompatible cosmologies, with incompatible spatialities. "Environment," considered in its full symbolic dimensions, is inimical to "ecology," similarly considered. Because of their cosmological import, both environment and ecology must be understood as religious metaphors, carrying fundamental messages about ontology and anthropology. The struggle between these two cosmologies is of some importance today. Not only ecological sciences, but also new models from physics, suggest that the relational spatiality of the ecology cosmology is more nearly accurate, while discourses in and about sustainability suggest that ecological degradation cannot be reversed or even halted without decentering the human in relation to the rest of the community of beings.

Keywords: ecology, environment, cosmology, anthropology, sustainability, embedded metaphor

Mark Carper, University of Alaska Anchorage. Email: afmdc@uaa.alaska.edu; *Dharma Bums On the Road: Geographic Education and Experiential Learning on the Balkan Byways*

During the summer of 2006, a small group of students participated in a University of Alaska Anchorage geography field course titled A Balkan Inquiry: Geography and Contemporary Developments of the Balkan Peninsula. Drawing from student travel journals, participant commentary, and direct observations, pedagogical implications are explored. Particular focus is placed on selection and usefulness of background reading, meeting with local thematic experts, cultural and adventure activities, course discussion sessions, and the solo experience.

Keywords: Geographic Education, Experiential Learning, Balkans

John Carr, J.D., Ph.C., University of Washington. Email: carrj@u.washington.edu; *"Skateopia Now!" or Exclusion from the City?: Discipline and domestication in Seattle's skateparks*

In U.S. cities, young people have encountered a variety of exclusionary and disciplinary responses to their use of public space. This paper discusses the costs that have accompanied political efforts to claim a place in the city for a particularly problematic group - namely urban skateboarders ? in Seattle, Washington. While public groups of young people have long been associated with disorder, the mobility and visibility of urban skateboarders marks them as a particularly disruptive population. Seattle is currently attempting to address the challenge posed by urban skateboarders through the relatively novel strategy of creating public skateparks. In so doing, however, the City has effectively opened a much broader debate about Seattle's young people and public spaces. On one hand, by creating skate parks, the state seeks to effectively contain, discipline, and ultimately domesticate skateboarders. At the same time these aims have been complicated by the efforts of agents to mobilize (or oppose) the effort to build skateparks as a means of furthering their own vision of who should be included and excluded from the city's public spaces, and under what terms. These competing visions have transformed relatively banal issues of skatepark construction into powerfully contentious occasions to revisit longstanding political struggles over the racial, economic, cultural, and demographic complexion of Seattle's neighborhoods. Accordingly, this paper seeks to interrogate the extent to which skateboarders' efforts to claim a space in the city come at the cost of increasing surveillance and discipline.

Keywords: youth, public space, skateboarding, political discourse, discipline, civic belonging, exclusion

Gian-Carlo Carra, University of Calgary. Email: sixtynewcrew@shaw.ca; *The Affordable Housing - Affordable Living Gap: Historic, Current, and Proposed Interventions along Calgary's East Corridor*

The success of affordable housing is either dependent on or augmented by its transit-supported, pedestrian accessibility to jobs and essential services. Urban spatial forms that are oriented towards walkability, are situated along extensive public transit systems, and offer a mix of land-uses (urban environments), provide an affordable living arrangement ideal for the location of affordable housing. Such environments, however, represent a small portion of the land inventory and market in North American cities. Most cities today are characterized by expansive, private, and low-density automobile-dependent postwar urban spatial forms (suburban or sprawl environments). Moreover, the affordability of urban environments that are transit-oriented and accessible is increasingly challenged by gentrification processes that raise land values, impact the arrangement and types of social services, and can exclude populations that most need access to public space and public transit. This process is creating a gap between affordable housing and affordable living. As a boom city struggling to address disconnects between sustainable development policy objectives and path-dependent practice, Calgary's socio-economically, ethnically, and spatially diverse East Corridor illustrates the affordable housing - affordable living gap. The East Corridor, historically devalued by public housing projects, is now poised to experience gentrification. The City of Calgary, unsupported by higher levels of government, is currently working with NGOs to 'solve' the affordable housing crisis while the private sector is pursuing its own interventions. Meanwhile, urban social movements, supported by local academics, are pursuing alternative approaches focused on affordable living as opposed to the traditionally narrow focus on affordable housing.

Keywords: affordable housing, affordable living, urban spatial form, gentrification

Margaret Carrel, University of North Carolina - Chapel Hill. Email: mcarrel@email.unc.edu; *Flood control as a risk factor for cholera in Matlab, Bangladesh*

Does flood protection actually increase risk of cholera in Bangladesh? This question is relevant in the context of ongoing embankment construction by the government of Bangladesh, but is one that has not been examined in-depth until this point. Using a twenty-year dataset collected from 142 villages in Matlab, Bangladesh, a case-control study was implemented to examine whether spatial patterns of cholera incidence had shifted since flood control was introduced to half of the study area. Demographic and health information for cases and controls were analyzed using geographically weighted regression and GIS. Initial findings suggest that residing in a flood protected area is a risk factor for cholera infection.

Keywords: medical, gis, south asia

James G Carrier, PhD, Oxford Brookes University. Email: ; Andrew Garner, PhD, Oxford Brookes University and DSTL. Email: agarner@bulldoghome.com; *Neoliberal nature conservation: rules of engagement and environmental protection in Jamaica*

Attempts to create greater justice in environmental conservation often call for the engaging of local populations of resource users in the planning and operation of management systems. While such calls are laudable, identifying and engaging with these populations can be difficult in ways that are not always apparent to planners and management bodies, and can end up working to the disadvantage of those populations. This paper describes these difficulties in terms of the coastal waters in Jamaica, and especially Negril, the site of a national park. Here efforts have been made to engage local fishers in environmental protection but with mixed success. Cast as key stakeholders and recipients of development on the one hand and amoral destroyers of the environment on the other, fishers react by alternately playing the game or using non-compliance to protest against attempts to limit their activities. The chapter uses the construction of local stakeholders and unintended effects of attempts to generate good governance to uncover factors that shape local populations in relation to conservation efforts. In the environmental and development landscape of Negril, fishers appear as a group for whom advocacy is required, but advocacy itself carries with it assumptions about both the kind of group they are and the problems they face. The result is a construction of local fishers that works to the advantage of local elites and to the disadvantage of the people who historically have used the coastal waters.

Keywords: Jamaica, fishers, conservation, governance, politics

John C. Carroll, California State University - Fullerton. Email: jcarroll@fullerton.edu; *Filling in the Bubble: Infill Housing in Orange County, California*

The high cost of housing in Orange County, California has been an intractable problem for the past quarter century. The unprecedented increase in rental rates and home prices over the past decade reveal the persistence of the housing cost challenges. Despite leveling off, the median home price in Orange County is near \$700,000. Concurrently, the median rent asked for an apartment unit now nears \$1,200. Such market conditions impact quality of life by pushing housing demand to adjacent areas of the Inland Empire, further exacerbating traffic woes, hindering the ability of major employers in workforce recruitment, and limiting the region's competitiveness with other urban centers. The phenomenon of infill housing has received considerable attention as a possible remedy to escalating home prices. Recent demographic and land use changes have generated an increase in infill housing projects in northern Orange County. There are signs that some of this activity may contribute to the affordable housing crisis rather than ease the strain. This study analyzes a comprehensive inventory of infill housing projects in the north Orange County communities of La Habra, Brea, Fullerton, Placentia, and western Yorba Linda to evaluate the scope of infill housing in the region.

Keywords: Infill Housing, California-Orange County, real estate prices

Ashley Carse, University of North Carolina, Chapel Hill. Email: acarase@email.unc.edu; Flora Lu, Ph.D., University of North Carolina, Chapel Hill. Email: flora@email.unc.edu; *The Impacts of Petroleum Development on Food Sharing and Sociality among Amerindians in the Ecuadorian Amazon*

This paper discusses how petroleum extraction affects community dynamics, specifically the inter-household exchange of food among indigenous peoples of the Ecuadorian Amazon. Because of the importance of food exchange to the physical and social lives of Native Amazonians, we focus on the impact of petroleum exploration and exploitation on these patterns. Food sharing both allows groups to mitigate subsistence risk and plays an important role in expressions of sociality. We use longitudinal data collected among the Huaorani of the Shripuno River to explore how households adapt to changes incurred through interaction with oil companies. Using ethnographic observations, interviews, and quantitative household economic diaries, we provide a much-needed look of how this pervasive form of large-scale resource extraction in the Amazon affects people's daily lives and relationships. When seismic exploration was occurring in 1997, significant changes in dietary intake and inter-household resource transfers occurred, with a shift away from food from the forest and rivers and the oil company usurping the food provisioning roles of families and neighbors. However, a return visit in 2001 found the absence of oil activity around the villages, and a return to subsistence activities and sharing. These findings illustrate the resilience of indigenous communities who possess an intact resource base which enables them to remain self-sufficient, but also the potential disruptiveness of petroleum extraction. Our data show that sharing between Huaorani households is tied to subsistence risk mitigation, and thus oil company policies can undermine normal productive activities and also affect sociality.

Keywords: petroleum exploration, sharing, Huaorani, political ecology, subsistence risk, Amazon, Ecuador

Audra J Carson, Undergraduate, South Dakota State University. Email: ajoelle4@hotmail.com; *Transforming the Corn Belt: A Marshall County, South Dakota Case Study*

The U.S. may need an additional five million acres of corn for ethanol, livestock feed, and human consumption by 2010. Farmers in Marshall County, South Dakota historically grew small grains, but since 1984 they have shifted to corn and soybeans, and the county is now part of the Corn Belt. While the number of acres planted to wheat declined from 108,000 acres to 21,000 acres, corn acreage doubled from 48,000 to 92,000 acres, and soybeans increased from 1,700 acres to 99,000 acres to become the most important crop in the county. This research shows the impact of increased corn and soybean production at multiple scales from the individual farm, to Marshall County, and the wider Northern Glaciated Plains Ecoregion of South Dakota. The transformation has been driven by high soybean prices, corn subsidies, genetically modified crops, and new varieties of corn that are productive in cool climates. Recently, high-energy prices have stimulated new demands for corn-based ethanol and biodiesel from soybeans. Results include fewer acres devoted to small grains, increased use of no-till farming techniques, and the conversion of natural grasslands and pastures to cropland.

Keywords: land change, Corn Belt, soybeans, biofuel, genetically modified crops

Barb'ra-Anne Carter, University of Oklahoma. Email: akaauntiebop@yahoo.com; *Romancing Cannibalism: An examination of anthropophagi in the geographic imagination.*

Early travelers, explorers, and missionaries have often shaped the role of the Other into cannibals. Cannibalism is not only used to describe man-eaters but as a function of otherness. They have often been portrayed as a behavioral modification incentive for children through nursery rhymes and folktales. Religious zealots also utilized the ideal of cannibalism in attempts to convert The Other to Christianity. Their tales of other cultures from abroad spurred social groups into funding programs to send missionaries into the deep equatorial jungles in search of "cannibals" and "savages." This paper will explore the role of humans as products and producers in literature. What man-eating societies are products of the imagination and which were real. What societies throughout history have participated in cannibalism and why. It will also examine the uses of anthropophagi as it was employed throughout history for medicinal purposes. Will the medical techniques humans engage in at the dawn of the twenty-first century, such as organ harvesting and stem cell research be dismissed as crude and sophomoric in the twenty-fifth? This paper will also address the consumption of humans in ritual, real and imagined

Keywords: cannibalism, medical geography

Catherine Carter, University of Maryland. Email: cclearter@umd.edu; Martha Geores, University of Maryland. Email: mgeores@geog.umd.edu; *Heaven on Earth: The Shakers and their Maps*

A map is more than a locational reference for a place or space. It also represents the social and cultural aspects of a place or space and/or the attitude of the cartographer toward the particular place, its inhabitants, and its social/cultural situation. Users view maps through ideological filters so that the space seen on the map is interpreted instead of being literally comprehended. The result of the combination of abstraction and interpretation is conceived space as Henri Lefebvre defined it. Conceived space is clearly evident in the maps drawn by the 19th century religious sect known as the Shakers. As the Shakers shared their maps among the various Shaker villages a community was established that extended beyond the borders of the individual villages. This research examines the Shaker maps from both theological and cartographical points of view, considers the nature of the space produced by the maps, and shows that the resulting space is theological space.

Keywords: religion, historical, cartography

Eric D Carter, Millersville University of Pennsylvania. Email: Eric.Carter@Millersville.edu; *Bridges are the new dams: Privatizing infrastructure development, integrating regional economies*

Under the neoliberal free market paradigm, remote and underdeveloped areas continue to be integrated into the global economy. Newer approaches to infrastructure development de-emphasize the direct role of states in investment and planning, and in conjunction with this trend, create new scales of development. This paper reviews worldwide trends in a reorientation of "big" development, including: the increasing role of private-public partnerships and direct investments of foreign capital (for example, in the construction of major bridges and toll highways); the growing importance of trans-national, regional transportation corridors; the "outward" orientation of development, wherein states focus on creating linkages to global markets for existing products/sectors, rather than subsidizing the development of non-competitive industries or regions; the emergence of new development schemes within the "sustainable development" paradigm, which requires states, banks, investors, and entrepreneurs to consider environmental impacts of new development (even as integration of remote regions inevitably creates conditions for economic exploitation of natural resources). To illustrate these trends, the paper will develop two case studies: first, a critical examination of the Inter-American Development Bank's Regional Infrastructure in South America Initiative; and second, a related discussion of a recent wave of planned or completed highway bridges (in Argentina, Sweden-Denmark, Italy, and China), intended to serve multiple purposes: as physical linkages between long-separated regions; as key segments of international transportation corridors; as circuits of commerce; as absorbers of excess capacity in the global construction and engineering industry; and as potent symbols of the assumed fluidity and interconnectedness of the globalized economy.

Keywords: development, globalization, neoliberalism, transportation

Gregory A. Carter, Ph.D., The University of Southern Mississippi. Email: greg.carter@usm.edu; Kelly L. Lucas, The University of Southern Mississippi. Email: kelly.lucas@usm.edu; Ervin Otvos, Ph.D., The University of Southern Mississippi. Email: ervin.otvos@usm.edu; Alan Criss, The University of Southern Mississippi. Email: alan.criss@usm.edu; *Impact of Hurricane Katrina on Vegetation of the Mississippi Sound Barrier Islands*

The Mississippi Sound barrier islands, which from west-to-east include Cat,

West Ship, East Ship, Horn, Petit Bois and Dauphin, insulate the mainland coast, 13-20 km to the north, from the higher wave energies of the open Gulf of Mexico. As Hurricane Katrina passed due west of the islands along its northerly path (lat. 30.2 deg. N., long. 89.6 deg. W.), minimum distance from the eye of the storm to island center ranged from 48 km (Cat) to 133 km (Dauphin). Consequently, the westernmost islands were subjected to greater wind speed, storm tide depth and wave energy. Approximate ranges in maximum sustained wind speed and tide depth were 200 to 140 km/h and 7 to 2 m for Cat and Dauphin, respectively. Satellite image data acquired for each island before and one week after Katrina were compared to determine immediate storm impact on total vegetative cover. Analyses based on the normalized difference vegetation index (NDVI) indicated losses in vegetative cover of 0, 6, 2, 114, 46 and 39 ha (0, 8, 17, 16, 27 and 51 percent of pre-storm cover) on Cat, West Ship, East Ship, Horn, Petit Bois and West Dauphin, respectively. Thus, percentage loss in vegetative cover increased with distance from storm center, contrary to expected results. This was likely a consequence of the greater tidal depths and thus more extensive island submersion nearer the storm center which apparently reduced the scouring of vegetation by waves and currents during the period of maximum storm energy.

Keywords: Hurricane Katrina, barrier islands, remote sensing, vegetation, geomorphology

Norman Carter, San Diego State University. Email: ncarter@mail.sdsu.edu; *Lofts vs. tents: the contested residential space of downtown Los Angeles.*

This study examines contested residential space in downtown Los Angeles. The renovation and conversion of dysfunctional older office buildings into residential lofts, apartments and condominiums in the core area of the central city has attracted thousands of new residents in recent years. New units under construction and in the planning and permitting stages indicate that the residential population will surge in the next few years. These new tenants are competing for space long occupied by the homeless population of Skid Row. The abundance of social service agencies in the vicinity supporting the indigents makes their presence more durable and sustainable for the foreseeable future. The current situation is an uneasy stasis with each group employing powerful advocates to defend their rights and access to public space. Preliminary analysis of this conflict reveals that neither the loft dwellers nor the tent campers have a decisive advantage over the other leaving a continuing struggle for the available space in the downtown area.

Keywords: Los Angeles, homeless, lofts, Skid Row

Perry L. Carter, Texas Tech University. Email: perry.carter@ttu.edu; *Variable Fetishes: Race and Explanation in Scientific Geography*

The term scientific racism is usually associated in the popular imagination with craniometry and eugenics and less so, if at all, with linear models and spatial analytical techniques. Yet, until recently, the unreflexive application of quantitative methods has been the primary means through which race in the United States has been examined. More perniciously, race has been used as an explanatory variable in quantitative models to explain crime, drug use, delinquency, urban blight, low test scores, and a variety of other deviant behaviors and social ills. Racial explanatory variable - binary variables (e.g. 1=White, 0=Black) and areal composition variables (e.g. percentage of Mexican-Americans residing in a census tract) - use in many quantitative studies amounts to little more than the academic equivalent of racial profiling. These studies assume that race is an essential quality that individuals possess. This paper reviews scientific geography's use of racial variables. It takes previous works in this field as cases and uses them as tools of instruction and construction in the building of a critical scientific geography.

Keywords: quantitative geography, critical geography, race

Sean Carter, University of Exeter. Email: s.carter@exeter.ac.uk; *Diasporic Reproduction of the Nation*

This paper seeks to explore a range of ways in which 'the nation' comes to be reproduced and re-articulated within diasporic communities. In particular it traces a range of practices undertaken by those within the Croatian diaspora in the United States that reproduce a sense of the nation of Croatia as a network, capable of operating within, through and beyond state borders. Amongst a range of issues, this paper is particularly concerned with theoretical issues relating to diaspora and nation, including: the role of elites within diaspora communities; the relationship between the homeland state and the diaspora community; cultural forms of national reproduction in the diaspora; and the rise of forms of national reproduction that cannot be tied down either within the diaspora, or the homeland (particularly through digital forms of community).

Keywords: Diaspora, Nationalism, Croatia

Thomas Sydney Carter, PhD, University of Winnipeg. Email: t.carter@uwinnipeg.ca; *Economic Restructuring in Winnipeg: Attracting Creative Workers and Capturing Investment in New Growth Sectors*

According to Richard Florida one of the keys to economic growth in cities is the ability to attract creative workers and to translate this into creative economic outcomes in the form of new investment and development ideas, new high tech businesses and regional growth. An analysis of selected indicators suggests Winnipeg, a mid-sized Canadian city, located in a largely agricultural area has struggled to capture investment in the new growth sectors and attract a "creative class." Further analysis examines the outcomes of these trends: the effects on the socio-economic characteristics of the population; the structure of the labour force; effects on urban development, central business district and inner city decline and revitalization; and, Winnipeg's comparative position in Canada's urban system in general. The analysis suggests that failure to capitalize on new growth sectors during economic re-structuring can have both positive and negative outcomes for mid sized cities and their populations.

Keywords: economic restructuring, new economy, creative class, mid sized cities

Richard Carter-White, . Email: rec205@exeter.ac.uk; *Writing the unrepresentable with the non-representing: Auschwitz and photography*

According to Maurice Blanchot, the true writing of the disaster would be one which erases itself, which indicates an excess beyond the realm of communication and meaning: 'the disaster de-scribes' (1995). This assertion chimes with the testimony of survivors such as Primo Levi and Elie Wiesel, and the analysis of Saul Friedlander, who claim that attempts to render Auschwitz as known and meaningful through writing which aims to identify with the event risks its normalisation and potential forgetting. For Robert Eaglestone (2004), an ethical form of writing on the Holocaust would be one that establishes a barrier against understanding and meaning: such a form makes the event present, and yet delineates an absence, in meaning and representation, that defers identification and closure on the part of the audience. This paper discusses photography as constituting a form of Blanchot's disastrous writing. As Janina Struk (2004) has documented, photography has dominated global perceptions of the Holocaust, from its use as wartime propaganda through to its shaping of and deployment within discourses, museums and tours today. While such individual photographs, and their translation into subsequent discourses and practices, present the Holocaust for interpretation and understanding, the paper argues that the medium of photography simultaneously undermines and contradicts any such movement towards identification and meaning. Photography is presented as a medium of irreducible difference and otherness, the evidential capacities of which are located less in its tendency towards mimetic representation and meaning-making than in the rupture in representation that Auschwitz created, and photography enacts.

Keywords: Auschwitz, photography, writing, representation, difference

Carolyn L. Cartier, University of Southern California. Email: cartier@usc.edu; *Regimes of Production/Consumption in Urban China: Diamonds and Disneyland*

The 'Consumer Revolution' in China entered the current stage of conspicuous consumption after 1992, when the state deepened growth-oriented reform and its dependence on service sector expansion. In the process, individual consumption became justified as a pillar of domestic economic development. This examination of consumption in urban China focuses on contemporary leisure luxury consumption and follows three lines of inquiry. First, it makes an argument for conceptualizing consumption in relation to production and locates a regional regime in formation between PRC coastal cities and Hong Kong, the latter as China's main center of "learn to/from" production/consumption, and as leading place of internationalized citizen-consumer subject formation with Chinese characteristics. Next, the paper examines the cultural economy of consumption through elements of Chinese feminist theory to explain contrasts between 1980s PRC state ideology that reinscribed women's roles within the household and contemporary alternatives in other sites including the elite professional marketplace. Then the paper examines leading objects of urban consumer desire, their sites of production/consumption and their gendered characteristics through the highly popularized market for diamonds, its disassociation from heteronormative gift-giving and its association with leisure sites, including Disneyland.

Keywords: Economic Consumption Urban China

Jenny Carton, University of Sheffield. Email: J.Carton@sheffield.ac.uk; *Writing the self after non-representational theory*

This paper seeks to contribute to 'cultural geographies of the self', exploring the place of writing in theoretical, literary and corporeal registers. It seeks to reconceive of a writing self that doesn't privilege the subject as an a priori precursor for expression, but rather as that which emerges from and with the act of writing itself. Following the insights of Maurice Blanchot and

Emmanuel Levinas, I argue that the act of literary writing performs a profound moment of (both spatial and temporal) separation, which approaches the philosophical conception of an original and unknowable 'other'. Accordingly, the writing subject can now be thought of as responsive rather than simply reactive; as relational and contingent rather than autonomous or creative. Indeed, the paper argues that by recognising the writing self in this way we can finally overcome those normative claims to introspection and self-expression, and show the writing-self is performatively ethical in its orientation towards the 'other'.

Keywords: writing, subjectivity, practice

William Cartwright, PhD, EdD, RMIT University. Email: william.cartwright@rmit.edu.au; *Atlas2point0: Constructing an Atlas Using Social Software*

Atlas2point0 is the name given to a project that is exploring the potential of using social software to provide the means whereby users construct their own atlas. The potential offered by Web 2.0 for collaboration between users and cartographers to compose atlases provided the initiative for this project. It was conducted by a research and development consortium that included cartographers and communication scientists. Whilst the results reported in the paper are preliminary and not tested, the authors believe that it is important to bring their initial findings to fora for discussion, dissection and debate. This paper provides a background to the development of Atlas2point0 and the thinking behind how it might 'work'. It then provides information about the theoretical development of the concept. Then it illustrates how the prototype was developed. Finally it poses questions that the research team believes need to be addressed in the quest to elicit input from colleagues at the meeting.

Keywords: Cartography, Atlas, Web 2.0

Caverlee Cary, GIS Center, University of California, Berkeley. Email: ccary@berkeley.edu; *Visualizing the Buddhist Realm*

The sacred geographies of Buddhism have come down to us in various ways. There are maps that make visible the cosmos and the complexities of its resident deities. There are maps that guide the travels of pilgrims through geographic features marked by the divine. And as texts trace legitimizing lineages of people, places, and Buddhist images, so too maps embed landscapes with meaning through space and time, making manifest the past in the present. "The Map and the World: Visions of the Buddhist Universe" is an international collaborative project bringing together scholars from a range of countries around the theme of Buddhist visualizations of space. This presentation presents the work of the University of California, Berkeley Geographic Information Science Center in support of the project, and presents examples of maps expressive of the Buddhist tradition.

Keywords: historic maps

Irene Casas, SUNY at Buffalo. Email: icasas@buffalo.edu; *Information and Communication Technologies Use in Route Planning in Local Unfamiliar Environments*

Information and communication technologies (ICT), in particular navigation aid devices such as the Internet, in-vehicle navigation systems, cell phones, On-Star, and Global Positioning Systems (GPS), have changed the way people go about planning their routes when making a trip to unfamiliar locations. Behavioral changes introduced by the use of these technologies need to be explored since they not only affect the individuals' particular travel plans but also have implications in their spatial learning, map usage, and increase in familiarity abilities, and their inclination to be more daring in unfamiliar environments. For individuals who before the technology depended on others for navigational purposes, had no skills in map reading, or were afraid to get lost in unknown places, the use of the technology and what it can do for them introduces new challenges and opportunities. This research examines the use of the aforementioned technologies in route planning in local unfamiliar environments by means of a survey. Local is defined as the place where an individual makes his/her home. The main objective is to test the following hypotheses. People who use navigation aid devices are: (1) less afraid to venture themselves in unfamiliar locations, (2) have developed a stronger ability to read maps, and (3) get lost less frequently. Based on the results, potential policy implications are discussed and recommendations are made into what are the technologies preferred so that they can be exploited by policy makers with the purpose of bettering the operation of the transport system.

Keywords: ICT, route planning, local environments

Mark E Casey, Newcastle University. Email: M.E.Casey@ncl.ac.uk; *Tourist Gay(ze) or Transnational Sex: Australian Gay Men's Holiday Desires*

Travel is theorised as an increasingly important facet for contemporary gay male identity development, echoing earlier claims that identities have become 'more tightly drawn to particular lifestyles'. For Cox, (2002:152) travel should be viewed as a serious business that may challenge and change identities and

sexual cultures at home. Rather than the voyeurism associated with gazing at an otherness as positioned by John Urry, (2002), the gay male traveller is likely to search out key gay sites, to be presented with an image of oneself, or a self one wishes to become. Through drawing on findings from the ESRC funded research project: Tourist Gay(ze) or Transnational Sex: Australian Gay Men's Holiday Desires, undertaken in Spring 2005 with gay men living within the Australian cities of Melbourne and Sydney, the paper will ask can we now move beyond understanding tourist sites and spaces as hetero and/or homo in their appeal and in turn move beyond a hetero/homo tourist binary? Or are gay tourists likely to be searching for a shared culture, identity and pleasures that are used to build up an image of a world not defined through heteronormative imperatives? Is it then possible to theorise and address (sexual) identities and sexual practices through their transnationality and if so how does this challenge the (hetero)normalizing of 'other' sexualities within Australia?

Keywords: Travel, gay males, Australia, sex, sexual identities

Jennifer R. Cash, Ph.D. (Anthropology), University of Pittsburgh. Email: jrcash@pitt.edu; *The Communists Cannot Take Us to Europe: Negotiating Moldova's Place in the Post-Socialist World*

This paper examines the idea of "Europe" as it used in political and social debates in the Republic of Moldova. In 2005, Moldova's communist-led government announced the intention to join the European Union, reversing the position officially held since 2001, which oriented the country toward Russia. As evident in the title quote - "the Communists cannot take us to Europe" ? many individuals now find themselves in the strange position of being ideologically anti-Communist and pro-European, at a moment when Communists themselves have become pro-European. In other words, Moldova's internal social and political geography is shifting in response to the increased proximity and power of the European Union. Far from being a new phenomenon, however, my research with intellectuals in Moldova reveals that their relationship with "Europe" has been long-standing, undergoing several shifts in the past century, as the "European" affinity for various ideologies (specifically nationalism, socialism, and communism) has been alternately recognized and disavowed. This paper therefore explores these shifts and asks about the temporal, rather than spatial, dimensions of European identity in Eastern Europe. By interrogating local memories, legacies, and nostalgia, it becomes clear that in the "East" it is important to ask not only "where is Europe," but also "when is Europe"?

Keywords: Europe, Moldova, imagined geographies, political identity

Lin Cassidy, University Of Florida. Email: cassidy@ufl.edu; *Patterns and Processes of LULC Diversity in Sisaket, Thailand, and Ordor Mean Chey, Cambodia*

Land-use Land-cover (LULC) diversity reflects the dynamic complexity of the human-dominated landscape. This research tests whether the concept of LULC diversity has the potential to allow researchers to find commonalities across a range of different social-ecological systems. We direct known drivers of LULC change to the consideration of change in LULC diversity instead of in actual LULC types and compare the same processes on the adjacent, but different landscapes of Sisaket province, Thailand, and Ordor Mean Chey province, Cambodia. We assess whether there are general trends in the response patterns of LULC diversity, and hypothesize that intermediate levels of LULC diversity are more likely to persist over time, and that changes in LULC diversity represent a change in the resilience of the social-ecological system.

Keywords: Land-use Land-cover, Theory, Complex Adaptive Systems, Diversity, Socio-ecological Systems, Thailand, Cambodia

Chris N. Castagna, University of Hawaii at Manoa. Email: castagna@hawaii.edu; *Maori Places and the Changing Forests*

In response to shortages of native timber by the beginning of the twentieth century the New Zealand government began to develop vast planted monoculture forests of exotic conifers. The new forestry, based on principles of scientific management, also incorporated European forms of understanding and using space, and was designed to efficiently produce usable timber products. Much of the land that has been planted in exotic trees belongs to Maori and Maori constitute many of the people involved in the new forestry. Maori have long maintained a deep and meaningful connection with the native forests of Aotearoa, exercised as part of their kaitiakitanga (guardianship). Most forestry histories focus on anthropocentric uses of forests rather than situating forests within ecological relations and fail to question social constructions of nature. This paper contends that Indigenous peoples, such as Maori, actively shape their worlds in connection with larger global processes, and that it is too simplistic to assume that colonialism, as well as globalization, are simply the extension of Western capitalism at the expense of local economies and knowledge systems. With the recognition that 'culture' is not monolithic this paper draw attention to the some of the diversity of relationships that Maori experience with their lands and forests and will seek to address the following questions: How have the logic of

scientific forestry and the physical introduction of exotic timber species into Aotearoa/New Zealand been negotiated by Maori? How has this contributed to a changing sense of place for Maori?

Keywords: indigenous, place, New Zealand

Rose Tina Catania, Dartmouth College. Email: catania@dartmouth.edu; When "Becoming White" means performing "Indianness": re-forming racial identities on the Mexico-United States border

This ethnography explores racial performance in Laredo Texas. I specifically delve into the ways individuals enact and perform race in the context of an annual cultural event, Washington's Birthday Celebration (WBC). The celebration's major events — pageants featuring embodiments of Pocahontas, Native Americans, and Martha and George Washington— intermix with stereotypical symbols of Latino-ness through other displays and parades. These events serve to reinscribe borders between class, race, gender, and nation on the location of the body. I become particularly interested in the process by which these racial discourses shape and re-imagine whiteness in a Latino context, specifically through historical re-enactments and the appropriation and othering of a Native American identity. While wealthy whites and Latinas reinscribe their whiteness by personifying Martha Washington and colonial ideals in one pageant, a parallel event features another group of Latinas who aspire toward whiteness through theatrical representations of "Indianness." The myriad cultural performances that comprise the WBC create competing conceptions of Latino/a and "Indian" racialization, with the goal of claiming a valued white identity.

Keywords: Latino identity, whiteness, racial performance, performativity, US-MX border, Native American representations, cultural performance

John Paul Cervas Catungal, BA Hons, MA (Candidate), University of Toronto. Email: catungalj@geog.utoronto.ca; The Rebirth of Privilege? Creative City Discourse, the Dangers of Renaissance Language and the Right to the City

Why is the language of "renaissance" used in much creativity-led urban regeneration? I ask this in the context of the recent adoption of Richard Florida's "creative city" discourse by the City of Toronto and a local non-retail business improvement area (BIA). I examine two documents (Toronto's Culture Plan for the Creative City and the Liberty Village BIA's Strategic Plan) and how they are implemented in order to unearth how the language of renaissance is embedded in creative city discourses and what its impacts are on urban governance and the built environment. I argue that though these approaches differ because they stem from different sectors - one public, the other private? they are nonetheless intimately linked by a commitment to a neoliberal urbanism that places focus on arts, culture and creative enterprise as the most important tools for an urban renaissance. The use of renaissance in creative city policy dangerously creates privileged geographies: cultural corridors and creative hubs turn into privatized centres of commerce; the priority shifts from accessibility to security and branding; and the displacement of vernacular spaces of creativity is framed as collateral damage. In creative city renaissance strategies, histories of struggle and the architectural façade become sanitized, romanticized and commodified as the stories of grandiose landscapes are continually rehearsed through constant renovation and marketing. I caution against the privileged spaces created by creativity-based strategies by invoking Henri Lefebvre's call for "the right to the city", which imagines a renaissance based not on neoliberal urbanism, but on social justice.

Keywords: creative class, culture-led regeneration, urban renaissance, business improvement, urban governance

Brian Ceh, Ph.D. Assoc. Professor, Indiana State University. Email: sceh@indstate.edu; Joseph Koroma, Indiana State University. Email: joekoroma@hotmail.com; Regional Impact of Social and Cultural Acumen on Economic Development in the US

To what extent a region's social acumen or cultural mindset affects its economic well-being is difficult to quantify. This paper investigates any such association for the US by state. Using socio-economic and technology data, it is found that social conservative states are not equally vibrant in technology production compared to socially progressive states. This is peculiar since many social conservative states are growing among the fastest in population. It is argued here that a region's cultural mindset does play some kind of role in determining its economic development. This mindset can be quantified to some extent by variables measuring human or social capital, such as investment in education, arts, public transportation, technology, or education attainment. When these variables are analyzed, sharp geographical patterns emerge that coincide with regional patterns of technology production and creativity. Socially progressive states are found to have higher levels of technology, creativity, and human or social capital. In spite of this, notable population growth in many socially conservative states is being helped by the sunbelt phenomena and the footloose nature of the new economy. Their economic and population growth

has less to do with their social acumen and more with factors beyond their control. In other words, if New York, Chicago or Boston were located in the south, Atlanta, Charlotte, Houston, Dallas, and Phoenix, to name a few, might not be as large as they are today.

Keywords: creativity, technology, culture, economy, region, states, capital

Sofia Cele, Department of Human Geography. Email: sofia.cele@humangeo.su.se; In Streets, Yards and Secret Corners. Place-Interactive Methods as Means of Communicating with Children

Research that involves children and their relationships with different aspects of place bring methodological as well as theoretical difficulties. These challenges mainly refer to the complexity of experience and power relations between children and adults. The focus in this paper is an exploration of how place-interactive methods such as walks and photography provide abilities to meet these challenges. Drawing on a research project that focus on how children in Sweden and England communicate their experience of place, it is shown that when place is allowed to be an active part in the research process many difficulties can be overcome. The performative aspects of the methods make the body and its sensuous experiences a central part of the research. The active participation and involvement of children as well as the researcher make it possible to create situated knowledge that are not alienated from lived experience due to power relations and the limits of the spoken word. This has an impact on consultation practice as well as the theorising of children's geographies.

Keywords: Place-interactive methods, children, power, photography, walking, performativity, sensuous, Sweden, England

Ryan Centner, University of California, Berkeley. Email: rcentner@berkeley.edu; Redevelopmental territoriality in "post-neoliberal" Buenos Aires: Mapping the microcitizenships of megaprojects

This paper addresses the micro-political repercussions of new landscapes in a city emblematic of Latin American economic shifts during recent decades. Across social divides in Buenos Aires, I examine the complexly circumscribed forms of territorial political membership that a wide variety of local actors has co-produced in the Argentine transition from neoliberal prototype to an ostensibly "post-neoliberal" posterchild. I call these forms of belonging "microcitizenships," which have a sharply geographic dimension. Drawing on nearly two years of ethnographic fieldwork and extensive strategic interviewing with a range of stakeholders, this paper compares how unequal urban citizenship unfolds in practice - through both conflict and collusion - in three neighborhoods (Puerto Madero, La Boca, and Abasto) that have all been the site of transformative megaprojects since the early 1990s, but differ from each other in the overall economic class of their residents. I show the distinct manners in which the local state, developer interests, disparate groups of residents, and everyday users jointly accede to spatiotemporally intricate maps of legitimate belonging in these sites that were once heralded as beacons of neoliberal change but are now the focus of efforts to overcome the infamous Argentina crisis of 2001-2002. All mainstream commentary points to a spectacular recovery for the South American powerhouse, but scrutiny of these three sites shows how the territorialized remedies to neoliberalism, and particularly the strategies of the so-called "new Latin American left," can have perversely exclusionary outcomes despite their vigorously nationalist discourses of inclusion.

Keywords: citizenship, urban redevelopment, Argentina, political geography, neoliberalism, Latin American Left

Muharem Cerabregu, Univ of Prishtina. Email: zinniakelly@earthlink.net; Geographical Name Creativity Of Hawaii: An Example That Illustrates The Global Character Of Geographical Generic

Naming geographical features of Mid Pacific islands of Hawaii, represents an interesting phenomenon that shows having essential and universal importance. Considering its geographical position and notion, we get an impression that we are dealing with a very far and isolated part of the world that allures by its nature and culture. But, geographical name study of these island discover their common root and unity with global cultural heritage. However, the geographical name system of Hawaii is consistent and retains a clarity of representing geographical phenomena. Analyzing geographical names and obtained results show a striking similarity of local geographical generics with those of continental parts surrounding Pacific. A difference in use of geographical generics exists only in prevalent forms. In fact, the geographical name composition is related to a predominance of some geographical generic forms that reflects a limited flexibility of geographical generics and of geographical affix. The specifics of geographical names of Hawaii is a consequence of local volcanic landscape of islands. An observation and investigation of these features and their relation with local geographical expression that distinguish Hawaiian geographical name system that may be used as an scholarly example. Hawaiian geographical name creativity represent a cultivation throughout the centuries. the fruitfulness of this geographical name study answers some fundamental questions related to this

cultural heritage. in fact, as in the case of Hawaii , also as in the other parts of the world, the Illyrian System of Geographical name is fully applicable.

Keywords: Geographical Name Study, Geographical Alphabet

Dawna L. Cerney, PhD, Youngstown State University. Email: dlcerney@ysu.edu; David R Butler, PhD, Texas State University. Email: DB25@txstate.edu; *Illustrating Landscape Change in the Geography Classroom with Digitally Enhanced Images*

Landscape photographs are often used as a central teaching tool to illustrate geomorphic, geologic and biogeographical features to university geography students. Some features are difficult for the inexperienced student eye to recognize. This paper demonstrates how landscape features, patterns, subsequent environmental change within photographs can be extracted and enhanced using level slicing, and image registration based on spectral reflectance, for classroom instruction. These techniques are illustrated using photographs the Waterton-Glacier International Peace Park taken between 1914 and 2005. Subtle changes in canopy age structures, riverbed channel changes and past landscape disturbances and restoration become apparent with these techniques, offering application to a variety of courses.

Keywords: digital images, landscape change, Waterton-Glacier International Peace Park

Astrid Cerny, University of Washington. Email: acerny@u.washington.edu; *The myth of greener pastures: Kazak pastoralists in a modernizing Chinese state*

Nomadic Kazaks have herded livestock for centuries in the northern mountainous regions of Xinjiang in far western China. Increasingly, the constraints outnumber the opportunities for sustainable management of their most important resources. In addition to economic constraints such as deleterious profit/cost ratios, and social imbalances such as insufficient education, nomadic Kazaks are subject to forces beyond their immediate control. Subtle climate change is both qualitatively and quantitatively documented, while governmental efforts to stabilize grassland ecologies and develop the region contribute additional pressures. This paper evaluates the viability of nomadism in northern Xinjiang within the recent context of specific measures undertaken as part of China's "Develop the West" plan. Fencing of grasslands and settlement of nomads are promoted by current state agendas, both of which have foreseeable long-term impacts for property rights, while heralding the loss of traditional spatial patterns and foreshadowing unsustainable development.

Keywords: Xinjiang, sustainable development, ecology

Lee K Cervey, Ph.D., Pacific Northwest Research Station. Email: lcerverny@fs.fed.us; Linda Kruger, USDA-FS. Email: lkruger@fs.fed.us; *Cruise Ships and Regional Development in Coastal Alaska: A Political Ecology Approach*

This paper explores how cruise ship tourism as an increasingly integrated global industry has the potential to alter landscapes and livelihoods in coastal communities. Tourism has been promoted as a strategy for regional development in southeast Alaska, offering some relief from employment declines in the timber industry and commercial fishing. Tourism also has been endorsed at the community level by some civic leaders and pro-business proponents. In this paper we rely on ethnographic data from two study communities in coastal Alaska to discuss the costs and benefits of tourism for various stakeholders. We use a political ecology framework to show how the tourism industry generated income and employment for some resident groups, but threatened access to resources for stakeholders seeking to maintain a viable livelihood or rural lifestyle. Global cruise lines eager to meet customer demand pressured local partners to increase tour volume and diversify activities, which brought even more visitors into the wild. Conflicts intensified as tour providers expanded further into the backcountry, impacting commercial fishing, subsistence, and local recreation. These cases demonstrate how local actors sought to negotiate with regional and global institutions to regain access to resources and locally-defined spaces. We also show how local and regional development initiatives in one industry can negatively impact another industry, particularly when both depend on finite natural resources. The changes wrought by tourism have implications for resource-based livelihoods and also suggest challenges to constructions of a rural Alaska identity.

Keywords: coastal and marine tourism, community development, Alaska

Niccole Villa Cerveney, Ph.D., Mesa Community College. Email: ncerveney@mail.mc.mariacopa.edu; Ronald I. Dorn, Ph.D., Arizona State University. Email: ; Steven J. Gordon, Ph.D., United States Air Force Academy. Email: ; David S. Whitley, Ph.D., W&S Consulting. Email: ; *A new geographic triage method used to identify endangered rock art sites*

In order to identify those petroglyph and pictograph panels most susceptible to erosion, we propose a field-friendly index including various elements of

existing strategies. This Rock Art Stability Index (RASI) has five categories: "Setting the Stage"; "Preparing for Future Detachment"; "Loss of Stone Incrementally"; "Loss of Stone in Chunks"; and "Rock Coatings and Deposits". Initial testing reveals that training of individuals with no prior background in weathering can be conducted within a two-day period and yield reasonable results. RASI's use as a tool of cultural resource sustainability includes the use of a Geographic Information System to store, display and analyze rock art. After presentation of the basic RASI, those in attendance will conduct a virtual analysis of the weathering of a rock art panel.

Keywords: weathering, rock art, sustainability

Randall S. Cerveney, Arizona State University. Email: cerveny@asu.edu; *World Weather Extremes*

Fundamentally, while there is general agreement that a weather extremes record database (e.g., world's hottest temperature, etc.) is needed, questions remain - particularly at the global scale? as to how extensive of an extremes record database should be established, how such a database can be maintained, and, importantly, what procedures, agency and personnel can be used to adjudicate claims. The development of a climate/weather extremes archive might be best handled by one of the existing WMO's Commission for Climatology (CCI) Open Programme Area Groups (OPAGs), such as Group II (Monitoring and Analysis of Climate Variability and Change). Within OPAG II, a working structure for global monitoring activities and a working relationship with other countries involved in climate monitoring already exists, so a climate extremes focus is a natural extension of activities already underway within the WMO.

Keywords: Weather Records Extreme

Ho-Seop Cha, Department of Geography, The Ohio State University. Email: cha.25@osu.edu; *Enhancing Public Transit Service Equity in Hilliard, Ohio using multi-optimization methods*

Public transportation is not providing adequate service to those in transport-disadvantaged areas. Since public transportation receives funding from federal, state and local sources, it must strive to be equitable. To assist public transportation agencies in providing more equitable service, this research has focused on the development and application of optimization methods to provide equitable service. Previous research in Hilliard, OH identified the appropriate number and location of public transportation service stops using the location set covering problem (LSCP) and geographic information systems (GIS) approaches. To enhance the level of equity in public transit, configuration of the service stop should reflect the need for equity. This requires that the number and location of service stops are equity-oriented. The optimal selection of the number and the location of service stops in the previous research consists of two separate sets based on origin-based and destination-based approaches. However, they should be incorporated into one set to provide a practical service system to satisfy both origin- and destination-based service stops. This motivated the previous research to develop further with multi-objective optimization methods. Therefore, a particular focus in the paper is on the incorporation of two different sets of optimal solutions of transit service stops into one using multi-objective optimization methods. The ability to identify the appropriate allocation of service stops to maximize the level of equity will help local transit agencies to better prioritize and plan future services subject to greater public expectations of performance.

Keywords: equity, transport-disadvantaged, GIS, location set covering problem, multi-objective optimization

Elizabeth Chacko, The George Washington University. Email: echacko@gwu.edu; *Étrangers: Immigrants in cosmopolitan Zurich and Geneva, Switzerland*

In this paper, I examine immigration trends in Switzerland, focusing on the nature of immigration to its two major cities, Zurich and Geneva, in the light of the economic and political factors in the sending and host countries as well as Switzerland's immigration and naturalization policies. Foreigners make up about a fifth of Switzerland's population and nearly a quarter of its workforce. Foreign workers have been recruited since the late 1880s to meet the country's special or changing labor requirements. More recently, labor migrants have been joined by refugees, asylum seekers and persons who are part of family reunification flows. Through an examination of data at country, canton and city levels, I analyze the spatial concentrations and educational, age and occupational profiles of key immigrant groups in Switzerland and their impacts on the socio-cultural and political structure of the country and the cities of Zurich and Geneva.

Keywords: Zurich, Geneva, Switzerland, immigration

Jennifer Chadwick-Moore, Graduate Student, Department of Geography and Environmental Planning, Towson University. Email: jchadw1@towson.edu; Kang Shou Lu, Ph.D., Assistant Professor, Department of Geography and Environmental Planning, Towson University. Email: kshoulu@towson.edu; Predicting Archaeological Settlement Patterns Using A Neural Network Model

Predictive modeling of archaeological settlement patterns has been utilized in the United States since the late 1970s and early 1980s. As Geographic Information Systems (GIS) developed, it provided a quicker and easier method for this type of spatial analysis. The contemporary GIS has evolved into a tool commonly used among archaeologists for analysis and management purposes. The rationale and methods for predictive modeling have been debated in the archaeological community since the formation of the practice, but now there is even more dispute with the everyday use of GIS. There is disagreement in the approach (inductive versus deductive), site and survey (no site) data, and types of variables used. This project will test widely used variables for analysis and evaluate their effectiveness for predicting historic and prehistoric sites in Maryland. Predictive models will be developed based on two frameworks: logistic regression and backpropagation neural network. The dependent variables representing archaeological sites are binary with only yes and no values. The predictors include environmental and cultural variables. All models will be calibrated or trained using a set of survey data for the archaeological sites extracted from surveyed areas based on a random block-based sampling method. Data for other sites will be used for model testing and validation. Semivariogram and principle component analysis will be performed to examine if there is spatial autocorrelation and multicollinearity problems respectively. It is expected that this study will help identify effective spatial models, significant predictor variables, and appropriate sampling methods for archaeological modeling and site protection.

Keywords: GIS, predictive modeling, neural network

Robert G. Chamberlain, Jet Propulsion Laboratory. Email: rgc@jpl.nasa.gov; William H. Duquette, Jet Propulsion Laboratory. Email: William.H.Duquette@jpl.nasa.gov; Some Algorithms for Polygons on a Sphere

A limited search for polygon algorithms for use in a new military training simulation that interfaces with several others produced only planar algorithms. To avoid having to implement several different sophisticated map projections to guarantee compatibility with all the other simulations, we opted to develop algorithms that work directly on a sphere. The first is an algorithm to compute the area of a polygon whose edges are segments of great circles. Since our models represent the locations of some things as being located at mathematical points, the second topic is whether a specified point is inside a specified polygon. Possibly pathological cases are identified and eliminated. When we realized that most political boundaries are actually rhumb lines, we looked at the relationship between the maximum distance between rhumb lines, great circle segments, and the line segments that connect points on a plot of latitude vs longitude as a function of length, azimuth, and latitude. We found the maximum polygon edge length consistent with the real-world size of our practical resolution. One way to define a large number of polygons is to draw big ones, then smaller ones on top of them. Thus, it would be useful to know the area overlapped by both polygons. Again, potentially pathological cases are identified and eliminated.

Keywords: polygons, algorithms, spherical geometry, rhumb lines, areas, polygon-on-polygon, point-in-polygon

Charlotte N. L. Chambers, University of Edinburgh. Email: c.n.l.chambers@sms.ed.ac.uk; Bounding the Lagoon: The Case of the Pasua Rahui, Tongareva, Cook Islands

This paper presents an exploratory study into the significance of boundaries and conceptualisations of spatiality in the context of declining numbers of an important food species, pasua (giant clam *Tridacna maxima*) in the island community of Tongareva. Tongareva, or Penrhyn as it is also referred, is the northern-most island in the Cook Islands group in the Eastern South Pacific. Tongareva represents an interesting case study in so far as it is simultaneously a 'remote' place and one firmly embedded in trans-national networks of communication, travel and exchange that link both the human and non-human in Tongareva to other parts of the Cook Islands and more widely. This paper specifically focuses on historical and contemporary understandings of physical and conceptual boundaries on Tongareva in terms of how such boundaries are invoked, accepted and contested, negotiated and maintained. The use of rahui, a Cook Islands Maori work which describes placing harvest restrictions on either a particular area of lagoon or on a particular species for a set period of time, is a very particular invocation of a boundary. I use empirical material obtained during fieldwork on Tongareva in March-July 2006 detailing discussions over the use of rahui to manage declining numbers of pasua, to illustrate how current understandings of spatiality on Tongareva, shape social and ecological outcomes with

specific consequences.

Keywords: spatiality, boundaries, Tongareva, Cook Islands, pasua, rahui

Frederick B. Chambers, Ph.D., University of Colorado at Denver and Health Sciences Center. Email: Frederick.Chambers@cudenver.edu; Steven J. Gordon, Ph.D., United States Air Force Academy. Email: Steve.Gordon@USAF.af.mil; Preliminary results of micro-climatology and weathering relationships at Mauna Ulu crater, Hawaii Volcanoes National Park, Hawaii

Forthcoming

Keywords: climate, lava, weathering

Jacqueline Augusta Chambers, University of Wisconsin-Eau Claire. Email: chambeja@uwec.edu; Anne Kathleen Gauer, University of Wisconsin-Eau Claire. Email: gauerak@uwec.edu; Karen G. Hayholm, Dr., University of Wisconsin-Eau Claire. Email: havholkg@uwec.edu; Garry Leonard Running, University Of Wisconsin, Eau Claire. Email: runningl@uwec.edu; Post-glacial Stratigraphy, Eolian Activity, and Paleoenvironment: A view from the Atkinson Site, Glacial Lake Hind Basin, Southwestern Manitoba, Canada

The Atkinson site, located in the Lauder Sand Hills, glacial Lake Hind Basin, SW Manitoba is an important multi-component archaeological site. Previous geoarchaeological research along the 850 m-long cutbank exposure of the Souris River adjacent to the site, ongoing since 2002, has revealed an eolian and fluvial post-glacial stratigraphic sequence (geomorphic units A-E). Recent flooding followed by low water levels in the Souris River revealed fresh exposures. This made it possible to address remaining questions about the contacts between units, the number of dune depositional episodes, and dune migration directions. Thirty-one stratigraphic profiles were described and added to the data base. Geomorphic units were traced across the exposure and mapped using a total station, correlated with profiles described in previous years, and the existing topographic site map was expanded by ~ 15,000 m² using a total station. Additional sand samples of eolian units (B-E) were collected and analyzed for particle-size distribution (sonic sifter, half-phi interval) and 37 new cross-strata measurements from unit B were added to the data base. Our results confirm: mid-Holocene dune unit B conformably overlies unit A2 but welds with unit C, and both units C and B pinch out downstream near the archaeological excavation block; units D, E, and A2 extend across the entire exposure, units D and E represents four distinct episodes of late Holocene dune activity (dune migration from the northwest), the mid-Holocene unit B dune migrated from the west, and grain populations from eolian units (B, C, D and E) are distinguishable statistically.

Keywords: geoarchaeology, Canadian Prairies, Holocene Paleoenvironment

Kam Wing Chan, University of Washington. Email: kwchan@u.washington.edu; Major Issues in China's Urbanization and Policy

This paper is a synthesis and discussion of several major issues in China's urbanization in the last two decades. The paper first analyses two fundamental features of the Chinese spatial system: the administrative hierarchy and the restriction of population mobility. This is followed by an empirical study of recent national urbanization trends and the patterns of population growth of individual cities based on the 1990 and 2000 Census data. The paper goes on to examine the politics and economics underlying urban growth and the configuration of the urban system. The final section explores the policy implications, and future urbanization and migration policies and national development strategy.

Keywords: China, urban, urbanization

Kam Wing Chan, University of Washington. Email: kwchan@u.washington.edu; Man Wang, University of Washington. Email: mwang87@u.washington.edu; The Social Geography of Wuhan - Mobility and Processes

Based on the long-form data of Census 2000 and fieldwork, this paper examines the social spatial patterns of Wuhan, China, focusing on the intra-urban mobility, rural-urban mobility and their interaction in the second half of the 1990s. The major stream of intra-city mobility was relocation due to housing reconstruction and demolition, which involves the movement of people from the urban city center to new residential areas in the outer fringe of the urban areas. This emergent suburbanization process also generated a large number of people in the category of "person-hukou separation," a special phenomenon in many Chinese cities, as well issues of aging and unemployment in the city center. On the other hand, many outside migrants, most of whom were from the rural areas in search of better jobs, came to settle in the city center and offset the population loss, creating a new urban social geography. Wuhan's story shows a "succession" "invasion" process, which is an inverse to the Western immigration pattern. Even though most outside migrants are concentrated in the city center and at the urban fringe, Wuhan's social geography shows some special features quite different from other major cities in China owing to a possibly different

process. The Wuhan case is studied in the context of China's rapid urbanization and its social, economic and political processes in the transition era.

Keywords: intra-urban mobility, transitional China, migration, urbanization, suburbanization, social geography, segregation

Roger C.K. Chan, The University Of Hong Kong. Email: hrxcucc@hku.hk; Urban Agglomerations in China

In the 21st century, the impacts of globalization, such as the shift in economic production, forced economic restructurings, are greatly affecting and stimulating the growth of China's and other countries' economic developments. The construction of new cities stems from the need to accommodate a population size of 6 billion in China. The growth of cities in China uses the gather and disperses of resources urban agglomeration formula together with the considerations of each city's individual economic situation, natural resources, and the development pace as its guiding principle to increase the functionalities of cities, establishing stronger organic metropolises. In order to ensure a more balanced and sustainable socio-economic development between all metropolises and smaller districts, three strategic approaches are identified and discussed in this paper.

Keywords: urban agglomeration, urbanization, China

Philip L. Chaney, Auburn University. Email: chanep1@auburn.edu; Hurricane Katrina Damage and Recovery Issues at Dauphin Island, AL

Hurricane Katrina produced a storm tide of approximately 6.6 ft above mean sea-level at Dauphin Island, Alabama, which damaged or destroyed one-third of the approximately 1500 homes on the island. The recovery process has included several landuse planning and development activities that appear questionable. The west end of the island, where 190 homes were completely destroyed, is being re-developed even though this area has a history of severe hurricane damage. National Flood Insurance Program regulations, which guarantee coverage to a homeowner even if the home has previously been destroyed by flood, appear to play a critical role in this process. Furthermore, the FEMA buyout program for flood-prone homes is voluntary, not mandatory, so it appears that the only means for preventing further hurricane damage at this site is total erosion of the island. Interestingly, lots along the west end beach that are currently under water are being purchased by potential new homeowners. Although these lots are currently unusable, they may be re-developed in the near future because of a plan to rebuild the beach with funding provided by FEMA, which is being justified as protection for infrastructure. Additional development on the island in the form of several new condominium units will increase tourist activity and lead to an expansion of service-related business facilities on the island. Therefore, the recovery process at Dauphin Island appears to be driven by decisions that will increase, rather than decrease, the community's exposure to hurricane damage in the future.

Keywords: hazards, hurricane, Katrina, NFIP

Chang-Yi David Chang, National Taiwan University. Email: changyi@ntu.edu.tw; Jack F. Williams, Michigan State University. Email: jfw@msu.edu; Environmental Impact and Risk Management of Mountain Highway Construction in Taiwan

Land is precious in Taiwan. Thus, competition for use of land can be intense and lead to serious environmental problems. Intensive land development in mountainous slopelands that accounts for three fourths of Taiwan can derive more severe disasters, especially after the construction a new highway. This speech is an attempt to depict a detailed examination of the first Cross- Island Highway finished in 1960 and its impact based in part upon original field work conducted from 1970s to recent years. Some 50 years after the construction of the highway, there now is widespread agreement in Taiwan that the highway construction is a prime example of unwise use of mountainous regions and its consequences. Taiwan Government approved a National Land Recovery Act on January 20, 2005. All new highway construction, new agricultural and other developments at the elevation of 500 meters above sea level would be banned.

Keywords: Environmental Impact, Risk Management, Mountain Highway, Taiwan

Chung Chang, Environmental Psychology Program, City University of New York. Email: cchang@gc.cuny.edu; How could GIS contribute to the geographical imagination of gentrification? A case study of New York City, 1990-present

Geographers have used techniques such as statistics, policy analysis and Geographic Information Systems (GIS) to study gentrification. GIS is mostly utilized to map the location of gentrifying neighborhoods. Environmental psychologists, in addition, have employed qualitative research methods like participatory observation and in-depth interview to investigate the impact of gentrification on daily life. In my opinion, the full potential of GIS to analyze and visualize gentrification has yet to be realized. This project will apply GIS

methodologies to study spatial patterns and relations of gentrification in New York City. Variables from the U. S. Census will be mapped to reveal the extent of demographic and socio-economic changes. The Real Property Assessment Database (RPAD) of New York City's Department of Finance that records zoning, land use, etc. of each tax lot will be plotted to illustrate the conditions of the physical environment. The case study will adopt the third wave gentrification theory by Hackworth and Smith (2001) that argues post-1990 gentrification is led by corporate-government partnership. Such collaboration facilitates non-local actors with global-level influence and capital to lead gentrification into previously ungentrifiable areas. The discussion will focus on how GIS, in producing such explicit social and physical condition atlas, could be a powerful new tool for the study of gentrification and to facilitate residents' visualizing their geographical imagination for the existing state and future scenarios of their communities.

Keywords: geographical imagination, GIS, gentrification, New York City

Kuo-Chen Chang, National Taiwan Normal University. Email: kcchang@ntnu.edu.tw; Bio-Hotspot Monitoring in Taiwan by Integrating Multi-platforms and Multi-resolutions Remote Sensing Imageries

In the past 3 decades, people in Taiwan have relied heavily on silicon for our development. People have witnessed the increase of GNP and degrading of the environment quality. A healthy environment is the basis for a healthy economy. Without that, we would not be able to survive, let alone sustainable development. Since the turn of the century, people began to realize that we do need to do something to achieve our goal of sustainable development. Our first task is to identify the areas that are in critical situation and must be taken care of immediately. In this research, we will explore the potential of integrating multi-platforms and multi-resolutions remote sensing Imageries to monitor biodiversity hotspots in Taiwan.

Keywords: Bio-Hotspot, FORMOSAT-2, Remote Sensing, Image Processing, GIS

T. C. Chang, National University of Singapore. Email: geotc@nus.edu.sg; Peggy Teo, National University of Singapore. Email: geoteop@nus.edu.sg; The Shophouse Hotel: Vernacular Heritage in Creative Singapore

The geographic literature on urban creative economies has focused largely on the creative class(es) that cities attract and the urban creative zones that have developed viz. gentrified neighborhoods. As a "global city for the arts", Singapore's creative economy is evident in a number of ways not too different from other world cities, and yet distinct in other forms. One dimension which has not received much attention, for example, is the emergence of "boutique hotels" since the mid-1990s. The shophouse (literally a building with a shop on the ground floor, and residences on upper levels) was the vernacular architectural style of the working class in colonial Singapore and Malaysia. This paper critiques the creative uses of the shophouse vernacular and highlights the contestations surrounding the emergence of hotel landscapes. Contestations include conflicts between hoteliers and urban planners on permissible land uses, the loss of former tenants from the shophouses, and the creation of new place images not always in keeping with local histories and geographies. Our paper suggests that the boutique hotel phenomenon in Singapore goes beyond a straightforward process of nouveau riche gentrification. Beyond the fetishization of the shophouse, counter evidences revealing the emergence of new modes of creative governance and a re-embrace of the downtown by Singaporeans underline an evolving perspective of the creative city.

Keywords: hotel, tourism, vernacular, heritage, creativity, Singapore

Maggie Chapman, University of Edinburgh. Email: maggie.chapman@ed.ac.uk; Walking through fences: environmental (mis)management by goats and humans

Environmental management (and conservation) in the UK is driven largely by non-governmental organisations that privilege institutionalised and technocratic knowledges such as performance indicators and targets, in an attempt to make 'nature' conform to pre-determined notions of ecology and ethology. However, in many management projects there is little understanding of or engagement with the assumptions and consequences of such approaches. In this paper I highlight some of the limitations of such managerial strategies and identify some of the contributions that environmental management could make towards a more coherent and sustainable environmental ethic(s). I use the case study of feral goats in Scotland to illustrate how professional conservation judgements failed to acknowledge the importance of local (non-professional) wisdom about goat behaviour and grassland ecology. Goats were to be used as management tools in Kintyre, Scotland, to control grassland vegetation for the benefit of the threatened Yellow Milk-vetch plant. This rested on the ability to control goat behaviour; elaborate plans were devised to restrict and manipulate goat foraging, with the assumption that the goats in question would/could not

resist such regulation. I show how the patriarchal knowledge system of environmental science not only relies too heavily on institutionalised and professionalised fixes, but also fails to acknowledge agency in non-humans. I argue that environmental management could make radical contributions to a forward-looking nature conservation and environmental ethic(s) by challenging the social centralisation and organisational hierarchies within environmentalism, and refusing to assume that existing structures are necessarily the most appropriate means of tackling environmental dilemmas.

Keywords: animal geography, environmental management, feral goats, conservation, professionalisation of knowledge, environmental ethics, agency

Thomas Chapman, Florida State University. Email: tec03c@garnet.acns.fsu.edu; Electoral Geographies of State Same-Sex Marriage Referenda

The intense debate in the United States over same sex marriage is replete with competing views of the 'moral' and cultural landscape, for which definitive patterns have emerged that are associated with various socio-economic characteristics of the voting public. I examine this issue in an electoral context as it played out in several states during the 2004 general election. In analyzing the socio-spatial constructions both within and between states, I direct attention to issues such as race, class, age, and level of education, and their impact on the voting outcomes of state-wide marriage referenda. In particular, African American discourse in supporting or opposing these amendments presents a paradox, in terms of same sex marriage as a civil rights issue or as a conservative religious 'moral' issue. Intersections of the political-economy and notions of "local culture" have also influenced the spatial outcome of the vote. These constructions are linked with the so-called 'culture wars' raging across American society as a whole, and they help illustrate some unique geographies that play out within local and regional contexts.

Keywords: gay rights, marriage, culture wars

Heather Chappells, Lancaster University. Email: h.chappells@lancaster.ac.uk; Will Medd, Lancaster University. Email: w.medd@lancaster.ac.uk; Fluid resilience: the 2006 drought in the south east of England

The concept of resilience has gained increased currency in academic and policy worlds in recent years, and yet analysis tends to have been dominated by assumptions that resilience is to be found in holistic integration and systemic adaptation enabled by processes such as social learning and adaptive management. Situating water within an urban political ecology perspective, and drawing upon science and technology studies, we propose a more fluid concept of resilience, one in which resilience takes different forms across different places, scales and socio-technical contexts. More specifically we explore what experiences of the 2006 drought reveal about the 'resilience' of UK water systems, through co-dependent levels of provision and consumption. The 2006 drought in the SE of England has revealed synergies and tensions in modes of water regulation, provision and practice and the continued contradictions of 'market environmentalism' in the UK water sector. In our analysis we explore these socio-ecological contradictions as they are played out in the relationships between everyday domestic practices, the spatially differentiated challenges of local water resource management and national strategies of regulating for drought. In examining how UK water regulators, managers and households defined scarcity, renegotiated socio-technical dependencies, and formulated 'appropriate' responses during this summer's drought, we show how 'fluid resilience' is played out at multiple interconnected levels. Focusing on the interplay between different emergent manifestations of resilience, we show how these are caught in the tensions of market environmentalism that mediate the relations between the everyday practices of consumers, water resource management and regulation.

Keywords: resilience, drought, water systems, consumption, provision

Sharad Chari, LSE & UKZN. Email: s.chari@lse.ac.uk; Remnants of Apartheid: Antipodean Critique and the Compromises of Radicalism

Reminiscing after apartheid about two histories of race and space in 'Indian' and 'coloured' communities next to oil refineries in Durban, South Africa, what is striking are the many ways in which popular consciousness reflects the remains of racial capitalism, and political struggle. Keeping in mind that analytical categories like race, labour and nation are made and maintained by histories of rebellion and compromise, this paper asks how neighbours of oil refineries remember racialised histories of labour and livelihood, while re-engaging racism and anti-racism after white supremacy. What is clear is that although these plebeian voices do not speak the languages of the orthodox Left, this should not be cause for alarm. This paper argues that rather than settling for theoretical resolution in plebeian critique, an antipodean perspective might collect, sort, sift, and live with the materiality of evidence, to bring to view the connective tissue that holds together human-environment collectivities, however fragmented or contradictory, and even in neighbourhoods surrounded by oil refineries. Rather

than await the right ideology to articulate the structured devastations of the present, in other words, the seeds of 'radicalism' may be in the everyday practices, compromises and solidarities through which human-environments persist.

Keywords: Radicalism, Apartheid, Antipodean

Philippe Charland, Université du Québec à Montréal (Dept. of History). Email: charland.philippe@courrier.uqam.ca; *Aln8baŋwi kdakina - Our World in the Abenaki Way : Abenaki Place Names in Québec*

This paper relates to the reconstitution and the definition of the Northeast of America's territorial space. The main objective is the reconstruction of the Abenaki's territorial map, one of the aboriginal nations who live in this region, as a part of my Ph.D. thesis. Supported by the essence of identity expressed through the original Abenaki toponymy within le "territoire québécois", it was possible to trace their historical territory, the W8banaki. By examining systematically the historical, cartographical and geographical sources available, it was possible to collect more than 1000 toponyms of Abenaki origin; they referring to more than 800 geographical entities. Based on this gazetteer the toponymic classification was carried based on the toponyms' character; the toponyms were then placed on maps. Related to the presence of Abenaki in various sources, the complementarity of the data established the effective presence of the Abenaki within a definite territory in Québec according to the historical sources that the European colonists preserved.

Keywords: Abenaki, Place-Names, Toponymy, Quebec, Natives, Indigenous Peoples

Igal Charney, . Email: charney@geo.haifa.ac.il; Igal Charney, University of Haifa. Email: charney@geo.haifa.ac.il; *A matter of framing: architecture, tall buildings, and the skyline of central London*

Since 2000 a handful of very tall buildings were approved in central London, a fact that challenged well established planning practices in that part of London. Their promotion by the mayor but opposition to them by conservation groups meant an intense campaign ahead; nonetheless, it ended in a flash. This article examines how this debate was framed to relegate arguments and concerns of those who oppose tall buildings. To make tall buildings acceptable, London's mayor drew on the merits associated with iconic architecture and high-profile architects. Under Ken Livingstone's incumbency, tall buildings were supported by the expertise and clout of global architects who provided legitimacy to mayoral ambitions to reach for the sky. Stressing the meaning of high-quality design and iconic architecture helped to play down deep-rooted antagonism and to channel the debate to improving the aesthetic qualities of London, a goal that enjoys wide consensus.

Keywords: London, skyline, urban design, tall buildings, global architects, iconic architecture

Susan Charnley, USDA Forest Service, Pacific Northwest Research Station. Email: scharnley@fs.fed.us; *Community Forestry in Practice: Where Are We Now?*

The destruction of tropical and temperate forest ecosystems has been a major concern among people working in the field of environmental conservation over the last few decades. The demise of forest ecosystems also threatens members of forest communities, who have social, economic, and cultural ties to nearby forests. There are a growing number of examples of "community forestry" initiatives in which forest communities have gained authority over forest management and use, under the assumption that the devolution of power to communities will lead to improved outcomes in terms of both forest and community health. This paper reviews and characterizes different approaches to community forestry that have been implemented in different parts of the world over the past two decades, with a focus on how effective they have been at providing social, economic, and ecological benefits. It also examines the reasons behind the successes and failures of these approaches at sustaining forest ecosystems and forest communities, and identifies what can be learned by comparing and contrasting different models of community forestry from different parts of the world.

Keywords: community forestry, world

Jacquelyn R. Chase, Associate Professor, Cal State University, Chico. Email: jchase@csuchico.edu; *Their Space: Gardeners as Environmental Agents in a Brazilian Gated Community*

Gated communities continue to multiply on the fringe of every major city in Brazil. In the region to the south of Belo Horizonte known as the Eixo Sul, there are over thirty gated communities. Most scholars see these communities as enclaves of the rich, enabled by security technologies, walls and distance to live free from fear. But to see gated communities as enclaves obscures the ways that they are dependent on the people of surrounding areas for their own viability. During the week when they are in the city, homeowners entrust their properties

to gardeners, domestic servants and caretakers. This study extends the scholarship on gated communities by exploring the use of space by gardeners as they move between these places of privilege and their homes beyond the gates. The intensely personal relationship between gardeners and homeowners leaves traces of mutuality and power on the landscape, especially in the gardens. Gardeners often teach their employers about plant care, and bring them cuttings, seeds and fruit from their own gardens. However, homeowners are pressing in the other direction by subscribing to the modernization of gardening which they see as the domain of a new caste of professional landscapers and ecologists. The study is based on in-depth interviews with gardeners and homeowners, literature on gated subdivisions, and employment data collected by the homeowners' association of one gated community near Belo Horizonte.

Keywords: Brazil, landscape, gated communities

Caitlin L. Chason, San Diego State University, San Diego, CA, Department of Geography. Email: chason@rohan.sdsu.edu; Short Interval Fire Occurrence and Post-Fire Recovery Patterns in Chaparral Vegetation

Recent growth and development in San Diego County into areas with shrubland vegetation cover has contributed to an increase in fire occurrence and a decrease in fire rotation intervals. High fire frequency may have detrimental impacts on shrub species that require a specific period of recovery before further disturbance by fire (Zedler, Gautier, & McMaster 1983). Wildfire recurrence intervals of five to ten years can result in type conversion of chaparral to coastal sage scrub, and even shorter intervals can result in the replacement of chaparral with herbaceous vegetation dominated by exotic and invasive grasses and forbs (Wells 1962; Zedler, Gautier, & McMaster 1983; Haidinger and Keeley 1993). Stands of chamise chaparral burned two or more times in time intervals of 10 years or less from 1970 to 2003 in San Diego County, California were examined to determine if short fire rotation intervals between fires has contributed to the type conversion of chaparral to coastal sage scrub or grassland vegetation types. Geographic information science (GIS), field observation, and image interpretation methods were used to identify and select individual stands of chamise chaparral. An evaluation of vegetation community change was conducted using traditional field mapping techniques. The objectives of this study were to map and analyze the spatial distribution of chamise chaparral stands that have experienced short interval fires and investigate the topographic and fire history characteristics that may be associated with type converted stands.

Keywords: type conversion, chamise chaparral, field mapping, fire history, GIS

James F Chastain, MA, United States Military Academy. Email: james.chastain@usma.edu; Where Did They Vote For Le Pen?

The 2002 French Presidential election manifested a re-emergence of extreme right-wing ideology as a potential socio-economic-political ideal within an advanced market democracy coping with the pressures of globalization and concomitant geopolitical and geo-economic transitions. The purpose of this research is to test the hypothesis that socio-economic correlates of globalization influenced the 2002 French presidential election. Specifically, that the right-wing political party, the National Front, gained support from voters reacting to a constructed context of globalization. This study models that support for Jean Marie Le Pen is a function of the relative presence of four socio-economic factors at the departmental level: the number of immigrants, the rate of unemployment, education levels, and age.

Keywords: Jean Marie Le Pen, 2002 French Presidential Election, National Front

Robert A Chastain Jr, Oak Ridge Institute for Science and Education. Email: robert.chastain2@us.army.mil; Mapping Vegetation Communities Using an Integrated Approach

A vegetation map is being produced for the U.S. Army's Fort Lewis Military Installation in western Washington, using a combination of remote sensing and spatial analytic methods. The mapping area has been stratified into separate cover types (upland forest, woodland/savanna, prairie, riparian forest) based on biophysical characteristics, and the effectiveness of different mapping approaches (maximum likelihood and decision tree statistical classification, object-oriented feature extraction) is being assessed within each region. Inputs to the analysis include passive and active remote sensing data obtained at multiple resolutions. High resolution multispectral QuickBird images were acquired for leaf-off (winter) and leaf-on (growing season) conditions, permitting object-oriented feature extraction using the structure and reflectance of individual tree crowns. Moderate resolution Landsat TM image data were also acquired (leaf-off and leaf-on), facilitating differentiation of forest vegetation types from information contained in the middle infrared bands. High density Lidar data (leaf-off and leaf-on) were also procured, enabling identification of individual tree crowns, accurate estimation of tree canopy cover, and development of geospatial representations of vegetation structure (e.g., tree height and forest structural

complexity). Analyses of classification accuracy will determine which mapping approaches are most effective within the different vegetation types, and thus will be integrated into the final vegetation map. Initial results indicate that object-oriented feature extraction using high resolution QuickBird and Lidar data outperforms pixel-based statistical classifiers in open savanna and woodland communities, whereas moderate resolution Landsat image data is successful at discerning forest vegetation types.

Keywords: vegetation mapping, remote sensing, feature extraction, classification, lidar

Ipsita Chatterjee, Clark University. Email: ichatterjee@clarku.edu; Title: Social Injustice and the Fascist City

Space, left to itself is inert and Euclidean, it is only in the geographies of justice and distribution that space acquires its progressive or regressive character. Globalization and intense movement of capital, ideas, information play a dual role in these geographies. It alters the personality of cities, economies and nations and it simultaneously alters the mix of values which constitutes these local spaces. Contrary to popular belief, a resurgence of local conflict in a globalizing world cannot be simply explained as the 'nostalgic local' resisting the secularizing forces of the global in its desire to preserve its parochial identity. Global and local can no longer be understood as ontologically given, confrontational scales; but rather viewed as constitutive of each other. Conflicts at local scales are not discrete local events - a nostalgic 'outside' to the global - but are complexly connected to processes of globalization. The above claim is examined through a case study of Hindu-Muslim conflict in Ahmedabad city, India. There, a Hindu-Muslim riot broke out in 2002. The Hindu community attacked its Muslim neighbors, killing and raping indiscriminately, usurping property, and annihilating the 'other' through state sponsored genocide. With the help of data collected through field work, I argue that it is no longer enough that literature in geography simply talk about exclusion and marginalization in global cities as if they were in situ local characteristics but make the conceptual leap to indicate how Neoliberal urbanization can be fascistic in dividing the urban poor in ethno-religious lines.

Keywords: Neoliberal globalization, urban renewal, global-local symbiosis.

Sudip Chatterjee, Student. Email: schattrj@memphis.edu; Multilevel Modeling of Infant Mortality in Shelby County Tennessee: A HLM-GIS Approach

This research study investigates infant mortality in Shelby County, Tennessee from 1999-2003. The average infant mortality rate of Shelby County in these 5 years is 12.7 deaths per 1000 births with the highest in 2003(14.9) and the lowest in 1999(11.7). Rates were considerably higher for African American (17.37), Chinese (17.24) than whites (6.24). The infant mortality rate for all races combined was 13.95 for male infants, 11% higher than rate of 11.51 for females. 77% of infant deaths attribute to low birth weight. Unmarried mother infant mortality rate (16.83) is twice as married mother infant mortality rate (8.21). The purpose of this research is threefold: (1) to provide a detailed rationale for using multi-level statistical modeling in investigating infant mortality; (2) to demonstrate how Hierarchical Linear Modeling (HLM) can be used to analyze the relationships between community level environmental data, individual risk factors, and birth outcomes. (3) to demonstrate an integration of spatial and non-spatial analytical methods in birth outcome studies. Geographical Information System (GIS) were applied to extract multi-level variables level-1/ individual level and level-2(a larger group or community containing level-1) associated or responsible for infant deaths to set up a HLM. Within the HLM, each of the levels in the data structure is formally represented by its own sub-model. HLM could explain infant mortality variance much more than other regression techniques. Moreover, HLM could provide a way to examine how the characteristics of Shelby County moderate the effects of the individual-level or level-2 variables on infant mortality.

Keywords: Hierarchical Linear Modeling, Spatial Clustering.

Paul Chatterton, Leeds University Uk. Email: p.chatterton@leeds.ac.uk; Challenging enclosure. Lessons in autonomy and self management.

This paper is about enclosure - the struggle against it and the struggle for the commons. Since the dawn of capitalist society and the beginning of land enclosures in the UK, the (re)claiming of space from private ownership by popular movements to re-collectivise their lives and fight the commodification of land, labour and life has had a long and rich history (see Coates, 2000; Ward, 2002; Diggers and Dreamers, 2005, Thompson, 1980; Harvey 2005). It continues today through well known popular struggles such as the Zapatistas of Mexico, the Landless Peasants Movement of Brazil, and those fighting the enclosure of natural resources. The focus of this paper stems from a current 2 year research project funded by the Economic and Social Research Council (ESCR) in the UK which explores the possibilities of developing self-managed spaces of struggle and possibility against enclosure ? what we call 'autonomous

geographies' (see www.autonomousgeographies.org). The paper relates detailed stories from two of our case studies where we have engaged with groups as action researchers: first, radical urban social centres which have emerged over the last half decade to promote self-managed politics, challenge gentrification and create common bases for social movements. Second, anti-gentrification networks which are attempting to expose, challenge and reverse enclosure through the privatisation of housing in the UK. Through these case studies, the paper develops theoretical arguments around the concepts of autonomy and self management, and explores the extent to which new forms of democracy and citizenship can be developed around them. See: www.savelittlelondon.org.uk www.whorunsleeds.org.uk www.autonomousgeographies.org

Keywords: autonomy, activism, enclosure, privatisation, urban

Sutapa Chattopadhyay, University of Minnesota, Duluth. Email: schattop@d.umn.edu; *The SSP, Myself and the Tribals*

I relied on feminist-informed qualitative methods to understand the mechanisms of involuntary migration and rehabilitation, of the displaced people, due the construction of a multipurpose river valley project in the Narmada Valley. Feminist scholars, in particular, have raised questions and concerns on the ethical dimensions of conducting qualitative field surveys. I employed a combination of methodologies including collection of archival materials, household surveys and narratives from tribal villagers in four rehabilitated villages of Gujarat. The analysis of the narratives and discourses helped me to understand space, gender and discourse. In addition, feminist-informed qualitative methods helped me in making explicit connections between myself and the Adivasi respondents, identifying women's personal experiences, gendered roles and activities and everyday challenges of the migrants. This research suggests the need to apply different feminist methodologies to aid in understanding the displaced's day-to-day challenges and promote more studies of this genre in the feminist and population geographies.

Keywords: Feminist-informed qualitative methods, population geographies, development projects, tribals, India

Lisa Shanti Chaudhari, Doctoral student, University of Georgia-Department of Anthropology. Email: shanti@uga.edu; *Health knowledge and behavior in urban Trinidad and Tobago*

Historical migrations, contemporary global exchanges and cultural expressions have created a unique setting when looking at the range and variation in patterns of health care knowledge and behavior in multiethnic Trinidad and Tobago. This paper focuses on results from exploratory research in urban Trinidad and Tobago during the summer of 2006. My objectives were to assess the inequalities in access to health care knowledge and resources. I looked at the range and variations in patterns of health care knowledge and behavior in five urban communities. I addressed questions of health choices and preference incorporating background information such as migration histories, education level and environment growing up. The methods included surveys, focus groups and semi-structured interviews. The data were qualitatively and quantitatively analyzed emphasizing the importance of understanding local changing perspectives in health knowledge and subsequent behaviors, especially in communities and countries with dynamic migration patterns. The results indicate that health preferences listed do not match up with actual health choices when seeking treatment for recent illnesses. The actual individual health care networks show the diversity and emphasis on health care choices that are close to home and continued use of local ethnomedical choices despite living an urban setting. This research enhances our understanding and valuing of diversity in alternative health care models, indicative of how different communities participate in determining levels of medical pluralism within an urban health setting.

Keywords: health knowledge, Caribbean, urban

Pat S. Chavez, Research Physical Scientist, United States Geological Survey. Email: pchavez@usgs.gov; Jo-Ann Isbrecht, Image Processor and Analyses, United States Geological Survey. Email: jisbrecht@usgs.gov; Miguel G Velasco, Geographer, United States Geological Survey. Email: mvelasco@usgs.gov; Rian Bogle, Physical Scientist, United States Geological Survey. Email: rbogle@usgs.gov; *Use of remote sensing to detect and map temporal and spatial vegetation dynamics to help map landscape erosion vulnerability: Mojave Desert and Moloka'i, Hawai'i*

Vegetation sheltering of the soils is a critical parameter that influences the level of vulnerability to erosion. In the Southwestern United States, wind erosion and dust emission are concerns with respect to soil loss and its effects on air quality, as well as on human health and safety. In Hawai'i, water erosion and sediment runoff onto coral reefs are major concerns. Methods to detect, map, and monitor temporal and spatial vegetation dynamics within a landscape are critical for mapping and monitoring the degree of vulnerability to erosion. Changes that occur from season to season in annual vegetation and perennial grasses because of differences in climate/rainfall conditions and the spatial

distribution of perennial nongrass vegetation are critical parameters that influence potential erosion of landscapes. Change-detection algorithms and procedures were developed to detect and map differences between wet and dry conditions by identifying areas of annuals and perennial grasses. Algorithms and procedures for spatial variability analyses were used to detect and map differences in the spatial coverage and distribution of nongrass perennial vegetation in the Mojave Desert and the island of Moloka'i, for studies of wind erosion and water erosion, respectively. Results showed that (1) dust emission in the Mojave Desert is greatly enhanced following drought and almost completely shut down after only a few months of heavy winter rainfall and (2) the highest amount of vegetation dynamics in Moloka'i occurred on the lower half of the watersheds, with these areas perhaps being the most promising sites to consider for management efforts.

Keywords: remote sensing, vegetation dynamics, change detection, spatial variability, wind erosion, water erosion, vulnerability, Mojave Desert, Moloka'i

May Chazan, Doctoral candidate, Carleton University. Email: mchazan@connect.carleton.ca; *Theorizing Activism: Reflections on Engaged Research Practice*

Why, among even many critical scholars, is there a continued hesitancy toward stepping outside certain pre-prescribed 'researcher' roles to become 'advocates' or 'activists'? It is my contention that the current trepidation toward activist research is rooted in simplistic notions of activism and embodied in artificial boundaries constructed between theory and practice, and between the academe and 'the field'. In this paper, I seek to challenge these theory-practice and field-academy dualisms through a reflexive examination of my two-year research process with street traders in Durban, South Africa. I specifically consider four interrelated factors influencing academic uneasiness with engaged scholarship: (1) the view that activism is atheoretical; (2) the tendency to frame activism as overt, physical and dramatic events; (3) the prevailing belief that engagement can hinder critical analysis; and (4) the dominant scholarly perspective that activism should remain located outside the academy. Through this, I offer a more nuanced theorization of scholarly activism - as a theoretically-engaged, critical and reflexive commitment to working for social justice beyond the walls of the university.

Keywords: Engaged scholarship, critical methodologies, activism

Deborah L. Che, Kansas State University. Email: dche@k-state.edu; *Envisioning Detroit Chinatown*

Chinatowns can be found in cities around the world. These residential and occupational enclaves which have been produced by Chinese migration also represent exotic visual and culinary destinations for residents from other parts of their metropolitan areas as well as for tourists. This historical paper examines the evolving envisioning of Detroit Chinatown. Drawing from documentary/archival materials (i.e., newspaper articles, photographs, reports), oral histories, interviews, and U.S. Census data, this paper illustrates how Detroit Chinatown has been viewed by the wider (Euro-) American society as an exotic, foreign Chinese colony in the heart of an industrial Midwestern city; as a neighborhood whose anti-Communist, model minority, locally apolitical population was positively contrasted with those of other minorities during post-World War II Detroit's dramatic economic and political transition; and as a slum 'needing' to be demolished as part of an early 1960s urban renewal and freeway development project, which given resulting suburbanization ultimately affected the viability of the relocated Chinatown and downtown Detroit. Alternately Chinatown has been envisioned by the Detroit Chinese as the heart of the community to more recently as a site recognizing the earlier neighborhood demolition, the violent death of Vincent Chin at the hands of two auto workers in 1982, and the subsequent, domestically-oriented political activism of Chinese-Americans. Even with the development of a new suburban Chinatown, Detroit Chinatown also has been envisioned as playing a key role in revitalizing the Cass Corridor and providing a future attraction near the city's downtown and Cultural District.

Keywords: Chinatown, Detroit, Asian migration, urban renewal

Clara Cheeves, University of Washington. Email: clarac@u.washington.edu; *Urban Agriculture and the Common Good: Embodying revolutionary ideals and sustainability in Cuba*

This poster illustrates that the growth of urban agriculture in Cuba is a direct result of Revolutionary government support and is now a major contributor in providing food security and a more sustainable country. The development of urban agriculture arose in a period of economic hardship in the early 1990s known as the "Special Period." After the collapse in 1989 of Cuba's major trade partner, the Soviet Union, and the tightening of the embargo by the United States against Cuba, the Cuban government found itself unable to provide food for the population. The people are the base of the revolution, and their welfare is the first priority of the revolutionary government. Through the passage of laws and the provision of land to the people for cultivation, the government

demonstrated its commitment to the success of urban agriculture. This success has placed Cuba in the forefront of development practices leading toward a more sustainable future. Urban agriculture provides economic growth, food production with a reduced environmental impact, and equality in the form of increased nutrition.

Keywords: Cuba, sustainability, urban agriculture

DongMei Chen, Queen's University. Email: chendm@post.queensu.ca; *The effect of spatial autocorrelation and class proportion on the sampling design for thematic map accuracy assessment*

Four thematic maps with combinations of two spatial autocorrelation levels and four different class proportions were simulated to study the effect of spatial autocorrelation and class proportion on precision of accuracy measurements from different sampling designs. A series of eleven sample sizes were simulated using three popular sampling designs, including simple random sampling (RS), systematic sampling (SS), and stratified random sampling (StrRS) on the four simulated maps. The conventional error matrix and related measures were calculated for each simulation, and precision of estimating different measures was compared among three sampling designs. Recommendation for use of a particular sampling designs and sample size depends on the spatial autocorrelation level, class proportion difference, and the accuracy indices that a given application requires. In general, the class proportion difference had more impact on the performance of different sampling methods than the spatial autocorrelation on a map. For estimating the accuracy of individual classes, stratified sampling achieved better precision than RS and SS with much small sample sizes, especially for estimating the small class. For estimating the overall accuracy, different sampling designs achieved very similar precision with fewer sample sizes. To achieve a better estimate of kappa coefficient, stratified random sampling is recommended on maps with high class proportion difference while random sampling is preferred for maps with low spatial autocorrelation and low class proportion difference.

Keywords: Accuracy assessment, spatial autocorrelation, sampling design, remote sensing

Guo Chen, Pennsylvania State University. Email: guc110@psu.edu; *A Dream beyond Reach? Homeownership for Low-income Groups in Urban China*

China's homeownership-oriented housing reform has improved the living condition of the majority in urban China; yet it also has raised the cost of accessing quality housing for some. For low-income groups, housing is an important asset to cushion them against persistent poverty. While recent studies examined bifurcated issues such as migrant housing disadvantages and determinants of housing tenure choice in China, few have offered an integrated approach to the understanding of the housing condition of and prospects for the urban poor that are constituted by socially, economically and institutionally divided groups of individuals and families including migrants and natives. In this paper, a two-level analysis of a housing survey data is conducted to support the argument that both the socioeconomic and institutional characteristics of individuals and families and the availability of low-cost housing in communities are playing critical roles in shaping the tenure decision of low-income groups in China. In order to access better, more secure housing, most face a dilemma between pooling family fund at the risk of financial insecurity and counting on underdeveloped housing welfare programs. Those with few family financial resources and broken connections with both work units and local communities are left in the "nowhere place" of abject housing poverty. The empirical finding further suggests that urban poverty in China is not simply the consequence of individual incapacity in the face of marketization or due to the existence of biased policies towards rural migrants, but instead a reaction to the emergence of transforming institutions.

Keywords: Poverty, Housing, China

Hao Chen, Clark University. Email: hchen@clarku.edu; *Which Gradients Are Associated With Successes And Failures Of Land Change Predictions*

This paper proposes a method to quantify the goodness-of-fit of a land change prediction along a gradient of an independent variable. The assessment budgets prediction errors and successes along the axis of a gradient of an independent variable, and identifies which locations along the gradient are associated with those errors and successes. The paper develops a variety of goodness-of-fit measurements, with the purpose to examine the independent variable in a composite way. They are designed to help understand 1) how the gradient along an explanatory variable performs differently in its calibration and validation stages; 2) how the error and success distributions are sensitive to the change of the variable's gradient scales; and 3) how the error-success pattern evolves along the change of unit-of-analysis scales of the variable in the context of a multi-resolution change space. The paper applies the proposed approach to Massachusetts, and demonstrates that it can reveal which independent variables

are associated with predictive accuracy and error.

Keywords: Land Change Modeling, Factor Goodness-of-fit Assessment, Central Massachusetts

Hong Chen, University of Washington. Email: hongchen@u.washington.edu; *China's Changing Urban Politics and the Impacts on Chinese Cities*

With the radical effects of economic, cultural, and political globalization, local governments have changed their focus from market regulator to market facilitator. By cooperating with the private sector, local government has sought to maintain economic growth in a climate of increased political economic instability and inter-locality competition. Combined with economic reforms, China's transition from a centrally-planned system to a market-oriented economy is transforming the fundamental nature and structure of its cities in post-Mao era. Though China's changing urban governance differs from Advanced Capitalist States, its impacts on Chinese cities are unclear. Based on the literature of Western urban politic theories, this research focuses on defining China's urban politics and evaluating different actors' roles in Chinese cities. In order to identify the role of local government, the research also conducts a case study of Guangzhou which reveals that Chinese governments have used the host of sporting mega-events to stimulate urban development.

Keywords: China, urban politics, urban development

Jian Chen, University of Memphis. Email: chenjianecnu@gmail.com; *GIS-Based Urban Flash Flood Modeling in Memphis, TN*

More and more storm-derived urban flash flooding takes place unexpectedly, this increases damage and direct & indirect economic losses. Modeling the complexities of flash flood hazard in the urban settings where flood consequences are great have recently received increased attention and motivates this research. Specifically the following research questions support the development and implementation of flood modeling in the study area: What flooding characteristics (spatial extent and inundation depth) can be expected when specific storm takes place? This research represents a case study analysis of an urban location on the campus of the University of Memphis in Memphis, TN. The study area is isolated from riverine flood influence with a history of flood disruption and losses. A GIS-based flood model is applied to assess the flooding characteristics for any specific level (intensity and duration) of storm event. This model adapts the Green-Ampt model to estimate cumulative infiltration during the storm event. A GIS-based flat-water model is then applied to assess the spatial extent and inundation depth of the ponding storm water (conveyance capacity of sewer system is considered) using high resolution topographic data. The Alternating Block Method is used to generate the model input, the design storm hydrograph of any specific level of storm in the study area based on historic observation data. Uncertainty of the model is addressed by sensitivity analysis of initial differences in soil moisture conditions, occupied levels of sewer system, and different resolution DEMs inputs. Matrices of modeling results according to different inputs are compared.

Keywords: GIS, Urban, Flash Flood, Modeling, Green-Ampt Model, DEMs

Ke Chen, East Tennessee State University. Email: mail2kechen@yahoo.com; *A Spatial Perspective on the Venture Capital Investment in the U.S Biotechnology Industry*

This paper investigates the geography of venture capital investment in biotechnology industry. The study first examines the geographic location of biotechnology firms that received venture capital investments and the spatial distribution of investment in dollar value, with recognition of investment stage, product type, and neighborhood effect. The study continues to explore the spatial distribution of agencies that provide venture capital. These agencies include venture capital firms, large biotechnology / pharmaceutical firms, and government economic development programs. Lastly, the spatial flow of biotechnology venture capital investment is studied at both individual firm level and aggregated metropolitan and regional level. The results of this study help to understand the importance of geographic location in venture capital investment.

Keywords: venture capital

Liding CHEN, Research Center For Eco-Environmental Sciences, CAS. Email: liding@rcees.ac.cn; Bojie Fu, Research Center For Eco-Environmental Sciences, CAS. Email: bfu@rcees.ac.cn; Yihe LU, Research Center For Eco-Environmental Sciences, CAS. Email: lyh@rcees.ac.cn; *A New Index to Integrating Landscape Pattern with Ecological Processes at the Watershed Level*

Understanding the relationship between landscape pattern and ecological processes has been a central yet challenging research theme in landscape ecology. Over the past decades, many landscape metrics have been proposed but few

directly incorporate ecological processes. In this paper, we propose a landscape index, namely, location-weighted landscape contrast index (LWLCI) in view of the role of landscape type in ecological processes, such as soil erosion and nutrient loss. Within the framework of the Lorenz Curve theory, we develop this index by integrating landscape pattern and point-based measurements at the watershed scale. The index can be used to characterize the relative contribution of landscape pattern with regard to a specific monitoring point at a watershed. Through a case study on nutrient loss in the northeastern China, we find that nutrient loss tends to be higher for a watershed with a higher LWLCI value, and vice versa. LWLCI can be used to evaluate the relative potential risk of soil loss or nutrient loss by comparing their values across watersheds. We also discuss several areas where attentions should be paid when applying this index to a heterogeneous landscape site.

Keywords: Landscape pattern, ecological process, location-weighted landscape contrast index (LWLCI), Lorenz Curve Theory

Qi Chen, University of California, Berkeley. Email: qch@nature.berkeley.edu; Michael Lefsky, Colorado State University. Email: lefsky@cnr.colostate.edu; Peng Gong, University of California, Berkeley. Email: gong@nature.berkeley.edu; Dennis Baldocchi, University of California, Berkeley. Email: baldocchi@nature.berkeley.edu; Validation of Canopy Height Estimation Derived from ICESat GLAS Data with Discrete-return Airborne LIDAR Data

Canopy height is a crucial parameter for forestry inventory, carbon cycle modeling, and climatology modeling. The Geoscience Laser Altimeter System (GLAS) carried on the Ice, Cloud and land Elevation Satellite (ICESat) provides the unprecedented ability of measuring the global-scale canopy vertical structure information, based on which canopy height can be potentially derived. However, the evaluation of methods for estimating global canopy height calls for very accurate measurements of canopy height across different species, terrains, and regions. To obtain and/or access the canopy height information in the field across the global is very difficult and subject to the errors from inconsistent field measurement methods. Fortunately, an increasing amount of airborne discrete-return lidar data are acquired through companies, universities, and government agencies, which serve as an ideal source for accurate canopy height estimation and validation purpose. This study is to present a consistent method of estimating canopy height from discrete-return lidar data for different forest types and terrain characteristics. The discrete-return lidar data can also produce detailed and accurate digital elevation models and canopy surface models within the footprint of GLAS waveforms. These detailed terrain and canopy surface elevation information will be used to explore the errors of canopy height estimation from the GLAS waveforms.

Keywords: Lidar, GLAS, discrete-return, validation

Robert S. Chen, CIESIN, Columbia University. Email: bchen@ciesin.columbia.edu; Arthur Lerner-Lam, Center for Hazards & Risk Research (CHRR), Columbia University. Email: lerner@ldeo.columbia.edu; Meredith L. Golden, CIESIN & CHRR, Columbia University. Email: mgolden@ciesin.columbia.edu; Randy Pullen, CIESIN & CHRR, Columbia University. Email: rpullen@ciesin.columbia.edu; Greg Yetman, CIESIN, Columbia University. Email: gyetman@ciesin.columbia.edu; Can Interdisciplinary Research Improve Natural Hazard Risk Management? The Case of the Global Natural Disaster Risk Hotspots Study

The diversity of natural hazards, each with their own set of physical characteristics and patterns of exposure and vulnerability and each with their own research communities and stakeholders, presents a difficult problem for disaster managers and other decision and policy makers. Which hazards pose significant risks for different sectors, regions, or constituents? What interactions between hazards are important? How do the overall risks of natural hazards compare with other risks and issues? What solutions address multiple risks? Unfortunately, because of the diverse scientific disciplines involved including the natural and social sciences, engineering fields, and medical and public health professions, the research community has not yet learned how to translate its research results consistently into usable and understandable forms for applied users. At the 2004 AAG, we reported on preliminary results from an international study of "global natural disaster risk hotspots," aimed at identifying areas at high risk from one or more natural hazards using a comparable framework. Since then, the hotspots study has received wide attention. It received a "Good Practice" award from the Independent Evaluation Group of the World Bank in 2006 as an "initiative with demonstrated impact/results." A private company asked us to adapt the results for use in supply-chain risk management. Lessons learned from these experiences include the tradeoffs between "state-of-the-art" in disciplinary vs. interdisciplinary research, the relative utility of mapping vs. ranking, the importance of assessing aggregate economic risks, and the need for historical data to provide context for understanding present and future hazards and risks.

Keywords: natural hazards, risk, disaster management, policy, interdisciplinary research

Shuang Chen, Nanjing Institute of Geography and Limnology. Email: schens@niglas.ac.cn; Environmental challenges of urban growth: The case of Suzhou, China

Since the late of 1990s cities in the east coastal developed area in China have expanded fast with a low development density like the cities did in Europe and North America. Great population and industries migrated from the central urban area to suburban area. Especially for big cities in the Changjiang River Delta area which holds a high level of urbanization, decentralization of population and industries have been strengthened by governmental behaviors including adjustment of administrative regime, establishment of new urban master plan and issuance of optimum policies in recent years. The resulting urban sprawl led to loss of arable land, decrease of green space and degradation of environment in the city's periphery. In the Changjiang River Delta Suzhou City experienced rapid expansion, both in its economy and in its area. In this paper, the author will offer an analysis of the environmental costs of urban growth for Suzhou City — an analysis that incorporates some of the direct and indirect costs associated with development on the urban fringe, and explore relationships of environmental costs with the expansion model of land use, size and etc.. The paper will also provide an analysis of the current policy framework guiding and responding to urbanization induced changes in the local environment.

Keywords: urban growth, environment, cost, land use

Wei-Ming CHEN, . Email: kattyouth@gmail.com; The Reaction of Taiwan's Government When Facing the Environmental Negotiation in WTO

Economic development and environmental protection are two major goals that the government wants to pursue nowadays. Therefore, the World Trade Organization (WTO) stated the objectives of sustainable development and environmental protection in the preamble to the agreement established by the WTO. As a member of WTO, Taiwan advocates sustainable development too. Because there is limited natural resource and dependence on international trade, it would be a chance to keep the balance between environmental protection and economic development. Taiwan has been a member of WTO since 2002 and the government has paid much attention on the trade and environment negotiations. The attitude of government will not only influence the negotiation results, but the development of environmental industry in Taiwan. Hence, realizing how the government draws up the negotiation position will be an interesting and meaningful research topic. Through analyzing Taiwan's WTO official documents and interviewing the officials and delegates of trade and environment negotiation, we found that they didn't have full pictures of the environmental industries in Taiwan. They don't know what kind of environmental industries in Taiwan have the economical growth potential when facing world trade liberalization. As a result, Taiwan's negotiation position became conservative and moderate. Since Taiwan's delegates often lack adequate background data, they cannot make an immediate and correct judgment during the negotiation process. One of the most crucial works we need to do is create an environmental industry database. Moreover, training delegates who have both the environment and economic background as another step would be needed.

Keywords: WTO, Environment, Taiwan

Xianfeng Chen, Slippery Rock University. Email: xianfeng.chen@sru.edu; Yongxin Deng, Western Illinois University. Email: ; Susan Ustin, University of California, Davis. Email: ; Lin Li, Indiana-Purdue University. Email: ; Topographic analysis of temporal and spatial pattern of vegetation indices derived from AVIRIS data in Santa Monica Mountain, CA

A variety of vegetation indices derived from remotely sensed data have been widely used to estimate the chlorophyll content, the leaf area index, and the vegetation water content, the important vegetation biophysical parameters. Vegetation spectral indices are determined by several combined factors such as vegetation types, topography, climate, and soil moisture condition. The role of topographic factor is significant, particular in mountain areas. It is necessary to investigate in more detail the importance of topographic factor influencing variation in vegetation indices. This study explored the relationship between vegetation spectral indices and topographic attributes derived from the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) data and Digital Elevation Model (DEM) data, respectively. AVIRIS offers an opportunity to calculate all vegetation indices in optical spectrum (400 - 2500 nm) while a number of topographic attributes, elevation, slope, and aspect, are computed from DEM data. Two statistic analyses were carried out in the study. First, a simple correlation analysis was applied to all vegetation indices and topographic attributes, computing Pearson r correlation coefficients. The scale effects and temporal variation of vegetation indices were also considered in the correlation analyses. Second, a stepwise regression analysis was employed in this study,

considering vegetation indices as the dependent variable and topographic attributes and vegetation types as independent variables. The information about vegetation types was extracted from the AVIRIS data. Understanding spatial and temporal pattern of vegetation indices is helpful for wildfire risk assessment in study area.

Keywords: AVIRIS, DEM, vegetation index, topographic attributes

Xiannian Chen, West Virginia University. Email: xchen4@mix.wvu.edu; Security Issues of Internet GIS

Combining with advanced computer technologies, information technologies, and the other emerging new technologies, Internet GIS becomes a highly distributed system. Internet GIS is a mobile, powerful, and flexible system. It provides a new perspective for people to share geography, and other related information. People can browse the information easily with the Internet browsers such as Internet Explorer, Mozilla FireFox, Netscape, or other related tools such as ESRI ArcGIS client. But the security issues of Internet GIS rise up at the same time. Many aspects of Internet GIS have more or fewer issues about security. In this research, we will study the security issues from three aspects. First, we study the security issue of GIS data, which are used for Internet GIS purpose. Secondly, we study the security issues of Internet GIS map services, which are used to serve GIS data over Network. Thirdly, we study the security issues of the data transaction.

Keywords: Internet GIS, Security, GeoDatabase, Map Services, Transaction

Xiaodong Chen, Michigan State University. Email: chenxia2@msu.edu; Guangming He, Michigan State University. Email: heguangm@msu.edu; Jianguo Liu, Michigan State University. Email: jliu@panda.msu.edu; Integrating Complex Interactions in A Coupled Human-nature System: An Agent-based Modeling Approach

Complex interactions among people, natural resources and policies have been recognized as important issues in environmental management. Due to the complexities, multi-disciplinary and cross-scale characteristics of data and methods, traditional approaches usually fail to explore the interactions in coupled human-nature systems. This presentation reports an agent-based spatial model that addresses the interactions among rural population, conservation policies and giant panda habitat in Wolong Nature Reserve of China. Local residents in Wolong collect fuelwood in the panda habitat as one of the most important energy sources, hence leading to panda habitat degradation. To protect panda habitat from further degradation, several conservation policies have been implemented in Wolong. However, these policies are short term with uncertainties of being extended or revised. Using a set of artificial-intelligence rules, household agents make decisions about their socio-economic activities under different combinations of policies or policy scenarios. By simulating the life history of individual persons, households, and dynamic interactions among people, policies and panda habitat, the roles of socio-economic, demographic and policy factors in panda habitat conservation can be better understood. Moreover, the general framework and approach of this study can be applicable in other coupled human-nature systems.

Keywords: agent-based modeling, multidisciplinary, systems integration, giant panda habitat

Xuexia Chen, Science Applications International Corporation, contractor to U.S. Geological Survey (USGS), Center for Earth Resources Observation and Science, Sioux Falls, SD.. Email: xuchen@usgs.gov; Zhiliang Zhu, U. S. Geological Survey, Center for Earth Resources Observation and Science, Sioux Falls, SD.. Email: zhu@usgs.gov; A relative radiometric correction method to improve landscape monitoring using mosaicked multi-temporal imagery

Satellite data have been widely used to detect landscape features and mosaics of images collected on different dates are often used to monitor large areas. Adjacent scenes may have seam lines due to radiometric variation caused by atmospheric or other effects. Our study developed a relative radiometric correction method for mosaicked images. In this study, 11 Landsat TM and ETM+ images acquired in the summers of 1999 and 2000 were mosaicked to assess vegetation cover in the high plateau area of Utah. Four scenes collected on June 6, 2000, were identified as "base images" and the other seven were "target images". About one thousand pixels were selected along each boundary of adjacent base and target images. Of these pixels, each base image pixel was associated with a target pixel based on their similar surface cover and therefore their surface reflectance should be nearly identical. These associated pixels of target and base images were highly correlated in each band, with r-squared values that ranged from 0.66 to 0.97. Linear regression functions were generated for each band and pixel values of the target images were recalculated. After this relative radiometric correction, the scene lines that had been visible between individual adjacent scenes of the mosaicked images were no longer noticeable. The accuracy of a three-class (tree, shrub, and herbaceous) classifier was

improved from 76.5% to 78.1%, for radiometrically corrected versus non-corrected images, respectively. These results demonstrate that the radiometric correction improved land cover classification using mosaicked multi-temporal satellite data.

Keywords: relative radiometric correction, mosaic, satellite imagery

Xuwei Chen, Texas State University - San Marcos. Email: xc1001@txstate.edu; Microsimulation of Hurricane Evacuation Strategies of Galveston Island

This article investigates the effectiveness of simultaneous and staged evacuation strategies for hurricane evacuations of Galveston Island using agent-based microsimulation techniques. In the simultaneous strategy the entire population of the affected area is informed to evacuate simultaneously, whereas in a staged evacuation strategy, the affected area is divided into different zones, people in different zones are informed to evacuate in a sequence. The simulation results suggest that the most efficient staged evacuation strategy can help reduce the evacuation time for Galveston Island by approximately one hour. This strategy helps relieve traffic pressure on the IH-45 bridge and mitigate traffic conflict between adjacent zones, therefore leads to a reduction in total evacuation time. The simulation results also indicate that previous studies might have underestimated the evacuation time of Galveston. We also found that an evacuation under the rapid response assumption does not necessarily lead to an effective evacuation as a result of severe traffic congestion. This study fills a void in the literature about the performance of simultaneous and staged evacuation strategies applied to large geographic areas. In addition, this study demonstrates that a microsimulation approach has the capability to capture some of the characteristics of traffic congestion resulting from interactions among individual drivers which could have otherwise been missed by a macro simulation approach. Microsimulation is indeed a very useful modeling tool for evaluating different evacuation strategies and options. It can be used to assist emergency managers and planners to determine effectiveness evacuation procedures for a given area.

Keywords: microsimulation, agent-based modeling, simultaneous evacuation, staged evacuation, Galveston Island

Yi-Chia Chen, Louisiana State University. Email: f370718@ms16.hinet.net; Identity Shift in a Post-Military Society: A Case Study of Quemoy

The purpose of this study is to reveal the ongoing identity construction in a post-military society under the interaction with demilitarization, cultural tourism and border-crossing. In pursuing the reconciliation with China, demilitarization emancipates the locals in Quemoy from the state narrative during the military rule, and empowers them in home construction and border-crossing. However, the dismissal of the identity as a military outpost simultaneously calls for an inquiry to reposition the social self in the changing context. As landscapes often seen as human inscriptions whose meanings can emerge through a reading of them in the syntax, this study by investigating the changes of the landscapes unfolds the proclamation made by the locals on who we are and what is it that we are jointly up to. The underlying discourses of landscape changes influence the identity construction in distinctive ways: 1) The development of heritage tourism, while incites restoration of the historic landscapes, sacralizes these places as the representative image of home; 2) Through the interpersonal interactions, the border-crossing makes realize the difference of the everyday cultural practices, which results in the complicated checkpoints and the strict Customs regulations; 3) Demilitarization, though deprives of the essential functionality of the military structures as war apparatus, sequentially monumentalizes significant ones playing out to be the mnemonic carriers of the immediate past. The identity contest among the military outpost, the tourist island and the gateway city articulates the inhabitants' quest for the economic development and their pursuit of the image of home.

Keywords: identity construction, demilitarization, cultural tourism, border-crossing

Yi-Fong Chen, National Dong-Hwa University. Email: hwafong@yahoo.com; Are We "Natural" Enough? The Ecological Tourism and Social Development in Taroko National Park Area and San-Chan Tribe, Taiwan

This paper aims at exploring the socio-cultural influence of the newly established ecotourism, which integrates cultural revitalization, ecological conservation and social development, in both Taroko National Park area and San-Chan aboriginal community. Many cases in different parts of the world indicate that the indigenous peoples have developed patterns of resource use and management that reflect detailed knowledge of local geography and ecosystem, and contribute to the natural conservation through their living practices. The development of ecotourism is expected to follow the guideline of both respecting indigenous culture and conducting sustainable development. The aborigines in

Taroko region are one of the earliest indigenous tribes to come into contact with tourists from outside, as the result of the world-renown Taroko Gorges drawing tourists from all over the world. Under the influence of the “community comprehensive construction project”, the ecotourism performing in greater Taroko region establishes the criteria to evaluate the “new partnership relations” between the state and the indigenous peoples. While in San-Chan community, due to the environmental risks produced by the stone-mining company and the negative impacts generated by the unregulated mass tourism expansion, the local indigenous people decide to close the public access to the attractive tourism spot for its fragile ecosystem for three years, while at the same time establish a community development association to promote ecotourism, to diminish the negative tourism impacts and to create job opportunity for poverty alleviation. These two cases embrace the ‘nature’ as an important element in their construction of new place identity.

Keywords: Taroko, ecotourism, sustainability, political ecology, Nature

Yun-Chung Chen, Hong Kong University of Science & Technology.
Email: ycchen@ust.hk; *Wal-Martization in Southern China*

This paper analyzes the impact of Wal-Martization on the supplier networks and the labor condition in southern China. Wal-Martization refers to a new form of low-cost production practice that led by Wal-Mart and its imitators. Many local and international retailers are now demanding their suppliers to meet the “Wal-Mart price” as a new standard in their purchasing practices in southern China. This article suggests that a new retailer-driven commodity chain - led by Wal-Mart - began to strongly influence the purchasing price of consumer goods produced by the suppliers that compete fiercely for Wal-Mart’s order. The “high-volume” purchasing power of Wal-Mart allows it to pass the cost of price war in the retail sector - “Everyday Low Prices” - to its supplier networks. The unbearable risks of fulfilling the stringent Wal-Mart’s order requirements ? such as short deliver time and uncompromised quality ? have triggered down the commodity chain with the lower tier suppliers bearing the highest risk. The consequence of this downward squeeze has direct negative consequences on Chinese workers. Workers in Wal-Mart supplier factories see their salaries declining, benefits disappearing, unpaid overtime increasing, and health and safety conditions deteriorating. Moreover, these impacts have spread beyond the Wal-Mart supplier networks to almost all consumer goods industries in China due to the price competition set-off by Wal-Mart. In short, Wal-Martization has intensified the ‘race-to-the bottom’ competition among retailers and suppliers while increase the labor exploitation in the supplier factories in southern China.

Keywords: Wal-Mart, Wal-Martization, Retail-driven Commodity Chain, Supplier Networks, Worker, Southern China

Tao Cheng, University College London. Email: tao.cheng@ge.ucl.ac.uk;
Jiaqiu Wang, Sun Yat-sun University, P.R China. Email:
cafes123@163.com; *Using Dynamic Recurrent Neural Networks For Integrated Spatio-Temporal Forecasting*

Spatio-temporal forecasting has been developed from individual spatial or temporal forecasting and gained heavy attention for its promising performance in handling complex data in which not only spatial but also temporal characteristics must be taken into account. Among other methods, static feedforward neural networks are employed to discover the hidden and deeply entangled spatial relationships. However, such approach is insufficient in forecasting dynamic processes developing over space (such as forest fire and air temperature), which usually change nonlinearly. Dynamic recurrent neural networks can consider both the parametric and structural learning due to the feedback mechanism in the neuron nodes. Therefore, we used a dynamic recurrent neural network for integrated spatial-temporal forecasting. It is illustrated by a real case study of annual temperature prediction of meteorological stations in China. Such an integrated spatio-temporal forecasting achieved better forecasting accuracy than those obtained by conventional time series analysis and spatial forecasting using a static feedforward neural network. It reveals that dynamic recurrent neural networks can be used as a general tool of spatio-temporal data prediction for complex data with temporal and spatial attributes.

Keywords: Spatio-temporal forecasting; data mining; static feedforward neural network; dynamic recurrent neural network; time series analysis

Zheng Cheng, Texas A&M University. Email:
zhengcheng@geog.tamu.edu; Hongxing Liu, Texas A&M University.
Email: liu@geog.tamu.edu; *An Agent based Cellular Automata Model for Urban Simulation of Houston Metropolitan Area*

This paper examines the urban land use changes in the Houston Metropolitan Area. Houston is currently the only major city in the US without a zoning ordinance, and market forces are the major forces to drive commercial location decisions. Therefore, if we could incorporate the individual behavior of each agent influence on triggering the land use change, more precise predictions of urban dynamic change could be generated. UrbanSim is an agent based CA model

to interpret how a metropolitan region is growing and how various combinations of land use and transportation policies and investments are likely to direct these trends. First, causal factors for urban land use changes are discussed. Then, several factor layers are chosen as the basic driving forces for the urban expansion, e.g. population, employment, transportation, land use plan, and land policies, etc. Third, modification and tuning of the model parameters are implemented. Finally, the complex influence of the non-zoning urban development and the policy implications are described.

Keywords: Agent Based CA model, Urbansim, land use change, Houston Metropolitan Area

So-Min Cheong, Dr., University of Kansas. Email: somin@ku.edu; Craig ZumBrunnen, University Of Washington. Email:
craigzb@u.washington.edu; *Working in Interdisciplinary Contexts*

Is not geography already the most interdisciplinary of disciplines? Why do we need any special consideration of interdisciplinary education and research training? On the one hand, the all too common tensions we all hear or know about between physical and human geographers within many of our own academic departments and institutions should itself disclose this need. On the other hand, increasingly geographic problems from the local to the global involve highly interrelated and complex humanistic, social and natural science issues and much more! Unmet real societal needs and practical financial concerns of researchers about declining governmental support for graduate education and research funding by governments, especially for state-funded research universities, are rapidly coming into an alignment that favors interdisciplinary education, training and research efforts. In this short paper we focus on changing paradigms of interdisciplinarity, interdisciplinary praxis, and suggestions of ways to enhance skills for research, education, communication, and management while working in interdisciplinary contexts. We highlight unmet and under-met training needs and experiential ways of improving them. We call attention to some of the institutional impediments to interdisciplinary work. We draw heavily on our personal experience in our suggestions of how to enhance skills sets for successful interdisciplinary and “transdisciplinary” work. In a nutshell, we see attention to language, personal work styles, experiential-problem-based learning, team-work, and formal group-process training exercises as crucial ways for improving the skill sets needed for intellectually stimulating, rewarding and successful interdisciplinary work. Time allowing we will demonstrate one of our group processes.

Keywords: interdisciplinarity, transdisciplinarity, team-work, group-processes, experiential learning

Kennedy Chesoli, West Chester University. Email:
KC621000@wcupa.edu; Joan M. Welch, Ph.D., West Chester University.
Email: jwelch@wcupa.edu; *Foreign Aid in Sub-Saharan Africa: Failure to Alleviate Poverty*

It is a common perception among academic researchers and aid practitioners alike that the presence of Western foreign assistance policies in Sub-Saharan Africa is largely responsible for the region’s somewhat slow but steady economic growth in recent years. Others have attributed this recovery to better aid practice, strong poverty-focused donor programs and generous foreign assistance to Africa. Foreign assistance is expended on grounds that resource inflows are used to improve and enhance the life of the people entrapped in the vicious cycle of poverty. This paper uses aid flow data published by the World Bank in a cross-country panel regression to estimate its impact and correlation with the overall economic growth captured by the gross domestic product (GDP) for a universe of 48 Sub-Saharan Africa countries between the years 1970-2004. The paper notes three worrying observations: (i) the relationship between foreign aid and growth is non-existent; (ii) the highly selective aid practice means millions of poor people in this region are neglected, and; (iii) aid-effectiveness in Africa is inhibited by negative donor practices.

Keywords: Sub-Saharan Africa, Foreign Aid, Poverty

Mang Lung Cheuk, The University of Oklahoma, Department of Geography. Email: mlcheuk@ou.edu; May Yuan, The University of Oklahoma, Department of Geography. Email: myuan@ou.edu; *The Influences of Spatial Uncertainty toward Urban Atmospheric Dispersion Modeling*

Spatial data has become one of the standard input requirements for environmental modeling. A comprehensive understanding of uncertainty embedded in spatial data and the propagation of spatial uncertainty in modeling results is critical to deciphering model behavior and making informed decisions. Particularly in urban atmospheric dispersion modeling, results of simulations can vary significantly according to different atmospheric and geographic conditions. This paper examines spatial uncertainty and uncertainty propagation in urban atmospheric dispersion modeling, using the QUIC dispersion model as an example. We term the two main sources of uncertainty as spatial data uncertainty and model parameterization uncertainty. Spatial data uncertainty mainly

arises from measurement and transformation uncertainties in building data. Model parameter uncertainty attributes to parameters used in computational model which may not accurately represent real world scenarios. We employ the Monte-Carlo method to examine both spatial data and model parameter uncertainties. In order to assure statistical validity on uncertainty assessments, we generated 30 randomly perturbed sets of input building data and model parameters. With the perturbed data sets, two groups of model results are simulated by the QUIC dispersion model. The first group of model results is based only on building data uncertainty with default model parameters, whereas the second group of model results is based on model parameters uncertainty with default input building data. Two groups of model results are then compared with results from field experiments. Results of the study contribute to the understanding of spatial data and model parameter uncertainties in urban atmospheric dispersion modeling.

Keywords: Spatial uncertainty, model parameter uncertainty, urban atmospheric dispersion model, Monte-Carlo, uncertainty analysis, QUIC dispersion model, GIS

Ivan Cheung, Association of American Geographers. Email: icheung@aag.org; GIS Education and the Emerging GIS&T Community in the U.S.

The long-term sustainable growth of the U.S. GIS&T community (or the geospatial industry) relies upon the development of a diverse, multi-faceted GIS educational system. In the U.S., there are over 450 academic programs offering GIS education and training. These programs offer stand-alone GIS courses, undergraduate and graduate degrees, as well as professional certificates. Some are offered through traditional methods while others are delivered through distance learning programs. This paper attempts to provide a comprehensive look at how these programs vary across the U.S. For examples, how accessible are these educational and training programs to urban versus rural population? Is there a spatial "mis-match" between the supply of GIS education and demand of GIS-training workforces in the U.S.? How are different academic disciplines, such as Geography, approach the tremendous needs to deliver quality GIS education? The main objective is to provide a base-line understanding of the state of the U.S. GIS education.

Keywords: GIS, Education, Workforce, Geospatial

Anil K. Chhangani, JNV University. Email: chhanganiak@yahoo.com; Paul F Robbins, Ph.D., University of Arizona. Email: robbins@email.arizona.edu; S.M. Mohnot, Ph.D., School of Desert Sciences, Jodhpur, India. Email: ; Wildlife Conservation and Adaptation in the Indian Aravalli: Panthers, Hanuman Langurs, and People

Conservation mandates in the Aravalli hills of India have sought in recent decades to protect top predators, especially panther (*Panthera pardus*). The research described here examines the relationship between wildlife species within the Kumbhalgarh Wildlife Sanctuary (KWS), specifically examining predator and prey relations. The analysis of scat collected from KWS reveals that the panther is the main predator in the Aravalli ecosystem and that the strongest prey-predator relationship in the area is that between panthers and Hanuman langurs (*Semnopithecus entellus*), which are essential to predator survival. In the 50 scat samples collected from within the sanctuary, Hanuman langurs hairs predominated. The order of presence of hairs is: langur (29%), goat (17%), wild boar (15%), sheep (13%), cow (13%) and others (13%) (blue bull, peacock, dog, camel, etc.). This analysis and our visual observations suggest that Hanuman langur tops the list of most valuable prey of panthers in KWS and survival of panthers is therefore depends on availability of langurs. Since langurs, in turn, are highly adapted to human presence and depend heavily on crop raiding for subsistence, the indirect importance of human cultivation on the sanctuary edge for meeting conservation goals can be inferred.

Keywords: wildlife, conservation, political ecology, zoology, predators

Ashwini Chhatre, Harvard University. Email: ashwini_chhatre@ksg.harvard.edu; Illegible lands, unruly people, and technologies of government: Environmental decentralization in historical perspective

Even as environment became the focal point for action in the late twentieth century, the idea of community emerged as a strong alternative to state agencies in addressing environmental problems. This trend is foremost in policies aimed at countering the threat of global deforestation, with scores of countries formulating policies to devolve management authority to village communities. Decentralization is being hailed not only as a remedy for protecting the environment; it is also celebrated for its democratic potential. However, behind the grand narrative of decentralization and celebration of civil society might lay more prosaic reasons of state. Changes in political economy, and its relationship to the exercise of state power and the legitimacy of coercion, might be one of them. The analysis of the politics of decentralization needs to be located in the

history of state formation and the concomitant political economy of the environment, with special attention to the material interests of various actors, including the state and its fragments. This article traces the emergence of one case of decentralization in Colonial India.

Keywords: CBNRM, decentralization, political economy, soil erosion, state formation

Netra B Chhetri, Arizona State University. Email: Netra.Chhetri@asu.edu; Decision Making Under Uncertainty: Ranking of Multiple Stressors on Central Arizona Water Resources

This paper explores the value of multiple stressor analysis as a support for decision making under uncertainty associated with water management policy in the Central Arizona region of the southwestern United States. More specifically, we assess the significance of each stressor in its relation with the vulnerability of water supply systems and generate a ranking of the stressors through a weight-of-evidence approach. Based on the causal links between stressors and their effects on water resources, the multiple stressors of Phoenix AMA are broadly placed in three categories: municipal, agricultural, and biophysical. Our analysis shows that outdoor irrigation uses within the municipal category is the largest stressor on water resources. Ranked second is the loss of water due to rise in temperature and simultaneous reduction in precipitation due to global warming in the Colorado and Salt/Verde River basin, the largest supplier of surface water to the Phoenix AMA. This is followed by the stress on water resources resulting from inefficient agricultural practices. Indoor water use is ranked fourth among the stressors. The relatively low ranking of indoor water use is not surprising given the implementation of efficiency standards and innovation of technologies in plumbing fixtures. Higher residential water demand due to increased night time temperature in the urban area is a distant fifth. Analysis and ranking of multiple stressors in the water resources of Phoenix AMA reveals that outdoor water use and agriculture practices are comparably fertile targets for efficiency gains from technical and management perspectives.

Keywords: multiple stressors, water management, sensitivity analysis, Arizona, decision making, uncertainty, vulnerability

Guangqing Chi, Mississippi State University. Email: gchi@ssrc.msstate.edu; Stephen J Ventura, University of Wisconsin-Madison. Email: sventura@wisc.edu; A Spatio-temporal Examination of Population Change: Demographics, Accessibility, Developability, Desirability, and Livability

Population growth (or decline) has been studied in several fields including demography, human ecology, population geography, environmental sociology, transportation planning, and regional economics. However, little systematic work has been undertaken to synthesize their different approaches to and views on population change. In this study, we examine population change holistically in an attempt to shed light on the mechanism of population change. We first systematize population change's driving forces and spatial and temporal dimensions from an interdisciplinary perspective. The driving forces are organized and developed into five indices - demographics, accessibility, developability, desirability, and livability. We then test our approach by examining population change from 1970-2000 in Wisconsin at the municipal level. The findings suggest that such an approach helps systematically understand driving factors' effects on population change, capture their spatial autocorrelation, minimize the multicollinearity, reduce heteroskedasticity, eliminate spatial error and lag dependence, and integrate the two seemingly unmixable approaches of environmental modeling and demographic modeling together.

Keywords: population change, spatio-temporal model

Kwang-Hoon Chi, Korea Institute of Geoscience and Mineral Resources(KIGAM). Email: khchi@kigam.re.kr; Hong-Jin Lee, Korea Institute of Geoscience and Mineral Resources (KIGAM). Email: leehj@kigam.re.kr; Yeong-Kwang Yeon, Korea Institute of Geoscience and Mineral Resources (KIGAM). Email: ykyeon@kigam.re.kr; Development of Tourist Information System Based on 3-D Satellite Image Maps

As satellite images have become high-resolution and high usability has been ensured, demand on satellite image data has increased in each field. In this study, a tourist information system, which is based on the Web and stand-alone and has the same Graphical User Interfaces (GUIs), were developed for the Gyeongju National Park based on the 3D satellite image maps. The main spatial data used for the system development were the Landsat-7 ETM+, SPOT-4, and ASTER satellite images and the Landsat-7 satellite images were used to draw the satellite image maps for the whole area of South Korea. Also, the SPOT-4 images were combined with the ASTER images in order to draw the satellite image maps for the Gyeongju National Park. In this study, satellite image maps, tourist information, and multimedia were converted into spatial database in order to differentiate these systems from the traditional 2-D satellite image map systems. Also, a

tourist information system based on 3-D satellite image maps was developed by using Virtual Reality Modeling Language (VRML).

Keywords: GIS, 3D, Satellite Image Map, Tourist Information System

Lan-Hung Nora Chiang, none, National Taiwan Univ. Email: nora@ntu.edu.tw; *Transnational Lives of Taiwanese Immigrant Women in Canada: An Appraisal*

Despite increasing interest in the study of Taiwanese immigrants, the underlying concept and methodology remain gender-blinded. The major questions raised for this research is how female immigrants cope with ensuing difficulties in the new environment; and how their civic participation affect their lives. Around fifty women were interviewed in Toronto and Vancouver, in 2005~2006, using a semi-structured questionnaire, ethnographic interviews, and participant observation methods. Most of the middle-class women being studied in this research had careers in Taiwan prior to immigration, but have become full-time home-makers and study mothers. Most of them belong to "astronaut families" where the husbands have returned to Taiwan to make a living. Being not in the labour force, they spent their time on their kin in Canada and Taiwan, and engage in volunteering work in the host country. Despite their years of immigration to Canada, their civic participation are characterized by social embeddedness at this stage.

Keywords: transnational lives, Taiwanese women, civic participation, Canada

Lifang Chiang, University of California at Berkeley. Email: lifang@berkeley.edu; *Bay Area Machine Shops: A Regional Geography of Skilled Manufacturing*

This paper will explore the role of skilled manufacturing in an advanced regional economy by presenting the case of the precision machining sector in the San Francisco metropolitan area. I begin by inverting the often-heard question, "why and where has manufacturing gone?" By instead posing a nearly opposite but more specific question, "why are machine shops and machinists still here?" I hope to offer insight into the survival and future prospects for the region's machine shop sector and its overall skilled manufacturing base. What explains the continued existence of over 700 machine shops in what is popularly thought of as a "knowledge economy" or "high technology" region? Viewed through the lens of sociologist Marc Granovetter's "social embeddedness" framework, spatial, technological and cost factors come into play, but arise out of social relations and organizational practices. The latter include the evolution of a complex and increasingly fragmented network of supplier-customer relationships; collaborative arrangements between shops; and the strategic use of a skilled and adaptable workforce. My session talk and accompanying paper will 1) document the historical trajectory of this long-standing sector, 2) inquire as to the current state of business, employment and training in the sector, and 3) postulate future directions for firm and worker opportunities in the regional machine shop sector.

Keywords: regional development; global production; labor; employment and training; manufacturing

Shih-Shen Chien, NUS. Email: crison@gmail.com; Litao Zhao, . Email: ; *Why Send non-local Cadres to Local Offices?*

Unlike many countries with political decentralization/devolution that local leaders are democratically elected, China practices a relatively unique political system that local leaders are assigned by upper-level governments. In this paper, we particularly focus on a type of local leaders promoted not from the 'native-ness' but from the non-local cadres. The existing researches identify three different but interrelated political reasons why non-local leaders are promoted: first, the effort of the centre against localism; second, a training package offering local management experiences to potential 'rising stars'; and third faction politics in Beijing by sending their protégé to 'occupy' different localities. What has not yet well documented is an economic reason with a geographic perspective: non-local leaders who are promoting from advanced places to underdeveloped places for the reason that experiences and tacit knowledge of development attached to those cadres are able to be diffused from to economically developed areas to laggard regions. The authors further empirically test the argument by a case of local economic development in eight county-level regions in underdeveloped mid and north Jiangsu (at least in contrast to developed and globalized south Jiangsu) in related to career paths of their leaders from 1996 to 2004. In terms of career path, there are two groups: the mid/north 'nativeness' vis-à-vis the southern non-local. The regression test shows positively that those who were non local (naming, from south Jiangsu) did generate more FDI, GDP, and fiscal revenue, particularly as compared to their counterparts who were nativeness in mid and north Jiangsu.

Keywords: China, local economic development, performance, promotion, diffusion of experiences

Brian Child, University of Florida, IUCN Southern African Sustainable Use Specialist Group. Email: BChild@africa.ufl.edu; Brian Jones, Private Consultant. Email: bjones@mweb.com.na; *Principles, Performance and Challenges of CBNRM in Southern Africa: 20 Years of Experience*

This paper outlines the history of CBNRM in southern Africa. It explains how networking across the region and across disciplines led to a common set of inter-disciplinary principles that guided implementation and the emergence of a new conservation paradigm. It then briefly presents a set of CBNRM performance metrics, describing the progress made by these programmes in southern Africa since the late 1980s. When applied properly, this data suggests that devolution consistently contributes to conservation and poverty alleviation and empowerment. This contrasts to some extent with peer-reviewed literature that is starting to portray CBNRM as a failure. We address this dichotomy by establishing a clearer institutional and operational definition of CBNRM. Finally, we turn to governance, which is an emerging but still weakly defined narrative in development writing and practice. CBNRM is entering its second decade of implementation, and we observe that (as NGOs and donor funding are phased out) it is facing three challenges: that of sustaining technical capacity beyond the project cycle; a suggested increase in internal conflict associated with devolved rights (cf Fabricius et al, 2004); and governance, with aborted devolution, corruption and elite capture being particular threats. We use our practical experience with CBNRM in southern Africa to define and discuss key governance issues at several scales, and to relate these to the sustainability and resilience of CBNRM.

Keywords: CBNRM, Community Conservation, Governance, Africa

Anne Chin, Texas A&M University and National Science Foundation. Email: chin@tamu.edu; Peng Gao, Syracuse University. Email: pegao@maxwell.syr.edu; *Modeling step-pool sequences in mountain watersheds*

Mountain watersheds are increasingly under pressure from human land uses that include logging, mining, grazing, and urban development. Mountain channels are characterized by a preponderance of steps and pools, producing a striking, repetitive staircase-like longitudinal profile. Although the rhythmic character of the step-pool streambed has long attracted the attention of scientists, few studies have successfully quantified the nature and significance of this spatial rhythmicity. This paper develops a quantitative model to describe and predict the rhythmic step-pool morphology in a range of environments. Time-series analytic techniques are applied to a large database of step-pool streams to test the hypothesis that predictable, periodic step-pool streambeds develop in diverse environmental settings, and that a general model is capable of describing their characteristics. The model reveals the extent to which step-pools are expressions of meandering in the vertical dimension, similar to pools and riffles in downstream channels, and suggesting a fundamental adjustment to maintaining equilibrium channel geometries under high energy conditions. Such a model is potentially useful in the design, management, and restoration of steep channels. Because mountain streams are important habitats for many sensitive aquatic species, results of this study can also have implications for the ecological management of impacted mountain watersheds.

Keywords: fluvial geomorphology, mountain streams, river restoration

Miriam Chion, Clark University. Email: MChion@clarku.edu; *Streets of Color in San Francisco*

During the last decade, San Francisco has been shifting from a diversified place of production to a homogeneous and upscale place of consumption. This shift reflects broad national trends in which professionals and wealthy suburbanites are moving into the city attracted by the trendy industrial character, Latin music, or streets' festivals. (Johns 2004, Zukin 1995, Sandercock 2003) Between 1995 and 2005, major investments in San Francisco shifted towards upscale housing and entertainment facilities in the inner city neighborhoods, where marginal immigrant populations, small businesses, and artists had created an intense street life. In this development process, the new residents and government policies were undermining the production of that street life by displacing its producers. While the global economic restructuring, gentrification, and creative class approaches have highlighted particular dimensions of this development process, they only provide a partial understanding. I argue that this development should be explained by the tensions between the production and consumption of San Francisco's spatial capital, a concept I proposed drawing from Massey's (2005), Castells' (1997), and Lefebvre's (1991) work. I particularly focus on how dance troupes, ranging from folk to avant-garde ensembles, engage in the production of spatial capital by converging in San Francisco to dance and bring together disperse local and international communities. Behind the colorful performances they deliver at the carnival or local theaters, I explore the challenges they face to find rehearsal studios, housing, and gathering places in San

Francisco, as they encounter upscale development and city policies and regulations.

Keywords: urban culture, international networks, development, inner city

Peter George Chirico, United States Geological Survey. Email: pchirico@usgs.gov; *Digital terrain modeling of the projected water level increase at the Kajakai Reservoir, Afghanistan*

The assessment of Afghanistan's natural resources is a major component of the long term recovery and reconstruction activities currently being conducted by foreign donor agencies. Natural resource assessments include scientific investigations to map energy, mineral, and hydrologic resources, as well as natural hazards. Authorities are planning to install new spillway gates at the Kajakai Dam and Reservoir, located on the Helmand River in the south-western Afghan provinces of Helmand and Uruzgan. The new spillway gates will increase the water level and allow for greater hydro-electric power generation and increased water for irrigated agriculture. To investigate the effects of the increased water level, 2.5m resolution panchromatic SPOT-5 stereo imagery was acquired to develop a high resolution digital elevation model (DEM). The resultant DEM has a horizontal resolution of 5m and a vertical accuracy of $\pm 10.03\text{m}$ and was developed using stereo-autocorrelation techniques and ground control point (GCP) measurements. Integrating the DEM with pan-sharpened Quickbird imagery enabled the delineation of reservoir elevation levels, individual households, and critical land-use/land-cover data which were provided to government officials and agencies assisting with reconstruction planning. Officials used this information to perform a cost benefit analysis of the Kajakai Reservoir capacity increase that balances concern for flood control and households which will need to be relocated with the water demands of irrigation, power production and the need for drinking water.

Keywords: Reconstruction, Remote Sensing, Afghanistan, GIS, Natural Resources

Brett R. Chloupek, Oklahoma State University. Email: brett.chloupek@okstate.edu; *Young Czechs' Perceptions of the Velvet Revolution, Velvet Divorce, and the Modern Czech Identity*

Young college-aged Czech students find themselves coming of age during a period of momentous change within their country. These students are caught between two unique generations of Czechs. The earlier generation grew up in Czechoslovakia, a country dominated by the post-World War II communist regime. It was this generation which was active in the dissident movements and student protests that brought an end to the communist control of Czechoslovakia in 1989. The later generation is the first in over 50 years not to know communism. Members of this generation however, know Czechoslovakia only as a part of their history and are growing up in an emerging capitalist society. The focus of this paper is on the intermediate generation of students who experienced both the reemergence of Czechoslovakia from years of communism as well as its subsequent breakup. These students were too young to have participated in both the Velvet Revolution and Velvet Divorce, yet still old enough to remember them. They represent valuable, albeit largely untapped sources of information and offer useful insights into the effects these monumental transitions had on their country and its culture, as well as its national identity and relationship with Slovakia. The purpose of this paper is to articulate young Czechs' perceptions on how the Velvet Revolution and Divorce have affected the modern Czech national identity.

Keywords: Europe, National Identity, Czech Republic

Fletcher P Chmara-Huff, MA, Ohio State University. Email: fletcherp@gmail.com; *Making Room for the Indigenous in Western Space*

Methodologically, indigenous space is difficult to contain in western spatial paradigms. This is due to the 2 dimensional representations of space that are emblematic of the geographic profession, namely maps, rather than multidimensional lived spaces. This paper explores a brief history of representation of indigenous spaces through a case study in the Great Basin and explores methodological frameworks that are used by indigenous and non-western peoples to try to come to terms with indigenous space. In addition, new directions for potential research will be explored.

Keywords: gis, maps, indigenous people

Gail Chmura, McGill University. Email: gail.chmura@mcgill.ca; Lou Van Guelpen, Huntsman Marine Science Centre. Email: arc@mar.dfo-mpo.gc.ca; Gerhard W. Pohle, Huntsman Marine Science Centre. Email: arc@mar.dfo-mpo.gc.ca; *Greenhouse Warming and Changes in Biogeographic Ranges of Marine Species on the NW Atlantic*

We report the potential for shifts in range of marine species as sea surface temperatures (SSTs) change with greenhouse warming. Our study focused on 30 species harvested in US and Canadian waters of the NW Atlantic and included shellfish, finfish, and seaweeds, as well as introduced and invasive species and an important copepod prey. We used a bioclimate envelope approach, determining

each species' "thermal habitat" from its geographical distribution (water depths and range in latitude) with respect to satellite-derived data on sea surface temperatures. We then applied projected SSTs to predict changes in range. Projected temperatures were derived from four Atmosphere-Ocean General Circulation Models for the period when average global air temperatures are expected to increase by 4°C , ~2090. Differences in the magnitude of SST changes between the two climate warming scenarios we used were less than differences among models. Our analyses show that all species will experience some distributional change and many species which have their southernmost extent near Cape Hatteras are likely to experience retraction of range there. For some species a retracted distribution is expected within Canadian waters. Species with greatest change in range include a seaweed, serrated wrack, capelin and Atlantic salmon, a species already listed as endangered. Canadian fisheries could benefit from the northward expansion of range of the blue crab and common periwinkle. However, range expansion of two invasives, the Japanese shore crab and green crab also is predicted where these species are presently limited by winter ocean temperatures of the Canadian Atlantic.

Keywords: greenhouse warming, biogeography, ocean

Eunyoung Christina Choi, Syracuse University. Email: euchoi@syr.edu; *Everyday life of Undocumented North Korean migrants in Changing Geopolitics of Northeast Asia*

Northeast Asia is in transition from its Cold War stage and adapting to market driven neo-liberal imperatives. In this transformation, the number of North Korean migrants who flee to China and then on to safe third countries has dramatically increased since the 1990s in response to life threatening food shortages in North Korea. Most of the detected undocumented North Korean migrants in China have been forcefully deported to their country according to the Chinese-North Korean treaty and received harsh punishment as "betrayals of the state" in their home country. The current outward migration from North Korea is also significant because of its gender composition. More than 70 per cent of these North Korean migrants are women, many of whom are migrating to China in the form of human trafficking. Given that, I seek to understand the changing geopolitics of Northeast Asia through the lens of marginalized North Koreans' "embodied stories of migration" (Hyndman). Specifically, I will focus on the migrant bodies who cross the North Korean-Chinese border and, in so doing, move from a closed socialist system of a totalitarian regime into a capitalist economy and thereby become subject to the influence of international politics including UN policies and states' powers of North Korea, China, South Korea, and the U.S. Rather than seeing North Korea and international politics from the above and outside, I intend to explore how North Koreans themselves have experienced the changing geopolitics in their everyday lives and in relation to their gender and class identities.

Keywords: feminist geopolitics, post-cold war, migration, Northeast Asia

Gwangyong Choi, Rutgers University. Email: tribute@hanmail.net; David A. Robinson, Rutgers University. Email: drobins@rci.rutgers.edu; *Climatology and Variability of Northern Hemispheric Seasonal Onsets and Durations*

To date, climatologists have mostly used a three-month fixed season concept to examine long-term fluctuations of seasonal climate (e.g. summer is defined as June 1 to August 31) This fixed seasonal definition facilitates the mathematical calculation of seasonal averages, but is clearly flawed, as seasons vary according to geographical locations and years (e.g. the timing of summer is quite different in Hawaii and Alaska). We derive the spatially and temporally-floating seasonal onset dates across the Northern Hemisphere using surface air temperature, vegetation, and snow cover data sets, in what may be the first effort employing this approach. Furthermore, we assess the interannual variability of seasonal onset, including changes associated with the warming of the past several decades. Maps of seasonal climate cycles demonstrate that seasonal onsets and durations across the Northern Hemisphere are affected by various climate factors, such as latitude, altitude, continentality, and shadow effects of topography. We also find that compared to 1979-1987, the length of summer (summer onset to fall onset) has increased by 5-25days in the post 1987 period in Europe, Mongolia, and the southwestern US, as well as over oceans near 30°N . In contrast, winter is abbreviated by 5-30days in the post-1987 period in the Rockies, western Europe, the western Former Soviet Union, and northeast Asia, as well as near the Arctic circle. More detailed results, such as degrees of spatial and temporal variability in the climatology and trends of seasonal cycles, and its potential linkages with the Northern Hemisphere atmospheric circulation, will be discussed.

Keywords: seasonal onset, seasonal duration, seasonality variability, Northern Hemisphere

Jinmu Choi, Mississippi State University. Email: jc778@msstate.edu;
Mark Stevens, Mississippi State University. Email: ; William Cooke,
Mississippi State University. Email: ; *Multitemporal Water Budget Database*
for National Fire Risk Assessment

Landscape moisture is recognized as an important component for modeling fire risk. The cumulative interplay of precipitation and evapotranspiration help characterize landscape moisture. This study designed a spatiotemporal database to derive and manage water budget estimates using daily assessments of precipitation and evaporation (P-E). Precipitation estimates are compiled using Digital Precipitation Array products that are Doppler radar-based estimates of hourly rainfall accumulation. Evaporation estimates are calculated from the weather station measurements such as wind speed, solar radiation, minimum relative humidity, and maximum temperature observations. In addition, database building process is automated including coordinate transformation, creating new feature classes in the database, and P-E calculation and mapping. This study shows the process of designing and building a geodatabase to manage multitemporal climatic data that can be used for fire risk assessment.

Keywords: Water Budget, spatiotemporal database, geodatabase, multitemporal climatic data, precipitation, evaporation

Jongnam Choi, Western Illinois University. Email: j-choi1@wiu.edu;
Gaffen and Ross's "Climatology and trends in U.S. surface humidity and temperature" Revisited - 10 years after.

Spatial patterns and temporal changes of apparent temperature were examined by hourly heat index values over the contiguous United States during a 45-year period (1961-2005). At lower threshold values for heat index, the normal daily frequency of maximum heat index shows no surprising spatial patterns. At higher threshold values of heat index, a distinct southwestern desert and south central Gulf coast pattern emerges for the normal daily frequency of heat index. Extreme heat index events in the southwest are driven by high surface temperature, while extreme heat index events in the south-central are driven by thermal and moisture advection from the Gulf of Mexico. Significant increasing trends were found at each threshold over most of the contiguous U.S. However, a decreasing trend is also found in the Pacific West Coast, the Intermontane West, and along the U.S./Canadian Border. This research also shows future trends in extreme heat index associated with increases in humidity and temperature in the lower troposphere.

Keywords: Heat Index, United States

Justin Young-Chan Choi, Ph.D candidate, Durham University. Email: y.j.choi@durham.ac.uk;
The role of American missionary in the formation of public-private spatial division

This paper seeks to explore the unknown genealogy of public and private spatial divisions established by American missionaries in the early twentieth-century in Korea and cast light upon the complicated ways in which the consideration of gender, civilization and religious practices played a significant impact upon inscribing the public-domestic sphere. For Americans, one of the most glaring manifestations of the backwardness of the Korean people was characterized by the total 'lack' of the distinction between what Americans saw as private-domestic and civic-public. Coupled with the 'unhygienic, primitive and miserable living condition' typified of the Korean peasants, the overall spatial arrangement was interpreted as the sure sign of a civilization in decline, which only the promotion of Victorian domesticity was able to remedy and rectify. Given the limited resource and political and monetary influence at their disposal, the privileged means with which to pursue this goal was through the domestication of the Victorian ideal within the spaces of home and church: the material improvement of home was likened to spiritual growth while the proper cultivation of domesticity and femininity equated to progress in civilization. But this was far from being a case of simple superimposition of Western spatial divisions. The ongoing debate amongst American missionaries concerning domestic spatial arrangements exposed a contradiction at the heart of Western modernity in Korea, one that was played out at the level of private, domestic space, rather than of public, institutional space for which American missionaries were most known.

Keywords: gendered space, American missionary, public-private space, postcolonial studies

Woonsup Choi, University of Manitoba. Email: choi@cc.umanitoba.ca;
Hydrological Impacts of Climatic and Land Use Changes in a Meso-scale Basin in the Midwestern U.S.

The purpose of this study is to model the impacts of the potential changes in both climate and land use on the streamflow of the Kishwaukee River Basin (KRB, size 3258km²) in the Midwestern United States under various climate-land use combined scenarios. The Hydrological Simulation Program - Fortran (HSPF) was calibrated for different locations in the KRB and was repeatedly run with eight climate/land use combined scenarios generated by combining two climate

scenarios and four land use scenarios. The two climate scenarios are from the HadCM3 climate model simulations under A2 and B2 greenhouse gas emission scenarios, and the four land use scenarios representing different degrees of urban growth are from the Land use Evolution and impact Assessment Model (LEAM). The results of the study can be summarized as follows: (1) Annual runoff is predicted to decrease by the 2040s under both A2 and B2 emission scenarios, but urban growth will have some effect of diminishing the decrease. (2) The summer (June, July and August) and low-flow season (August, September and October) runoff is predicted to substantially decrease by the 2040s under both climate scenarios, which leads to soil moisture decrease over autumn and winter. (3) The effect of combining climate and land use scenarios has not been confirmed under the present approach, which suggests the need for incorporating the feedback between climate, land use, and hydrological models.

Keywords: climate change, water resources, runoff, hydrological modeling, land use change

Vera Chouinard, Ph.D., McMaster University. Email: chouinar@mcmaster.ca;
Negotiating Marginality in the Workplace and Local State: Disabled Women's Experiences of Employment and Employment Assistance in Canada

This paper reports on the results of a cross-Canada survey on disabled women's experiences of employment and government employment assistance. Findings indicate that many disabled women continue to struggle to maintain marginal and often tenuous relationships to places of paid work. They also indicate that government efforts to assist disabled women in finding and keeping a job often make little difference in disabled women's lives. Much more can and must be done in order to ensure that disabled women have access to jobs that pay a living wage and provide accommodation of their needs, and have the kinds of employment assistance that can make real differences in their places in the working world.

Keywords: disabled women, employment, government employment assistance, marginality, Canada

Edwin Chow, University of Michigan - Flint. Email: chowte@umflint.edu;
Maps API for Internet GIS Applications

Since the launching of Maps Application Programming Interface (API) in 2005, many web developers, including both geographers and non-geographers, applauded the freely adaptable tools and spawned a lot of Internet applications. Many well-known customized "map hacks" geocoded point locations of feature (e.g. Chicago crime data, photo sharing) by using the Map API provided by Google or Yahoo. The success of the Maps API largely attributed to its availability of global data coverage, dynamic navigation, query capability, and ease of implementation. Despite of its versatility in dynamic exploration of geographic data online, the Maps API lacks the GIS functionalities (for example, spatial join) compared to standalone GIS software or other established Internet Mapping Services. The goal of this research was to examine the potential of the Maps API for Internet GIS applications. This research employed the Google Maps API and developed a web prototype that disseminates the spatial information of urban sprawl in Mundy Township, Michigan. The web prototype explored and extended the existing functionalities in displaying and processing both raster and vector data. The results revealed that the spatial and attribute information of a GIS database can be effectively represented in the Google Maps API by using Geographic Markup Language (GML). The GML approach shows that Maps API has great potential for building more complex GIS functionalities that standalone GIS software possesses. This work provided useful insights in the future development of Maps API for Internet GIS applications.

Keywords: GIS, Google maps API, web GIS, Internet, GML

Winston T.L. Chow, School of Geographical Sciences, Arizona State University. Email: winston.chow@asu.edu;
A Review of Tropical and Subtropical Canopy-Level Urban Heat Island Studies

Observations of canopy-level Urban Heat Island (UHI) phenomena in several tropical and subtropical cities are presented and reviewed. Comparisons with temperate city UHI studies will be done in two ways. Firstly, maximum UHI intensities recorded in "ideal" conditions of clear and calm weather are related to population size of selected (sub) tropical cities and compared with existing temperate city data. Secondly, temporal dynamics of (sub) tropical UHI are examined and also contrasted with temperate city UHI observations. These results are related to several factors, such as (i) the impact of different urban morphologies of temperate and tropical cities on the UHI, (ii) to the expansion of UHI form with city growth, and (iii) to the variability of the "rural" background of the tropical UHI. Lastly, relationships between moisture (i.e. soil moisture and humidity) with UHI intensities, as well as topographic and coastal influences on UHI form and intensity are noted and discussed.

Keywords: Urban Climate, Urban Heat Island, Tropical Climate

Nicholas R. Chrisman, Université Laval, Réseau GEOIDE Network. Email: nicholas.chrisman@geoide.ulaval.ca; *Research networks in GIS: Towards a geography of research funding*

Yes, GIS research has expanded, everyone knows. But there is a geography of research funding that has led to different results in different places. This presentation will start with the funding mechanisms available in the earliest period of GIS development. I will start with Professor Horwood at University of Washington, Howard Fisher at Harvard, and Roger Tomlinson. I will then move to the 1988 competition that led to NCGIA in USA. Other countries took somewhat different paths, dependent on the institutional structure of science and academic life. This presentation will concentrate on Canada and the Networks of Centres of Excellence. One of the NCE networks, GEOIDE, is in its ninth year. It has had a larger budget than NCGIA, so it is a time to ask if these funds were well spent. As Scientific Director of GEOIDE, it is my job (and pleasure) to demonstrate how Canada has invested its research funds to obtain measurable results. This example can contribute to a geography of research funding for other portions of the discipline.

Keywords: GIS, funding, research support

Jon Christensen, Stanford University History Department. Email: jonchristensen@stanford.edu; *How the West Was Shaped*

Spatial analysis can provide powerful tools for historians to illustrate how space has been constructed and changed in complicated ways over time. In most cases, spatial analysis tools are used to analyze spatial relationships in order to represent them more accurately and objectively. In this paper, I discuss a project using GIS, other spatial analysis tools, and computer graphics programs to represent the subjective construction and experience of space on railroad lines in 19th century America. Instead of rectifying older more subjective cartographic representations to modern standards, this project uses the same tools to distort accurate modern maps of railroad lines to understand how subjective space was constructed differently in different places over time by changing railroad freight rates. Some places were brought closer together; others were moved farther apart. This project involves developing a computer model to create dynamic visual cartograms that change shape as data on real freight rates derived from historical archives change over time. This model is being constructed to bring changes in space into history in a salient fashion for research and teaching. This will be a proof of concept of a tool that could be used more widely in representing and teaching spatial concepts in history and for further research into the ways in which time, cost and other variables change space in other periods and areas of the world.

Keywords: gis, spatial analysis, modeling, history, railroads, western United States

Maria Elisa Christie, Virginia Tech. Email: maria_elisa_christie@yahoo.com; *Gender Integration in Sustainable Agriculture Research: Challenges, Opportunities, and Ethics*

Researchers and institutions working with sustainable agriculture in developing countries are often required by donors to address gender issues. Consequently, the words "women" and "gender" are found in many successful proposals, and institutions agree to "integrate gender" or designate somebody as "the gender person". Drawing from case studies in various regions of the world, this presentation considers some of the challenges and opportunities this presents, as well as some related ethical issues.

Keywords: women, gender, sustainable agriculture, development, ethics

Shannon M Christie, PhD Candidate, University of Saskatchewan. Email: shannon.christie@usask.ca; *Methodologies of Political Ecology in the American West: Are they Coherent and Complete?*

Recent work on political ecology of the American West documents how influxes of exurban in-migrants seeking amenity values and 'pristine' nature have brought worldviews and land uses into conflict with those held by 'local' residents who chiefly rely on land for resource extraction. These studies illustrate the need for researchers to understand both historical and contemporary land and resource use conflicts. It is frequently lamented that the field of political ecology does not have a coherent theoretical basis or methodological approach. We explore this complaint by undertaking a survey of methods used in applied political ecologies of the American West. Our review reveals that case study methodologies and techniques are almost universally employed. Methods include participant observation, attendance at public meetings, and interviews with community stakeholders, public agency officials, representatives of nongovernmental organizations and regional or local industries, and Aboriginal peoples. Several studies supplement interview data by conducting content analysis of public documents and records; while some further supplement findings with mail-out (quantitative) surveys of local households. While the dominance of these methods provides suggests a unified methodological approach for political ecology research in the American West, we present a couple of cautions. First,

the time period over which studies are conducted is uneven and second, documentation of ecological change is limited. These findings raise questions about the extent to which changing ecologies are understood and integrated into longitudinal political stories rather than used as a backdrop to dynamic politics currently being played out in the region.

Keywords: Political Ecology, Methodology, American West, Land Use Conflicts, Ecological Change, Regional Politics

Zachary Christman, Clark University. Email: zchristman@clarku.edu; **John Rogan, Clark University.** Email: jrogan@clarku.edu; **B L Turner, Clark University.** Email: btturner@clarku.edu; **J Ronald Eastman, Clark University.** Email: reastman@clarku.edu; **Mark Friedl, Boston University.** Email: friedl@bu.edu; *MODIS Operandi: the use and validation of 1km classifications with associated uncertainty information and higher-resolution imagery in land-cover studies*

Classifications of remotely sensed data have widespread usage for land-change studies, but with medium- and coarse-resolution data (1km and higher), problems with "mixed pixels" obfuscate detailed multitemporal change detection. Previous studies of change detection been facilitated by the use of Landsat-like imagery, with 15-30 meter spatial resolution, which provide a convenient analogue to anthropogenic and natural features in the physical landscape. Coarser resolution multispectral imagery offer many advantages over finer-resolution imagery for studies of large regions, including an increased frequency of acquisition and broader swath per scene, enabling inquiries of the interannual and interseasonal trends associated with land cover transitions. Additionally, per-pixel uncertainty information assigned to these discrete classifications offers the associated confidence in the chosen class, informing the appropriate use of these data. Through the analysis and comparison of spectral and temporal signatures of MODIS 1km multispectral and classified imagery with finer Landsat imagery and aerial photographs, this study seeks to understand the class confusion that can hamper regional change detection, using examples from the United States (Northern California; Massachusetts) and Mexico (Michoacán; estado de México). Results of this research will recommend improved methods of calibration and validation, aiding regional inquiries of land use and land cover change worldwide.

Keywords: land-cover change, remote sensing, MODIS, uncertainty, anthropogenic change, phenological variation, multitemporal analysis

Bitter Christopher, University of Arizona. Email: cbitter@email.arizona.edu; **David A. Plane, University of Arizona.** Email: plane@email.arizona.edu; *Climate Regions and Migration Patterns by Stage of Life Course*

The objective of this paper is to examine the relationship between climate and population distribution within the United States. Prior research has found climate to be an important determinant of both quality of life and migration. However, studies of this nature typically represent climate as a set of distinct variables, which may not accurately reflect the influence that climate has on human welfare and quality of life. We feel that it may be more appropriate to express climate in a holistic manner, hence, this paper focuses on the relationship between population distribution and climatic "regions". The empirical analysis begins by examining changes in the distribution of population among climate regions from 1920 to 2000. Recent migration trends, disaggregated by age category, are then analyzed in order to gain a better understanding of which climate types are most attractive and how this relationship varies with an individual's stage in the life course.

Keywords: climate, migration, population, quality of life

Susan Christopherson, Cornell University. Email: smc23@cornell.edu; **Jennifer Clark, Georgia Institute of Technology.** Email: jennifer.clark@gatech.edu; *Power In Firm Networks: What It Means For Dynamic Regional Innovation Systems*

The role of power within regional firm networks is noted in empirical studies but insufficiently theorized. In this paper we take a "contrarian" position, questioning whether the model of network trust and cooperation reflects reality in regional innovation systems. We use a case study to illuminate power relations in firm networks and original research on innovative small firms in the "photonics" industry in New York State. Our findings indicate that transnational firm control over resources critical to innovation, including skilled labor, negatively affects the potential for innovation by small and medium-size firms. There are differences in the extent to which firms are capable of shaping extra-regional networks and thus, in their "strategic space". Transnational firms, in particular, are able to influence market governance rules at different scales, and use the state apparatus to meet their goals - to reduce risk or increase control over new intellectual property, for example. In this context, small innovative firms and large transnational firms do not share the same interests. Indeed, the capacity of small innovative firms in a region may be impeded by ability of large

transnational firms to shape conditions, such as regional labor markets, to meet their needs at the expense of the smaller innovative firms. Evidence for them the photonics case study demonstrates how instead of cooperation and enhanced opportunities for innovation, small firms experience competition for resources.

Keywords: Regional innovation systems, photonics industry, firm networks, economic development

Chi-Jung Chu, London School of Economics. Email: c.chu@lse.ac.uk; Re-examining museums and globalization

The last decade of the twentieth century saw the golden period of globalization in the museum world. Into the new millennium, museums have shaped a new urban landscape under the instruments of the state. Guggenheim Bilbao's experience has drawn a world-wide attention. Building grand museums becomes one of the state's urban regeneration projects and is seen as a major cultural program for the state. However, globalization in the museum field brought strong scepticism. Some fear that museums are in danger of "Disneyization", and it further erodes the local cultural identity and the state's sovereignty. The research investigates how states and museums of the peripheral positions in the world network responded to the globalization trend. The research adapts Wallerstein's world system theory as the backbone in investigating the global museum trend. Appadurai's proposal on the changing frameworks in the global cultural flow further explains the global museum branch building frenzy. The research uses two high-profile, state-lead museum projects as case studies: the Guggenheim's Taichung branch project and the National Palace Museum's branch project. The research argues that, on the macro-level, the relation between museums and globalization is contingent on the power play among states. It is not only cultural but economic, political resources that are at stake. On the micro-level, the research contends that the local context is critical in any global-scale museum project and that the state's role is essential in the orchestration.

Keywords: globalization, development, museums, state, cultural policy, Guggenheim, National Palace Museum, Taiwan

Yongwan Chun, The Ohio State University. Email: chun.49@osu.edu; Modeling Network Autocorrelation among Migration Flows by Spatial Filtering

Spatial migration models usually start from the premise that a migration flow among an origin and a destination is independent of flows among other origin and destination combinations. This assumption, however, is usually invalid in the empirical analysis of migration systems. Behavioral arguments can be made that make a subset of flows stochastically dependent on each other. For instance, the set of outflows from a particular origin may be correlated among each other. Competing behavioral assumptions lead to different specification of the underlying network autocorrelation structure. While a migration matrix is of dimensional order n by n , the resulting network autocorrelation structure will be of dimensional order n^2 by n^2 . Consequently, with increasing n a network autocorrelation structure will rapidly become computationally infeasible but still can be handled for migration flows among the 49 conterminous U.S. states (including D.C.), which are used here to exemplify the proposed methodology. It is common practice to model migration flows within a Poisson regression framework. This framework, however, needs to be extended to accommodate network autocorrelation. Spatial filtering using eigenvectors from the network autocorrelation structure as spatial proxies is proposed in this paper. Spatial filtering algorithms identify a subset of eigenvectors which augment the Poisson regression model and thus force network autocorrelation in the flow residuals of the augmented model to vanish.

Keywords: network autocorrelation, migration, spatial filtering, Poisson regression

Su-Yeul Chung, Western Illinois University. Email: S-Chung2@wiu.edu; 'Guided' Re-clustering of Racial/Ethnic Minorities in Suburbs: A Case Study of Korean Immigrants in Chicago IL PMSA

Moderate decline in racial/ethnic residential segregation during the last two decades in U.S. cities has called our attention to minorities' re-clustering even after moving to suburbs. However, many scholarly researches develop at the basis of the four major racial/ethnic categories - White, Black, Asian, and Hispanic -, lacking investigation of potential variance within each categorical group and, more importantly, processes of their re-clustering in suburbs. In response, the research attempts to understand variance in clustering/segregation across nationality groups by comparing residential patterns of the four major Asian nationality groups in Chicago IL PMSA, 1990 and 2000. Concerning the processes of minorities' re-clustering in suburbs, at least three factors have been pointed out: 'segmented path of assimilation', 'racial/ethnic preference in residential choice', and 'discriminatory practices in housing market'. The research also attempts to estimate relative roles of each factor through investigating Korean homebuyers and co-ethnic home sales agents in the study area. This research is expected to unveil underpinning processes of decentralized clustering of minorities by highlighting the roles of co-ethnic home sale agents in

geography of race/ethnicity in U.S. cities.

Keywords: segregation, race/ethnicity, Korean immigrant, segmented path of assimilation, racial/ethnic preference in residential choice, discriminatory practices in housing market

Andrew Church, University of Brighton. Email: a.church@bton.ac.uk; Tourism, power, culture and the creative industries in the core's periphery

The south east of England is often represented as a dynamic core growth region with the global city of London at its heart. Certain tourism resorts in the south east of England, with relatively high levels of deprivation, are portrayed as peripheral locations in this core region. This paper uses a case study of the resort of Hastings to explore how narratives of peripherality and creativity have featured in local urban regeneration and tourism revitalization policies. During the 1990s regeneration policy was dominated by strategies based on infrastructure for reducing peripherality and improving accessibility to an area of the south east relatively poorly served by road and rail transport. The decision of a planning enquiry to reject new road proposals in the area on environmental grounds led to a rapid reformulation of policy agendas to emphasize skills, education and the creative industries as a key source tourism revitalization and urban regeneration. The paper will use primary data from interviews with key policy actors and cultural industry workers to illustrate how problematic discourses based on the importance of a 'creative class' have served to dominate local regeneration agendas with significant consequences for the local tourism industry. The power resources of the key regional and sub-regional organizations are considered to indicate how the policy emphasis on creativity and culture developed. Conclusions will consider the problematic issues arising when 'core' region discourses of the 'creative class' are mobilized in peripheral locations.

Keywords: tourism, creativity, south east England, power

Rebecca Ciccone, University of Nevada, Reno. Email: desertbecca@yahoo.com; Round Them Up And Drive Them In: Land Use Changes from Cattle Ranches to Subdivisions in the Truckee Meadows, Reno, Nevada.

Four eras (1935, 1975, 1995, 2005) of development, real estate growth, and landscape conversion from rural-agricultural-pastoral properties to subdivisions in the Truckee Meadows is tracked using GIS, aerial photographs, and county statistics. The interesting detail is just how the historic past of the Truckee Meadows is being used to entice newcomers to settle and buy up these former agricultural and pastoral lands. A variety of statutory and policy decisions at the city and county levels have made this possible. The irony of this is the fact that most of the subdivisions bear, as advertising promotions, the name of ranches on which they are built.

Keywords: Ranches, Landscape Changes, Development, Advertisement

Caroline Cicero, MPL, MSW, Doctoral Student, University of Southern California, Leonard Davis School of Gerontology. Email: cicero@usc.edu; Outbound Seniors Community Fall Prevention Program: A New Paradigm for a Neglected Public Health Problem

This session introduces a community-based fall prevention program, the Outbound Seniors Model (OSM). OSM addresses the neglected public health problem of outdoor falls. This archetype finds its theoretical roots in Environmental Gerontology. Unlike other fall prevention programs, which concentrate on interior home modifications, behavioral change, and medical interventions for "at risk" older adults, OSM focuses on the environment a community dwelling elder encounters when he/she steps out the door. Original qualitative research, including interviews with public officials and focus groups with older adults who have fallen in their communities, helped translate the idea into an applicable model. OSM employs the geological metaphor of the earth's layers to illustrate varying levels of environmental modifications for reducing outdoor falls. Any municipality concerned about creating a safe and elder-friendly community can implement OSM.

Keywords: Outbound Seniors, fall prevention, environmental Gerontology, spatial aging, public health

Marie Cieri, The Ohio State University. Email: cieri.1@osu.edu; Creating Visions of "Pay Dirt": A Geo-Artistic-Activist Response to Post-Katrina Realities

I am involved in a project in New Orleans that I believe offers insights into ways geographers might play a part in envisioning and potentially precipitating alternative futures on a local, national and/or global scale. Since May 2006, I have been collaborating with artist Mel Chin and a team of local activists, scientists and educators to formulate an issue-based cultural response to economic, social and environmental conditions that certainly existed before Hurricane Katrina but were made undeniably manifest to the nation and the world in its wake. The two interlocking issues on which our team is focusing are, on the one hand, displacement of hundreds of thousands of people from their homes and, on the other, the grave level of soil contamination that greets those who

have returned or are contemplating return to the city. In my role as “consulting geographer,” I am researching the parameters of this far-flung and constantly changing diaspora as well as collecting scientific data about contaminated soils in order to develop a series of maps and other visualizations that convey the enormity and urgency of the situation. These graphic representations are being used to supplement Chin’s efforts to mobilize New Orleans citizens wherever they are living, activists and other supporters of social change to join in “Pay Dirt,” a nationwide action that will highlight the need for soil remediation by tapping into the unique power of the arts (in this case, in league with geography) to envision and communicate alternative futures within the public sphere.

Keywords: activism, art, Hurricane Katrina, diaspora, cartography and visualization

Anna M Cieslik, graduate student, Clark University. Email: acieslik@clarku.edu; *Those Who Stayed Behind. The Effect of Recent Polish Emigration on Cities and People*

The aim of this paper is to investigate how municipal policies can influence flows of skilled labor. Particularly, it illuminates how the socio-economic environment of a city in Poland prevents/encourages emigration of young professionals. I also consider the effect of skilled emigration on urban labor markets and evaluate the potential consequences of return migration. Currently, about 700 000 people have left Eastern Europe to look for jobs in the United Kingdom. Similar number can be estimated to have left for other EU countries (in particular Ireland, Germany, France, Holland, Sweden and Norway). The British Accession Monitoring Report states that 34% of the migrants arriving from new member states were employed in administration, business and management. On the one hand, the massive migration of skilled labor is expected to have a lasting negative effect on post-socialist economies. On the other hand, return migration might contribute to the transfer of new skills from Western to Eastern Europe. In this study I estimate the potential effects of return/non-return of skilled Polish migrants on the labor market and analyze how cities can regulate the migration outcomes. The main questions that this research addresses are: 1. What is the role of municipal policies and urban socio-economic environments in regulating the circulation of skilled migrants? 2. Does the transnational transfer of knowledge occur? Do the returning migrants bring in new, internationally learnt skills and technologies that foster local economic development?

Keywords: migrant professionals, transnational transfer of skills, EU accession, Poland, Cities

Claudio Cioffi-Revilla, US Department of State and George Mason University. Email: ccioffi@gmu.edu; *Polichart Analysis: A Computational Cartographic Approach for Visualization of Human and Social Dynamics*

Conventional cartography for visualizing historical and geographically distributed information (e.g., thematic maps or historical atlases of, say, poverty, conflict, economic development, or other social data of historical interest) is limited by several longstanding problems, including arbitrary projections, information cluttering, territorial distortions, and other issues. Misconceptions and inferential errors can also result from these problems. Polichart visualization—a new computational methodology inspired by social cartography and computational tools—solves some of these problems by improving the topology of the base grid onto which historical data are plotted, and by adopting a set of simple albeit graphically efficient conventions. The resulting visualizations maintain several critical features (N-S-E-W orientation, territorial contiguities, and others), while eliminating some of the worse problems with conventional thematic maps of historical processes. This paper describes this new approach in support of computational analysis human and social dynamics and provides some examples with specific policharts applied to historical patterns of conflict and peace. Examples include the historical evolution of nuclear proliferation potentials in various world regions, state failure potentials that may provide historical insights, and other macro-historical processes. Extensions to smaller geographic units (e.g., county or provincial data) and risk analysis (e.g., visualization of hazard rates in event history analysis) are also discussed.

Keywords: cartography, map, global issues, world

Luc Claessens, University of Connecticut. Email: luc.claessens@uconn.edu; Christina Tague, University of California Santa Barbara. Email: ctague@bren.ucsb.edu; *Hydro-Ecological Linkages in Nitrogen Export from Urbanizing Watersheds*

We investigate the role of small streams in controlling nitrogen export from an urbanizing watershed, Baisman Run, located within the Baltimore LTER program. From extensive field experiments and hydro-ecological modeling, we demonstrate that small streams play an important but complex role in controlling nitrogen export from this urbanizing watershed. In-stream nitrogen processing is strongly controlled by both stream size and stream flow conditions. In addition, spatial and temporal variability in nitrogen concentrations throughout the stream network complicates the interpretation of experimentally derived

uptakes. We will present a variety of results from nutrient addition experiments, synoptic sampling, long-term nutrient budgets, and stable isotopic sampling. In addition we will present results from hydro-ecological modeling investigations, including the development of a simple geomorphic-based model of nitrate loss, and its application using Lidar-derived stream characteristics.

Keywords: hydrology, ecology, urbanization, watershed, nitrogen

Peter R. Claggett, U.S. Geological Survey. Email: pclaggett@usgs.gov; Howard Weinberg, University of Maryland Center for Environmental Science. Email: hweinber@chesapeakebay.net; Terry Slonecker, U.S. Environmental Protection Agency. Email: tslonecker@usgs.gov; Janet Tilley, U.S. Geological Survey. Email: jtilley@usgs.gov; Leslie Milheim, U.S. Geological Survey. Email: lmilheim@usgs.gov; *Mapping Riparian Forest Buffer Restoration Opportunities*

Riparian forest buffers provide multiple environmental benefits including nutrient uptake, bank stabilization, stream shading, sediment trapping, aquatic and terrestrial habitat, and stream organic matter. Buffer restoration is one of the most popular and cost effective watershed restoration techniques. The Chesapeake Bay Program Partners have committed to restoring 10,000 miles of riparian forest buffers by 2010 as part of an overall effort to restore the health of the Chesapeake Bay. Gaps in riparian forest buffers and very narrow buffers represent restoration opportunities. Gaps can be identified using remotely-sensed imagery; however, imagery characteristics influence the dimensions and types of gaps that can be detected. Gap dimensions and proximate land characteristics are important factors influencing the restoration value for any particular gap. This project compares the utility of moderate-resolution, Landsat-derived land cover products with high-resolution land cover products derived from IKONOS and/or digital aerial photography for mapping a range of forest riparian gap sizes in a variety of landscape settings. Geographic Information Systems and image classification software are used to evaluate the relative utility of moderate vs. high resolution land cover products for identifying gaps in riparian forest buffers and for identifying any improvements to nitrogen and sediment loading models that may result from the use of higher resolution data. Factors considered in the analysis include high-resolution imagery characteristics (e.g., spatial resolution and spectral band composition) and moderate-resolution landscape factors (i.e., riparian vegetation class, surrounding land cover, soil type, surficial geology, topography, class heterogeneity, average patch size, and number of patches).

Keywords: forest buffers, riparian, land cover, GIS

James Clancy, Arizona State University. Email: jclancy@cableaz.com; Lee Lines, Dr., Rollins College. Email: Lee.Lines@rollins.edu; Michael Kuby, Dr., Arizona State University. Email: mikekuby@asu.edu; Ronald Schultz, Dr., Florida Atlantic University. Email: schultzr@fau.edu; Marissa Williams, Rollins College. Email: mxwilliams@rollins.edu; Zhixiao Xie, Dr., Florida Atlantic University. Email: xie@fau.edu; *Feasibility of a Hydrogen Rental-Car Business in Orlando, Florida*

This paper explores the feasibility of a hypothetical hydrogen rental-car business based at the Orlando (FL) International Airport. We examine barriers to using hydrogen as a fuel source for the rental car market and propose some possible solutions. We draw on three primary lines of research. First, to understand the consumer point of view we conducted a personal intercept survey of 435 rental customers at the Orlando Airport. We asked questions about socio-demographic characteristics, awareness and knowledge of hydrogen, reasons for and against renting a hydrogen car, willingness to pay more, destinations in and around Orlando, and willingness to drive out of their way to refuel. Second, to study the corporate point of view we interviewed managers of rental car companies; particularly a company that currently rents hybrid vehicles and previously rented electric and CNG vehicles. Important issues for a successful business model included: a steady revenue stream via rental of conventional vehicles; a means of identifying customers willing to upgrade to alt-fuel; parking and HOV benefits for alt-fuel cars; adequate range and refueling locations; breakdown concerns; the status value of alt-fuel cars; the availability of such cars elsewhere; and the all-important resale market for used vehicles. Third, we studied the barriers to the hydrogen economy in general and applied the hydrogen-specific lessons to the rental car business. Based on these three dimensions, we assess the feasibility of a hydrogen rental car business in Orlando.

Keywords: hydrogen, rental car, renewable energy, alternative fuel, sustainability

Roger Alex Clapp, Simon Fraser University. Email: aclapp@sfu.ca; *Forest politics, plantations, and the hardwood chip trade in Australia, Chile and South Africa*

This paper delineates three phases in the interaction between global commodity trade and environmental mobilization. Case studies of Australia, Chile and South Africa, combined with time series analysis of trade statistics, show that the Japanese paper industry has played a significant role in the development of

environmental movements in its trading partners. Japanese demand for hardwood chips has created successive regional booms in old-growth clearance, plantation establishment, and environmental opposition. Each phase contains the seeds of its own destruction. The maturation of eucalyptus plantations is closing the window of opportunity for turning old-growth forests into wood chips. The superior pulping qualities and rapidly increasing supply of plantation-grown eucalyptus have given the Japanese industry alternatives to pulping old-growth trees. Market campaigns directed at global consumers have accelerated that transition. In response to those campaigns, chip exporters have sought government subsidies and launched strategic lawsuits against environmental campaigners. The paper concludes that technological transitions in the paper and plantation sectors have placed many old-growth forests beyond the economic margin. The preservation of those forests, however, requires political actions to prevent government subsidies from propping up a destructive industry.

Keywords: forest, plantation, eucalyptus

Karenjit Clare, University of Cambridge. Email: kc331@cam.ac.uk;
Cool, Creative and Complex: Exploring social networks and gender in project-based creative industries (advertising) in London

The recent literature on the organisation of firms has highlighted the importance of project-based firms. The significance of project-based modes of organizing in new industries has been seen by some as heralding the development of a new 'logic of organizing' in market economies, particularly in the creative industries. However, much of this literature follows a macro-level perspective. In doing so, scholars ignore workers in these industries who are said to be at the forefront of the 'new economy'. Alongside this literature, scholars have highlighted the importance of social networks for ones reputation and career progression. Although, there has been some evidence suggesting that women and minorities have less access to network connections and are often less able to utilise the connections they have, this type of analysis has been absent from the literature on social networks within economic geography. In light of this, I use a micro-level (interview-based) approach to explore working practices in the new economy, particularly in project-based creative industries, where social networks are important and gender differentiations are present. I explore these themes through a case study of the advertisement industry in London in order to show the extent to which men and women's networks differ. Hence, this paper aims to contribute to our understanding of the gendered experiences of men and women working in the new economy particularly highlighting project-based industries. Second, it will also address an area of neglect in economic geography concerning gender and social networks and network rewards for men and women.

Keywords: Social networks, gender, project-based firms, creative industries

Douglas R. Clark, US Bureau Of Reclamation. Email: dclark@du.edu;
Dennis Kubly, Bureau of Reclamation. Email: DKUBLY@uc.usbr.gov;
Amy Cutler, Bureau of Reclamation. Email: ACUTLER@uc.usbr.gov; *The Western Water Institutional Solutions and WWIN GIS Collaboration: Findings of Focus Group Discussions with Reclamation Area Offices on Water Conflict and Cooperation*

In September of 2006, focus groups were held in the Grand Junction, Albuquerque, and Provo U.S. Bureau of Reclamation Upper Colorado Area Offices to determine how water conflict is currently managed and how it could be better managed. In each office from 10 to 20 participants shared their experiences. Managing water conflict figured prominently in the daily activities of virtually every participant, but played a bigger part among more senior managers. Several common themes emerged. One was that conflict often occurs during periods of profound change. Recent changes in Western water resource management include the emergence of new constituencies such as endangered species, Native Americans, second homes, or recreational users. Traditional users such as irrigators have often fought these changes and demanded compensation for water they judged to properly belong to them. Compensating those who felt they had lost legitimate rights was deemed critical to the avoidance of conflict. Water negotiations often take place over many years, but play an important role in reaching collaboration. Collaboration often occurs when users begin to recognize the legitimate needs of other constituencies and also see that, in the absence of a negotiated settlement, a court will impose a solution. Building relationships among diverse constituencies is also key to collaboration, as are joint fact-finding efforts. Dueling scientists must be asked to collaborate intensively. Finally, it is deemed critical that every constituency have a place at the negotiating table and a voice. Negotiations often fail when critical stakeholders are not a part of the collaboration process.

Keywords: Water Conflict, Western Water, Collaboration, Institutional Studies, Enterprise GIS

Heather Clark, University of Sheffield. Email: h.clark@sheffield.ac.uk;
Elizabeth Goyder, University of Sheffield. Email: e.goyder@sheffield.ac.uk;
Paul Bissell, University of Sheffield. Email: p.bissell@sheffield.ac.uk;
Lindsay Blank, University of Sheffield. Email: l.blank@sheffield.ac.uk;
Jean Peters, University of Sheffield. Email: j.peters@sheffield.ac.uk; *Parental influences on childhood obesity: a survey of child-feeding behaviours in Sheffield*

This paper will discuss the findings of a study investigating parental influences on childhood obesity. Our aim is to identify whether local child-feeding behaviour patterns might be a contributory factor. Previous research has indicated that certain child-feeding behaviours - restriction in particular - may contribute to childhood overweight and obesity. Most research into child-feeding behaviours (in the context of child weight) has been undertaken in the United States, with very little complementary research in United Kingdom populations. We are conducting a survey to investigate self-reported child-feeding behaviours of parents of primary school children (age range 4 to 11 years) in Sheffield, United Kingdom. As far as we are aware, this is the first study to collect data on child-feeding behaviours from parents of school-age children in the United Kingdom. We are using the Parental Feeding Style Questionnaire, developed by Wardle et al. (2002) and validated in the United Kingdom using a sample of parents (n=214) of younger children (age range 3.8 to 5.3 years). We will present the results of our survey and comment on possible implications for childhood obesity policy. Child-feeding behaviours are currently neglected by policy-makers, but may be an important aspect to address if we find that parents do report using inappropriate or 'risky' child-feeding behaviours. Our research group forms the Public Health strand within an interdisciplinary research programme called 'Changing Families, Changing Food', funded by the Leverhulme Trust.

Keywords: child-feeding behaviours, obesity, United Kingdom

Michelle A. Clark, California State University Chico. Email: MCLARK@dfg.ca.gov;
Dean H K Fairbanks, California State University Chico. Email: dhfairbanks@csuchico.edu; *An Investigation of the Spatial and Temporal Patterns of*

It is important to understand the abiotic and biotic features that limit the distribution and abundance of a species, especially, for species and habitats that have a special conservation status, such as *Orcuttia tenuis* and vernal pools. This study investigated the possible spatial and temporal factors that may determine the distribution of *Eleocharis macrostachya* and *Orcuttia tenuis* within two vernal pools located in Tehama County. The abiotic data (rock cover, soil depth to hardpan, and basin elevation) were compared with *E. macrostachya*, and *O. tenuis* cover to investigate spatial patterns for these plant species. Annual *E. macrostachya* and *O. tenuis* cover were compared with annual precipitation and air temperature to find temporal patterns for these plant species. The spatial results found that depth of soil to hardpan determines *E. macrostachya* distribution, and *E. macrostachya* cover shapes *O. tenuis* distribution. Basin elevation appeared to have little effect on either *E. macrostachya* or *O. tenuis* distribution. The temporal results indicate that *E. macrostachya* and *O. tenuis* abundance is relative stable at a 1.0 m² scale but *O. tenuis* varies at a 0.25 m² scale. The inconsistency of *O. tenuis* abundance at a micro scale could be due its preference for warmer air temperatures causing a possible "shifting mosaic steady state." Even though abundance is relatively stable for *O. tenuis* and *E. macrostachya* in both pools, there is negative spatial relationship between them indicating possible competition. *Eleocharis macrostachya* may not hinder *O. tenuis* abundance but may dictate its distribution within a pool.

Keywords: Vernal pools, Sacramento Valley, Species Competition, correlation, Morans I, LISA

David B. Clarke, Professor of Human Geography, Swansea University. Email: d.b.clarke@swan.ac.uk; *The ruins of the future*

What was once designed to withstand the test of time - the production process generating by-products which, serving no useful purpose, were classed as waste and condemned to instant disposal ? is, in a society of consumers, destined for an ephemeral existence. "Now, it is the turn of the useful part to be short lived, volatile and ephemeral, to clear the stage for the next generation of useful products. Only the waste tends to be (alas) solid and durable" (Bauman). This paper explores urban transience and durability in the light of this reversal, taking its cue from Baudrillard's statement that "One can imagine entire cities put together not from the waste of what has already served a purpose and therefore retained some trace of its previous usage, but of things that were waste 'from the outset' ? assured of never growing old or being revived in any memory."

Keywords: transience, durability, instant, cities

Martin Clarke, University of Leeds. Email: martin.c.clarke@btinternet.com; *Exploring the geospatial impacts of demographic change on personal income and the financial services markets in the UK using MOSES*

As is well documented the demographic structure of the UK and many other European countries will experience significant change over the next 20 years. With an ageing population composed of more single person households it is projected there will be a 20% growth in the number of UK households by 2021. This will put increasing pressure on an already overheated housing market. At the same time, due to the fall in equity markets in the early 2000s there is predicted to be a substantial deficit in pension payments to those retiring over the next decade. It is likely that this will lead to households looking to release the equity they have accumulated in their properties to make good the shortfall in their pension expectations. In this paper we shall describe how we are attempting to model some of these processes using MOSES - a dynamic microsimulation model of the UK population of individuals and households being developed at the University of Leeds. In particular, given there are major differentials in population change, income and house prices between and within regions of the UK, we are interested in modelling how the impacts of these changes pan out at the local level, the implications for local housing markets and in the wider context, for the financial services industry.

Keywords: microsimulation, demographic change, housing market

Casey Cleve, UC Berkeley. Email: cleve@sfsu.edu; **Maggi Kelly, PhD, UC Berkeley. Email:** mkelly@nature.berkeley.edu; **Faith Kearns, PhD, UC Berkeley. Email:** fkearns@nature.berkeley.edu; **Max Moritz, PhD, UC Berkeley. Email:** mmoritz@nature.berkeley.edu; *A Comparison of Pixel-based and Object-oriented Classification Approaches for Mapping Wildland Urban Interface (WUI) Areas using High Spatial Resolution Aerial Photography*

People are moving into the wildland-urban interface (WUI) — where urban and wildland areas intermix — at increasing rates worldwide. Living in the WUI places property and lives at risk from wildfire. Accurately mapping WUI areas can provide decision-makers with the information needed to help mitigate these risks. Freely available, high spatial resolution aerial photographs are increasing available to local agencies tasked with wildfire mitigation in the WUI. However, traditional photointerpretation methods can be labor intensive and expensive. Therefore, exploring image processing techniques that can partially automate this map classification process is useful. We compared the accuracy of pixel-based and object-oriented classification methods to differentiate between three urban land-use/land-cover categories that are particularly important for wildfire mitigation — built areas (structures and transportation), surface vegetation/bare areas, trees/shrubs, as well as shadows. The object-oriented classification approach consisted of a combination of fuzzy membership and nearest neighbor supervised classification, while the pixel-based approach consisted of unsupervised classification methods. Results indicate that the object-oriented approach yielded a 17.97% higher overall accuracy than the pixel-based classification approach. These results show that using an object-oriented classification approach for identifying fire hazards in the WUI is a promising technique that may help decision-makers to mitigate wildfire risks.

Keywords: object-oriented classification, wildland-urban interface

David A Cleveland, University of California - Santa Barbara. Email: cleveland@es.ucsb.edu; **Daniela Soleri, University of California - Santa Barbara. Email:** soleri@es.ucsb.edu; *Towards sustainable, local food systems: Agriculture and urbanization in the Goleta Valley, California*

As food production and distribution systems become increasingly globalized and centralized, consumer interest in negative environmental and social impacts of these systems has also increased. Use of urban and periurban land for food production and marketing provides an alternative, and is central in efforts to increase food system sustainability by increasing the local aesthetic, nutritional, educational, economic and environmental benefits of agriculture. Yet at the same time, pressures for non-agricultural development of growing populations and their demands for housing and urban infrastructure, and for preserving outlying natural areas by urban infill, challenge the possibility for this alternative. We examine the struggle of the City of Goleta, California, and the adjacent unincorporated Goleta Valley, to find a balance between protecting its dwindling agricultural land and farmers, and responding to demands for conflicting development. Data are from interviews with local interest groups, government bodies, key individuals, and a survey of farmers and food consumers. We analyze the environmental, economic, and social assumptions different viewpoints are based on, and the implications of these assumptions at the state, national and global scales, and over the long term. The goal is to facilitate discussion and consensus building by helping to make assumptions and their implications across scales more transparent.

Keywords: agriculture, california, land use, scale, sustainability, urbanization

Benjamin Peter Clifford, King's College London. Email: benjamin.clifford@kcl.ac.uk; *The Planner's Tale: The sharp end of delivering a British urban renaissance*

In 2001, a UK government green paper on 'Delivering an Urban Renaissance' was published, picking up a number of recommendations made by noted architect Lord Rogers. In the same year, another green paper was also published which called for fundamental change in the planning system, including the stated objectives of making planning both more efficient and more community focused. Both reports were conspicuous by their lack of engagement with the realities of urban planning on the ground. In this presentation, I draw on empirical material from my research with the British planning profession to argue that it is fundamentally important to consider their perspective and role in delivering an urban renaissance at what we might-term the 'street-level' (Lipsky, 1980). I explore how planners, as both built environment professionals and local government employees, find themselves on the sharp end of top-down programmes of planning reform as well as changing local governance and wider change in the public sector, particularly that associated with the so-called 'New Public Management' and the rise of an 'Audit Society' (Power, 2002). I try to draw connections between these various reforms through consideration of their impacts on the planners themselves and by giving voice to the planning profession through interview and questionnaire results. I conclude by suggesting that despite it being a relic of post-war Modernism frequently at odds with more entrepreneurial models of local governance, the planning profession is central to the actual delivery of an urban renaissance in Britain.

Keywords: town planning, planners, urban renaissance, street-level, governance, new public management, public sector reform

Nick Clifton, Dr, Cardiff University. Email: cliftonn1@cardiff.ac.uk; **Phil Cooke, Prof, Cardiff University. Email:** CookePN@Cardiff.ac.uk; *The Creative Class: is there evidence for a 'Capital City effect'?*

In this paper we begin to explore how city role and status may impact upon the creative class. The context for this is the UK, with data (both qualitative and quantitative) presented on London (England), Cardiff (Wales) and Edinburgh (Scotland). Previous work in this area has led us ask questions about these and other 'national & regional capitals' in a setting of quite distinctive regional (devolved) economic governance set-ups. Particularly, asymmetric devolution in the UK means capitals play potentially different (but simultaneous) roles both within their devolved territories and the wider UK context. As such, any creative class impacts may not be uniform. Moreover, how (devolved) national and (capital) city-region 'quality of place' policy interacts (and conflicts) may be observed; is this potential interaction of policy an issue for capitals in a way in which it is not for other 'provincial' cities? Also, it is likely that capital city effects will be both a) direct / tangible - for example higher levels of employment in areas such as public administration and perhaps related activities such as PR, journalism, consultancy and so on, and also b) less tangible in nature - e.g. reputation or 'halo' effects, self-confidence and the like. These are among the issues investigated. More generally, if there are capital effects- how important are these relative to the other factors hypothesised to impact upon the distribution of the creative class? - does the relative strength of the effect itself vary according to the nature of the capital under consideration?

Keywords: Creative Class, Cities, Governance, Policy

Michael Logan Cline, M.A., University of Arizona, Department of Geography. Email: mcline@email.arizona.edu; **Jon Pelletier, Ph.D., University of Arizona, Geosciences Department. Email:** ; *Cinder cone hillslope modeling at the San Francisco volcanic field, AZ*

Cinder cones in the southwestern U.S. are unique landforms because both the age and initial morphology can be well constrained and the parent material is homogenous. As such, cinder cones of a variety of ages provide an ideal natural laboratory, analogous to pluvial scarps, for investigating the controls of hillslope processes. Past work using the diffusion equation to model the cone shape has had relative success because it provides a good approximation of morphology change on large spatial scales. We tested a radially-symmetric diffusion equation to model cinder cone evolution. First, we developed an analytical solution to cone evolution based on a Bessel series expansion. We systematically surveyed multiple cinder cones of known ages in the San Francisco volcanic field near Flagstaff, AZ for comparison to the model. Each cinder cone was surveyed in multiple directions to investigate slope-aspect control. We compared the radially-symmetric diffusion equation's analytic solutions with the observed crater-rim morphologies to evaluate the accuracy of the model and to determine the effective diffusivity over the age of the cone. The crater rim is generally devoid of channels so it provides a good location for constraining hillslope diffusion and rates of cone evolution. In addition, we propose a conceptual model of cinder cone degradation. Preliminary findings show that eolian influx changes the texture of the cone itself, increasing the relative rate of cone evolution through time by forcing non-diffusive hillslope processes within the large-scale

diffusive morphology of the cone.

Keywords: numerical model, cinder cone, hillslope processes, hillslope diffusion,

Norman W. Clippinger, Research Associate, University of Colorado, Boulder. Email: clipping@colorado.edu; *Influence of fine-scale land use on the presence of meadow jumping mice (*Zapus hudsonius preblei*)*.

Human land use may have a major influence on the presence or absence of various species of wildlife. Residential development, excessive grazing or agriculture in grasslands, gravel mining, and industrial activity may have a detrimental effect on riparian habitat in the Colorado piedmont. Riparian habitat is essential for populations of Preble's meadow jumping mouse (PMJM; *Zapus hudsonius preblei*), a subspecies listed as threatened by the U.S. Fish and Wildlife Service. In this study, I employed a land cover dataset in a GIS to model any possible differences in land use between PMJM capture sites and non-capture sites in riparian habitats of Colorado. I used ArcView to identify the land use classifications (using the NLCD database) of surface water, low-intensity residential development, grasslands, and forest- or shrub-lands at 960 PMJM trapping sites. In addition, a series of new land use category grids (at the same 30 m resolution as the original grid) were created by calculating the land use of the majority of cells within a radius at varying distances from capture sites: 60 m, 90 m, 120 m, 150 m, 180 m, and 210 m. Logistic regression was used to analyze the resulting dataset. There was a significant negative effect of low-intensity residential development on the presence of jumping mice, and significant positive relationship between shrub-land and presence of jumping mice. This pattern was repeated at all radial distances from capture sites, indicating that land use at varying scales surrounding these sites had similar effects on jumping mouse populations.

Keywords: land use, meadow jumping mouse, *Zapus*, gis, scale

John Cloud, NOAA Central Library. Email: john.cloud@noaa.gov; *Google Earth through a Keyhole*

At the heart of Google Earth is Google's purchase, in 2004, of Keyhole Corporation, a digital mapping company founded in 2001. Google's press release said: "Keyhole customfounded in 2001 in Mountain View, California. ers include consumers, large and small businesses and public agencies", without further specification. The major "public agencies" using Keyhole products were and are members of the US Intelligence Community. "Keyhole" itself is a play on words. When the modern American security protocols on "overhead intelligence" were created in the Cold War, TALENT was created to control aerially acquired imagery and data, and then KEYHOLE was created to control satellite-derived materials. The "Keyhole" is also a metaphor for the holes between classified and unclassified realms in American reconnaissance science and technology. American reconnaissance capabilities were so productive, yet so secret, that methods were devised to share sensors and data with "nominally" civilian agencies, which acquired their own TOP SECRET labs. These are coordinated at the highest federal level by the Civil Applications Committee (CAC), the interagency broker between the classified and unclassified realms, which by tradition is headed by a suitably high official of the US Geological Survey in the Department of the Interior. This is the direct legacy of USGS's uses of CORONA reconnaissance satellite imagery (1960-72). Google Earth is yet another descendant of this process; these are glimpses through a keyhole, and also evidences of the major engine of the Military -Industrial- Academic Complex that has structured American geography for over half a century.

Keywords: Google, remote sensing, geospatial, intelligence

Nathan Lee Clough, Ph.D. student, University of Minnesota. Email: clou0062@umn.edu; *BIDs and the urban public sphere: discourse, speech, and control in new public spaces*

Social scientists from Amin et al. (2000) to Zukin (1996) have stressed the important role that urban public space plays in creating healthy, livable, and democratic cities by providing space for sociability, solidarity, and political action. Yet the increasing privatization of urban space and governance mechanisms, which is exemplified in the pervasive phenomenon of Business Improvement Districts (BIDs), has led some to posit the 'end of public space'. Through an analysis of BID planning documents and 'best practice' guidelines in the US and UK, in conjunction with ethnographic research on political activism in an American BID, I interrogate the discursive and material orientation of BIDs towards democratic expression in the prominent urban public spaces these organizations now control. The lack of a discursive space for a public sphere in BID documents, alongside the documented marginalization of non-consumer practices in BID spaces, suggests that these organizations pose distinct challenges for those who would use the city as a public forum, a site for democratic debate, and as a place for political action.

Keywords: Business improvement districts, public space, democracy

Marie-Soleil Cloutier, University of Montreal, Canada. Email: ms.cloutier@umontreal.ca; Philippe Apparicio, INRS-UCS, University of Quebec. Email: philippe_apparicio@ucs.inrs.ca; *When proximity matters: a spatial analysis of child pedestrian accidents in urban school context*

Child pedestrians move within complex spaces and many factors influence whether or not they will be involved in a collision. In Montréal, Canada, accidents affecting child pedestrians (5 to 14 years old) remained almost constant from 1994 to 1999. However, the fact that children attend school during weekdays is barely taken into account in researches studying the link between risk factors, exposure to these various factors and frequency of accidents. The objective of this paper is to integrate the elementary public school environment in the spatial analysis of accidents. This means that the study period is limited to the different school calendars and that the proximity between accidents and schools is considered through the construction of "proximity zones". The proposed methodology integrates several spatial databases into GIS to calculate number of accidents per zone (dependent variable) and seven predictors of child pedestrian accidents: 1) school language; 2) school enrolment; 3) percentage of 5-14 years-old children; 4) social deprivation index; 5) road network density; 6) main road density; 7) land-use entropy index. Then, these variables are used to perform a global regression model and geographically weighted regression (GWR) model. The global model shows that social deprivation, school language and main road density are the most important predictors to explain child pedestrian accidents. However, the GWR results demonstrate that all predictors vary significantly in space. Finally, they suggest that prevention initiatives should take into account the social and physical particularities of each neighbourhood to target relevant risk factors locally.

Keywords: Child pedestrian accidents, spatial analysis, geographically weighted regression, risk factors, geographic information system

Michael Coan, Science Applications International Corporation. Email: coan@usgs.gov; Joyce A. Fry, Science Applications International Corporation. Email: jfry@usgs.gov; Collin Homer, U. S. Geological Survey. Email: homer@usgs.gov; Charles Larson, Science Applications International Corporation. Email: larson@usgs.gov; *Development of a Land Cover Change Product from Two Generations of the National Land Cover Database (1992 and 2001)*

The Multi-Resolution Land Characteristics Consortium has supported the development of two national land cover products: National Land Cover Database (NLCD) 1992 and NLCD 2001. These two data sets provide the user community with unique tools to evaluate land cover change. Research shows that direct comparison of these two land cover products, which were created using different modeling methods, is problematic. The NLCD Change Product was developed to offer a more accurate and useful guide to change analysis than can be provided by direct comparison of NLCD 1992 and NLCD 2001. A multi-stage processing method utilizes both NLCD products in procedures that include reclassifying both eras of land cover using a decision tree classifier at Anderson Level I, filtering intermediate results with confidence parameters, determining changed versus non-changed pixels, and labeling the final change product using a "from-to" change classification code. A comparison of the prototype NLCD Change Product with a skilled manual interpretation indicates approximately 85 percent agreement in the type and spatial distribution of change. This overview of the methods, procedures, and models involved in creating the NLCD Change Product allows users to understand the strengths, weaknesses, and appropriate use of the product.

Keywords: land cover, land cover change detection, National Land Cover Database, remote sensing, United States

David M. Cochran, Ph.D., University of Southern Mississippi. Email: David.Cochran@usm.edu; Carl A. Reese, Ph.D., University of Southern Mississippi. Email: Carl.Reese@usm.edu; *Local Knowledge of Historic Hurricanes among Coastal Miskito and Garifuna Communities of the Honduran Mosquitia*

Central America is vulnerable to hurricanes, but most of its nations are ill-equipped to mitigate their impacts. Furthermore, little scientific knowledge exists about the effects of historic storms in the isthmus. These challenges are most acute in isolated regions like the Mosquitia of eastern Honduras and Nicaragua. In this paper, we report the results of a 2006 participatory research mapping project in the Honduran Mosquitia where we worked with indigenous Miskito and Afro-Caribbean Garifuna communities to construct local histories of recent hurricanes. We collected information on hurricane tracks, storm surge, and storm duration, as well as the local impacts of Fifi (1974), Mitch (1998), and other historic hurricanes that have struck the region. We then compared our research results with existing scientific information on these historic hurricanes. Our findings demonstrate that coastal indigenous peoples have an important contribution to make in hurricane research in isolated areas of the developing world.

Keywords: Hurricanes, Local Knowledge, Participatory Research, Honduras, Latin America

Allan Cochrane, Open University. Email: a.d.cochrane@open.ac.uk; Trying to define urban policy: exploring the meaning of a 'chaotic conception'

In one sense 'we all know' what urban policy is. It's what we say it is at any particular time - the latest cluster of initiatives intended to have some sort of impact on the lives of urban residents. But ultimately, of course, this is a profoundly unsatisfactory definition, which makes it impossible to assess the impact of urban policy over time, because the targets and nature of the initiatives keep changing, without it ever quite being made explicit and without 'lessons' being learned. Numerous attempts have been made to define the area more precisely, but none has been able to capture its complexity or adequately to explore its significance. The field is dominated by an apparently endless series of (sometimes very interesting) case studies from which it is difficult to draw any overarching conclusions. It has, therefore, been argued that urban policy is simply a 'chaotic conception' and that seeking to define it in any 'scientific' way is unlikely to be a very productive task. But that does not mean that there are no insights to be drawn from the study of urban policy. Here two things will be argued: first, that it is possible to identify a series of strands or themes that run through the experience of urban policy in practice; and second that exploring the ways in which they overlap and interweave at different times and in different places offer a very powerful route into understanding the changing shapes of welfare and post-welfare states (neo-liberalising and beyond).

Keywords: urban policy, welfare, post-welfare

Michelle Cochrane, MPH, Ph.D., University Of California - Berkeley (at PRC). Email: micochrane@earthlink.net; The social determinants of disease in the 'The Russia.'

This paper discusses the demographic crisis in the Russian Federation since the dissolution of the former U.S.S.R. in 1991, and the social determinants of disease in the 'New Russia'. In 2005, Nicholas Eberhardt concluded that "Russia is now at the brink of a steep population decline? a peacetime hemorrhage framed by a collapse of the birth rate and a catastrophic surge in the death rate?" arguing that the country's demographic losses represent the "greatest premature loss of life during 'peacetime' in modern history" (Eberhardt, 2005: 1-2). Over the long-term, Life Expectancy (LE) has fallen or stabilized at low levels in the former U.S.S.R. between 1965 and the present; however, LE estimates have fluctuated sharply in the past two decades, and can obscure important sexual and geographical differentials in mortality. For medical geographers and demographers, the most compelling research issue has been to explain declining LE, and increasing mortality rates, especially among men of working ages (Shkolnikov et al., 2004: 68). This paper reviews the evidence for the hypothesis (Bobak and Marmot, 1999; Plavinski et al., 2003) that cardiovascular disease and stress associated with 'transition' to a market economy (exacerbated by high rates of alcohol consumption), are the major social determinants of disease in the 'New Russia'. Moreover, Plavinski et al., (2003), Wilkinson (2006) and others have argued that the over-whelming majority of excess male mortality in Russia in the 1990s has been concentrated among lower social classes with limited education? those who have suffered the most from economic shock therapy.

Keywords: mortality, social determinants of disease, Russia, former U.S.S.R., economic shock therapy

Lars Coenen, Lund University, Sweden. Email: lars.coenen@keg.lu.se; Jerker Moodysson, Lund University. Email: jerker.moodysson@keg.lu.se; Paul Benneworth, Newcastle University. Email: paul.benneworth@newcastle.ac.uk; Björn Asheim, Lund University. Email: bjorn.asheim@keg.lu.se; Co-evolution in Constructing Regional Advantage: Exploring the Multiple Roles of Lund University in Strengthening the Regional Innovation System in Scania

The promotion of university-industry research-based partnerships and the stimulation of knowledge-intensive entrepreneurship have become core elements of regional development policy. In practice, however, increased university involvement in regional innovation systems has not been a policy panacea, and early optimism and euphoria has given way to considerable scepticism and frustration. We argue that part of this ambivalence can be traced back to considerable confusion concerning the mechanisms that underpin the translational effort to convert university-based knowledge into knowledge that is applicable in the commercial domain. In this paper we seek to analyze the variety of ways by which one particular local university has contributed to strengthening its regional innovation system and the factors that have shaped these translational mechanisms. Empirically, this paper provides a case analysis of the role and involvement of Lund University in the regional innovation system of the South Swedish region Scania. To do so, it focuses specifically at the three major areas of business engagement, i.e. (1) the creation of Ideon as well as research-based entrepreneurship at Lund University, (2) support for the life-

science cluster Medicon Valley and, (3) support for the food industry through 'Food Innovation at Interfaces'. The analysis looks particularly at the co-evolution of different organizations and institutions over time. In this analysis it draws on a regional innovation system framework to explore how particular institutional networks evolve, reshaping the functionality and capacity of the innovation system in which they are embedded.

Keywords: Regional Innovation Systems, Industry-University Relations, Regional Development, Economic Geography

Chris R. Coggins, Associate Professor of Geography and Asian Studies, Simons Rock College. Email: ccoggins@simons-rock.edu; Giovanni Da Col, University of Cambridge, Department of Social Anthropology. Email: gd228@cam.ac.uk; Xiaosong Wang, Director of Research, Institute for Tibetan Studies Diqing Tibetan Autonomous Prefecture, Yunnan Province. Email: wxs1234@sina.com; Tibetan Natures: Collaborative Anthropogeography in NW Yunnan

This paper describes a collaborative project on the environment and social relations in NW Yunnan Province. Launched by researchers and local people from the Diqing Tibetan Autonomous Region, the US, and the UK, this multidisciplinary effort incorporates current methods in collaborative ethnography and public anthropology to provide a forum for multiple perspectives on the geography of environmental conflict, sociality, and globalization. Drawing on local Tibetan concepts of ethics and truth-telling, our multi-authored work evolves from an emic perspective, taking shape as a collaborative anthropogeography grounded on indigenous notions of morality and subjectivity.

Keywords: China, Yunnan, indigenous peoples, anthropogeography

Darryl T. Cohen, U.S. Census Bureau. Email: darryl.t.cohen@census.gov; Measuring Sprawl: A Comparative Analysis Using Demographic Data From the Decennial Census

Urban sprawl, or the proliferation of lower density urban settlement, has been a popular research topic among geographers in recent years. While the body of work on sprawl continues to grow, a precise, quantifiable, and widely accepted definition of what constitutes sprawl remains elusive. This is due partly to the lack of a consensus on just what constitutes sprawl from a conceptual standpoint, as well as the limited availability of comprehensive and detailed data of the nature required to discern between sprawl and non-sprawl areas. While freely distributed national data sets detailing the physical characteristics of urban areas (e.g., road networks, building footprints, etc., which are easily obtainable for some cities and not others) are scarce, the demographic data provided by the decennial census remain a viable resource in quantifying the nature of cities and their suburbs on a national scale. This paper will explore data from the most recent decennial census and examine how demographic variables may be used to identify and measure the level of sprawl in selected urban areas in the United States.

Keywords: United States, sprawl, urban geography, population geography, cities

Nir Cohen, University of Arizona. Email: ncohen@email.arizona.edu; For the kids' sake: state and (trans)-national identity formation among second-generation Israeli migrants in the US

The paper focuses on Israel's relationship with second generation migrants in the United States. In particular, it examines the role played by the state-sponsored Scouts Movement (Tenuat HaTzofim) in North America in shaping youth migrants' (trans)-national identities. It argues that the movement and its activities are socio-cultural spaces created by the Israeli state in order to reach out to youth migrants and re-assert their national identity. By re-inserting itself into the lives of children migrants, I argue, the state expropriates effective responsibility from their parents and subjects them to a wide range of hegemonic practices aimed at bolstering their loose national identity. It further expands their geographical imagination of Israel as a complex socio-political environment to which they could more easily relate to. These and other state-sponsored practices aimed at young migrants are contingent, I argue, upon processes of state power re-structuring and re-territorialization which allow the state to transcend its boundaries at will and target specific de-territorialized subjects

Keywords: Identity formation, second generation, migrants, Israel, state-diaspora relations

Roseann Cohen, University of California, Santa Cruz. Email: rcohen@ucsc.edu; Cartographies of a shifting landscape: Displaced farmers and the politics of resource control in the city of Cartagena, Colombia

In illegal spaces bordering Cartagena's growing shantytowns and industrial sector, dispossessed farmers plant yuca, ñame, corn, papaya, plantains and sesame among other crops. These farmers have produced an agrarian landscape at the city's edge after fleeing violence in Colombia's countryside. My paper presents a cultural biography of this landscape. I produce an ethnographic

account of the way plants, seeds, and soils are endowed with power and meaning as violent conflict over natural resources reappears in urban contexts, collides with rural environmental imaginaries, and is marked by the complex histories and geographies of forced migration.

Keywords: forced displacement, dispossession, cultural biography of the landscape, urban political ecology

Shaul Cohen, University of Oregon. Email: scohen@uoregon.edu; *The Northern Irish Pivot: Parading From Contention to Peace?*

As Northern Ireland moves on through an international peace process, events on the ground are continuing to unfold. The contentious parading tradition displays elements of both opportunity and obstacle in relation to the broad set of challenges that accompany the negotiations and community relations that are elements of the political process. This paper draws upon interviews with parade organizers, official and unofficial negotiators, and the general public in Derry/Londonderry to study the relationship between micro-level acts of resistance and the fortunes of the macro-level negotiations. Parades in this city are the largest in Northern Ireland, and create some of its most contentious spaces, albeit for a limited period of time. Though negotiations have led to a diminution in associated violence for a number of years, progress in peace talks raises the stakes of these parades, making them a potential target for radicals on both sides of the dispute. At the same time, continuing success in relation to the parades provides momentum for territorial sharing arrangements that could be beneficial elsewhere in Northern Ireland, and beyond. Data from field work from 2003 through December 2006 will be presented, and recent developments in the peace process discussed.

Keywords: Territoriality, Identity, Northern Ireland, Political Space

Spencer Cohen, University of Washington. Email: zhuge99@u.washington.edu; J.W. Harrington, Professor, University of Washington. Email: jwh@u.washington.edu; *Chinese Municipal Policies in Support of Innovation: An Institutional Analysis*

This paper assesses the effectiveness of municipal level institutions and relevant economic development entities in the People's Republic of China and makes some initial appraisals of the responsiveness of these institutions and organizations to - and effectiveness in carrying out - national policies on development. This paper begins with a theoretical discussion of institutional analysis, including the varying incentive, or disincentive, laden structures that exist within the PRC system at the municipal level and a theoretical framework for innovation. Next, we consider two Northeastern cities in Liaoning province, Dalian and Shenyang, and discuss areas of difference in technology innovation-directed development policies and evaluate the effectiveness of these policies.

Keywords: China, political economy, institutional analysis

Patrick S. Cohendet, Professor of international business, HEC Montreal - BETA Strasbourg. Email: patrick.cohendet@hec.ca; Laurent O. Simon, Associate Professor of Management, HEC Montreal. Email: laurent.simon@hec.ca; *Knowledge intensive firms, communities and creative cities*

In this paper, using Montreal (PQ - Canada) as an example, we argue that "creative cities" tends to favour a specific "ecology of knowledge" where some major Knowledge Intensive firms tend to emerge and grow through a specific form of co-evolution: the city nurtures the KI firm with flows of specialised knowledge and creativity, and in turn the main KI firms nourish the creative soil of the city through an anchor role. More precisely, we suggest that this co-evolution is mediated by different types of "knowing communities". We argue that creative cities offer the conditions for the development of absorptive capabilities captured by the knowing communities, as if KI firms had "delegated" the building of these capabilities to the city. In turn, KI firms use the competences of communities through repeated projects that generate creative slacks for further expansion of creativity that drive the growth of the firm but contribute also to nurture the development of knowing communities and their active interplay in the creative city. The KI firm in a creative city is thus viewed as an innovative system that on the one side manages and exploits internally the creative slack that results from its multiple projects and on the other side places its indirect absorptive capabilities in terms in its local external immediate environment: the fertile soil of creative city. (Paper based on empirical material from KI firms in the fields of video-game making, advertising and communication, and the performing arts / entertainment business).

Keywords: situated creativity, knowing communities, creative city

Avery S. Cohn, M.E.Sc., University of California, Santa Cruz. Email: avery.cohn@gmail.com; *Cleantech Venture Capital at the Energy Crossroads*

Alternative energy has been proposed as a means to improve energy security, create jobs, mitigate climate change, and improve environmental quality. Yet investments in research and development (R&D) for alternative energy are dwindling, with the exception of investments made by the so-called "cleantech" venture capitalists. Understanding R&D trends is critical because investments at the energy crossroads will likely have profound environmental, economic and geopolitical implications for years to come. While a number of studies have examined why industry and government R&D spending has decreased, none has explained the growing "cleantech" phenomenon. My research describes and quantifies venture capitalist investment in alternatives energies and explains the social, political and economic contexts that drive these investment choices. For detail I focus on the case of Silicon Valley clean-tech investors and their investments in the world's largest alternative energy sector?The Brazilian ethanol industry.

Keywords: cleantech, venture capital, Brazil, environment, alternative energy, biofuels

Jeffrey D. Colby, Appalachian State University. Email: colbyj@appstate.edu; James G. Dobson, National Environmental Modeling and Analysis Center. Email: gdobson@unca.edu; *Flood Modeling in the Coastal Plains and Mountains: An Analysis of Terrain Resolution*

The number of flood disasters has increased worldwide in recent decades, however, few studies have attempted to compare flood modeling efforts in divergent environments. In addition, identifying the optimal resolution at which to represent digital terrain models (DTM) for modeling floods is critical. In this research flooding of the Tar River in the coastal plains and the Watauga River in the mountains of North Carolina were modeled using hydrologic information obtained following Hurricanes Floyd and Ivan, respectively. The effectiveness of DTMs derived from LIDAR and USGS elevation data represented at a series of resolutions were assessed. A new quantitative method was introduced for evaluating the horizontal extent and internal pattern of flooding. The extent and internal pattern of flooding in the coastal plains was found to be especially sensitive to the representation of terrain, and in the mountains 30m data regardless of source were found to be dramatically unsuitable for representing topography. The use of a variety of diagnostic metrics significantly enhanced the evaluation of flood modeling results.

Keywords: flood modeling, gis, coastal plains, mountains, digital terrain models, resolution, accuracy

Alexander Cole, Copenhagen Business School. Email: sc.ivs@cbs.dk; *Spillovers or buffers? The importance of firm-specific competences in the animation sector and what it means for location-specific pecuniary and non-pecuniary externalities in cultural industries*

Recent analyses of creative industries have often referenced the importance of knowledge spillovers and 'industry buzz' as locational factors driving agglomeration. A geographic and social milieu rich in relational and hence learning possibilities is seen as a natural counterpart to the so-called "Hollywood Model" of organization, in which firms are little more than temporary legal-shells, bringing together specialized labor for the duration of a given project. However, the issue of how firm-specific competences are built, and the role of the geographic milieu in the development of these competences is rarely addressed within this model. Drawing on empirical evidence from animation studios in both Europe and the United States this paper investigates how location affects the competence accumulation process in firms. The importance of different locational factors?labor markets, suppliers, distributors, and milieu—are investigated, and the relative importance of internal and external mechanisms of competence accumulation are assessed.

Keywords: cultural industries, agglomeration

Roy Cole, Grand Valley State University. Email: coler@gvsu.edu; *Change in primary agricultural production and processing in West Africa: governance, international competition, comparative advantage, and value-added, 1960 to 2004.*

Historically, many African countries have possessed a comparative advantage on the world market in certain local crops. The unprocessed export of some of these crops (palm oil, for example) led the way in the development of the "legitimate" trade after the slave trade was outlawed in the 19th century. This study focuses on several West African crops that have been historically important as primary product exports and for which particular West African countries held a comparative advantage at independence. The investigation is focused on the shift from primary to processed agricultural product production and export in West Africa since the 1960s and the internal and external variables that account for such change. Results indicate that as a consequence of institu-

tional turmoil, economic instability, and international competition many West African countries have lost the comparative advantage that they once enjoyed to other developing countries but that local processing has been increasing.

Keywords: West Africa, agriculture, exports.

Amanda Coleman, University of Oregon. Email: acolema1@uoregon.edu; *Bridging the Region-Nation Divide: Citizenship as Panacea in the U.S. South*

Recent geographical scholarship has reconceptualized traditional narratives of the U.S. South, rejecting the notion of a passively constructed region by illustrating the ways in which popular culture acted to define 'the South' during the post-bellum period (Winders, 2003). Geographers have also reconceptualized traditional accounts of the South-nation relationship, elucidating how the post-Civil War South was actively constructed as the antithesis of 'American' values (Jansson, 2003). My work is influenced by and contributes to this reconceptualization, focusing on the 1930s, a period in which tensions over perceived differences between 'southern' and 'American' values were at their highest point since the Civil War. My research details the narratives of difference that surrounded the 1930s South and demonstrates how citizenship became a prominent theme in South-nation relations during that time. Employing a regional labor organization and a federal farm relief agency as case studies, I illustrate how the concept of citizenship was deployed as an apparent bridge across the South-nation divide. I argue, however, that regional and federal reformers' interpretations of 'citizenship' were strongly guided by differing perceptions of 'the South' and the South-nation relationship. I also argue that these contrasting perceptions hindered the application of citizenship as an integrating force in region-nation relations. I thus examine how actively constructed narratives of a differential South influenced the deployment of national narratives of citizenship within the region. Through an examination of this topic, I seek to contribute to fuller understanding of the influence of regional narratives on region-nation relations.

Keywords: political geography, citizenship, US South

Jill S. M. Coleman, Ball State University. Email: jscoleman@bsu.edu; *The human mortality response to atmospheric circulation changes during the transitional seasons*

A synoptic type classification scheme has been developed for the central United States based on automated principal component analysis/cluster analysis (PCA-CA) methodologies. It employs daily NCEP/NCAR reanalysis data over all seasons of fifty-seven years (1948-2004) in creating synoptic types from surface and upper air (925, 850, 700 and 500 hPa) temperature and humidity data as well as sea level pressure and geopotential heights and winds aloft. The PCA-CA procedure creates ten central U.S. synoptic types exhibiting distinct seasonal preferences, but with all ten types possible during the transitional seasons. These patterns are then used to investigate the holistic impact of weather on daily cause-specific human mortality rates during spring and autumn from 1978-1998 for four U.S. Metropolitan Statistical Areas (MSAs). Distinctive increases (or decreases) in mortality rates are associated with one or two synoptic types, displaying notable spatial and temporal variability.

Keywords: bioclimatology, human mortality, synoptic classification, central United States

Mathew Coleman, Department of Geography, Ohio State University. Email: coleman.373@osu.edu; *Deserting Sovereignty, Sovereignty's Deserts*

Hardt and Negri write in *Multitude* that sovereign power is a not an autonomous force exercised over subjects. Rather, sovereignty is a "dual system of power" which requires the constitutive participation of the ruled. This "two-sided" formulation allows for a possible revolutionary politics of exodus from sovereignty: a key weapon of the ruled, given the dependence of sovereign power on its creative energies, is the prospect of withdrawal or desertion. For Hardt and Negri, undocumented migration is about exactly this strategy. The "odyssey of migration" creates hybrid and miscegenated lines of flight which refuse sovereign cartographies as well as the global hierarchies on which capitalism feeds. Hardt and Negri's treatise stands the concept of biopower on its head to speak of the ways in which sovereign power is parasitical on its subjects, and in turn how subjects might forsake this relationship. However, it also glosses over the ways in which the sovereign responds to such acts of refusal. Focusing specifically on US geopolitics in the Mexico-US border region, I argue that if deserting sovereignty, undocumented migrants are at once violently abandoned by the sovereign in the deserts. At the same time, this does not mean that we can speak of US statecraft in the region as a coherent or cohesive entity. Rather, US immigration-related statecraft is both non-subjective and overdetermined - a mess of projects which for all purposes is a centerless and disoriented apparatus of power, albeit with a patterned outcome in terms of migrant deaths in the border region.

Keywords: US statecraft, undocumented migration, Mexico-US border

Ashley Coles, University of Arizona. Email: ashley.coles@gmail.com; *Cultural Psychology and Hazards Research: An Integrated Model for Risk Perception and Warning Response Behavior*

Risk perception research has proven useful in natural hazards mitigation by providing agencies or officials responsible for the dissemination of warnings with an idea of how people might respond, and how altering these warnings or dissemination methods might stimulate a wider practice of what they consider the "appropriate" response. Many of these studies fail to investigate how cultural context and social interactions affect risk perception and response to hazards. To further the practical application of cultural theory to hazard warnings and mitigation, this paper will identify the key cultural and social factors that appear to have the most influence on human risk perception and behavior throughout hazards research, as represented by a sample of case studies. These factors will then be applied to an integrated conceptual model of culture developed from the ideas of M. Douglas (1992) combined with existing models in cultural psychology. The factors which are integrated in this model include (a) trust in the hazard science as well as the government; (b) social incorporation; (c) self- and community-efficacy; (d) social autonomy, and (e) time orientation. It is hypothesized that understanding where communities' values stand with regard to these factors will improve the ability of emergency managers and warning officials to prepare and mobilize the public in the event of a natural hazard. The integrated model presented here illustrates how a synthesis of the Douglas model with cultural psychology models provides a more comprehensive and practical understanding of the mechanisms that affect people's risk perception and hazard response.

Keywords: culture, risk, hazards

Benjamin Coles, Royal Holloway University of London. Email: b.coles@rhul.ac.uk; *Placing Alternative-foods, Their Markets, Their Networks, Their Geographies*

Responding to what has been called 'a place-less food-scape' where modern food provision occurs largely in ambiguous and disparate locales, alternative food initiatives have appeared seeking to reconnect producers and consumers. These networks themselves depend on 'alternative' places, commodities and consumption mutually constituted through dialectical arrangements of place and commodities themselves through discourses of geographic imaginations and imaginative geographies. Beyond notions of the (simple) commodity fetish, alternative' commodities emphasize some factors of production while simultaneously obscuring others?akin to the double commodity fetish, but with a slightly different twist. Borough Market, located under railway viaducts near London Bridge is one such place of 'alternative' commodities. Here consumers can meet producers (or their agents) and engage in a kind exchange where commodities and knowledges about them are produced and consumed through an air of geographic specificity all in a decidedly different type of shopping space. At Borough, some objects for sale are explicitly 'placed,' identified as from somewhere along their commodity chains by virtue of their labeling, while others remain origin-less, suggesting that geographic pedigree is extendable by proxy through specialized places of consumption. Borough Market, as an entrance into alternative food networks and as an assemblage of geographic knowledges, is a survey of how different geographies are mobilized through and by 'alternative' commodities. Considering their literal and figurative pathways into the market itself questions how place and ideas about place assemble to enact geographic lore about alternative commodities as produced through conjoined yet distanced commodity spaces.

Keywords: alternative-foods, commodities, place, geographic-imaginings, consumption, mobility

Tim Coles, University of Exeter. Email: t.e.coles@ex.ac.uk; *Evaluating tourism geographies in the United Kingdom: will moving the goal posts make any difference?*

Regimes of governance in higher education in the United Kingdom are changing. Reports of the demise of the Research Assessment Exercise (RAE) in Spring 2006 now appear premature. Nevertheless, the likelihood of significant change in the competitive environment remains high in the near future. As a subject, tourism is undoubtedly a central component in our understanding of the operation of contemporary global society. This is evidenced in the wide range of disciplinary locations in which tourism scholars are active. Under previous evaluation schemes, studies of tourism were driven underground in the prevailing climate of 'game playing' and 'creative submissions'. The new landscape of regulation is taking shape although the position of the social sciences has been problematic. This paper considers some of the prospects for the production of new knowledges of the spatialities of tourism. In a system that would appear to offer some signs of encouragement, dangers may lie ahead in terms of the types and mechanisms of knowledge production.

Keywords: tourism, higher education, governance, knowledge production, United Kingdom

Stephen Collier, The New School. Email: CollierS@newschool.edu; *Neoliberal Reform and the Problem of Public Value*

This paper examines how neoliberal theorists, and neoliberal reforms, deal with “public sector” value. The first half of the paper scrutinizes how neoliberalism approaches public value as a specific object of reflection and rationalization by examining the neoliberal theory of public finance. It argues that the major figures in shaping this theory held a complex view of public value, one oriented both by formal principles (such as efficiency, economy, and liberal views of democratic government) and by a substantive ethical concern with the ends of governing. The second half of the paper examines one of the key technical mechanisms through which neoliberalism has integrated public values into budgetary mechanisms: redistribution formulae. In particular, it examines how redistribution formulae function in neoliberal budgetary mechanisms in post-socialist countries. It argues that the technical architecture of the reforms themselves is such that positive understandings of public value can be incorporated into them. This process does not contradict the intentions of technocrats applying neoliberal reform formulae in new contexts. Quite the contrary: The incorporation of public values - whether defined bureaucratically or by various expression of public preference ? is an intended design feature of neoliberal reform.

Keywords: neoliberalism, public value

Chris Collinge, Non-Member. Email: c.j.collinge@bham.ac.uk; *Complexity and Dialectics: deconstructing society and space*

Dialectics and deconstruction share a common root in the problematic of dualism, a problematic that in its modern form stretches back through Derrida and Marx to the philosophies of Hegel and Kant. In their different ways both dialectics and deconstruction address the aporias that are entailed in dualistic thinking - on the one hand by assimilating contradictory terms through an all consuming exercise in sublation, on the other hand by highlighting the process of différance and gesturing mutely through this towards an absolute Other that lies beyond assimilation. Following Nancy Jay’s influential feminist analysis of gender and dichotomy, and following comments by Derrida himself, it has been argued by some poststructuralists that it is only dichotomous dualisms that permit or require deconstruction (Jay, 1981; Massey 1992). But the evidence suggests on the contrary ? and in accordance with the spirit of Derrida’s oeuvre ? that deconstruction also functions across the dialectic, and indeed that it destabilises dialectical thinking to the point where this reveals its duplicity and incoherence. Dualisms are by no means homogeneous in form, however, and far from working alone they generally operate through a series of linked oppositions that produce a textual weave of great complexity. In this paper I examine some of the complexities of dualistic thinking within dialectical materialism and ? by developing a deconstructive reading of Marxist theories of society and space ? suggest that we must address this complexity if we are to elucidate the deconstructive ‘system’ through which space is being written.

Keywords: deconstruction, dialectics, complexity, dualism, graphematics

Francis Leo Collins, University of Auckland. Email: f.collins@auckland.ac.nz; *Bridges to Learning: the economic and social networks of international education in Auckland, New Zealand*

International education is a fundamentally transnational project. It relies on the movement of either individuals or knowledge across national borders, disturbs the centrality of the nation-state in the educational reproduction of its populace, and is facilitated by economic and social networks that act as bridges between countries of origin and education. In this paper I address this latter point through reference to research conducted with South Korean international students in Auckland, New Zealand. I discuss the emergence of transnational economies of export education between Auckland and South Korea that include businesses like education, travel and immigration agencies, educational institutes and homestay providers. Usually operated by Korean-New Zealanders, these immigrant businesses, alongside more traditional forms of immigrant entrepreneurialism, constitute part of the bridge that facilitates the movement of international students from South Korea to Auckland. The other related component of these ‘bridges to learning’ are the social networks that students rely on to make the decision about where to study and their eventual adaptation to life in the otherwise foreign urban landscape of cities like Auckland. What these economic and social networks suggest is that the practices of differently positioned transnational subjects - migrants, international students and tourists ? are inter-related and inter-dependent. Moreover, the movement between these different positions that is exemplified in the stories of some international students suggests that the educating state’s, and indeed many academics’, conceptualisations of such positions as distinct migratory categories is highly problematic.

Keywords: transnationalism, international education, New Zealand, South Korea

Matthew T Collins, University of Sheffield, UK. Email: m.t.collins@shef.ac.uk; *Everyday Walking in Cities: An Engagement with Affect and Silence*

This paper reflects on acts of ‘everyday’ walking in an urban context, and outlines a theorisation of everyday walking that draws on post-phenomenological and post-structuralist engagements with geography and the body. As such, it contains both a critique of capitalist social organisation and its delimitation of affective ‘flows’, and posits rather those ideas of Deleuze and Guattari which conceive of the affective realm as constantly tending towards exceeding these delimitations. The research uses these ideas to theorise everyday walking as a practice where subjectivity is formed and re-formed through bodily and psychic spatial engagements, and will argue that everyday walking offers certain potentials to subtly overflow and subvert the limits and structures placed on affective flows. In presenting this argument and placing it in context of the act of ‘everyday’ walking, this paper forwards an approach that can be called ‘schizoanalysis’. In this it clearly follows a Deleuzian critique of a classical psychoanalytic/Freudian model and develops a more subtle, dynamic understanding of bodily drive and affective desire. Finally, the paper draws on Deleuze’s arguments on repression and silence to argue that everyday walking can allow us to exist in silence away from the repressive forces that attempt to force us to speak or produce statements all of the time. Silence is thus recast as productive and not as lacking.

Keywords: cultural geography, walking, everyday, affect, Deleuze, silence

Rachel Colls, Durham University. Email: rachel.colls@durham.ac.uk; *Materialising Children’s Bodies: Body Mass Index (BMI) and the practices of measuring*

Within the context of public health policy in Britain, childhood ‘obesity’, as contextualised within a wider global ‘obesity epidemic’, has been highlighted as a key concern for contemporary and future populations. As a consequence the British government has committed to the Public Service Agreement (PSA) target to halt the ‘year on year rise in obesity amongst children in England aged under 11 by 2010’. This has involved collecting local level data through weighing and measuring all children in reception year and year 6. This paper critically interrogates these weighing practices by considering the mechanisms through which children’s bodies are materialised as ‘obese’ through the use of the Body Mass Index (BMI). This will be contextualised within work in feminist science studies work that highlights the practices through which scientific objectivity is produced and then become enrolled in the production of particular bodies. Drawing on empirical work that examines the weighing practices of one Primary Care Trust (PCT) in Britain, the paper will focus on the ways in which children’s obese bodies become problematically fixed as ‘fat’ through using BMI, the spatio-ethical consequences of measuring children’s bodies in schools, the role of other bodies in the diagnosis of ‘obesity’ and the emergence of a politics of refusal to take part in these practices by schools, parents and children. It is this refusal that introduces a materialisation of a child’s fat body that defies the enforced classification of obesity through the normative regimentation of medical and political apparatuses of surveillance.

Keywords: Body, Children, Matter, School, Obesity

Frances A. Colón, . Email: colonfa@state.gov; *My Community, Our Earth: Promoting Geography & GIS to support basic science and math education in the Muslim World*

My Community, Our Earth partners have launched a program to support basic math and science education in the Muslim World, with support from the US State Department. Through its innovative use of geographic education and technology combined with an inquiry-driven, hands-on pedagogy that involves youth with local projects, the program is developing and distributing core innovative educational resources in Arabic; designing and conducting a hands-on week-long workshop learning experience in Tunisia for 25 master teachers, competitively selected from across the North Africa region; and establishing and facilitating follow-on mentoring activities linking participating educators with geography and educational experts worldwide. Project objectives are aimed at improving general science education in the Muslim world: 1) to improve the quality of education in geography, science, technology, engineering, and mathematics related fields within primary, middle and secondary educational institutions in the region 2) to showcase the power of geographic tools and technologies for inquiry-driven, project based education within predominantly Muslim countries 3) to improve teacher training, curriculum content, and positive community involvement through resource sharing and networking 4) to engage and support children and youth, including girls and women, at various levels of K-12 education in high-quality and interactive learning experiences that build knowledge, skills, and a community ethic. In combination, the MyCOE pedagogic approach, the integrative perspective of geography as a discipline, and the power of geographic tools and technologies for learning basic math and science offers a unique opportunity for supporting education in the Muslim world

in a way that adheres to a broad vision for global understanding.

Keywords: Muslim World, education, GIS

Heather Colson, Arizona State University. Email:

Heather.Colson@asu.edu; *Hazardous Floods Across the United States and Regional Relationships with El Niño/Southern Oscillation*

Floods are one of the most common natural disasters as well as one of the most costly. The number of hazardous floods, or those associated with damages, deaths, or injuries, is on the rise in the United States. The change is potentially due to an increase in the intensity of precipitation events and almost certainly due to land use changes. While the land use contribution to the increase in hazardous flood events is important, there is also a need to understand the atmospheric characteristics associated with hazardous floods. This research project focuses specifically on hazardous flood events in the United States from 1960 to 2004 as documented in the Spatial Hazard Events and Losses Database (SHELDUS). Using impacts data to define flood occurrence represents an approach to a natural physical problem from a social perspective and yields patterns that are different when climatically defining floods in speaking more directly to stakeholders. Hazardous flood events are identified in the database by county, but here they are regionalized for further analysis with regard to phases of El Niño/Southern Oscillation (ENSO) and variability in the associated transport of atmospheric moisture and the resultant precipitation. Of particular interest is the regional relationship between precipitable water and precipitation and how the ratio of the two varies with flooding occurrence and ENSO phase. The characteristics of hazardous floods and the relationships among flooding, ENSO, precipitable water, and precipitation across the United States are presented by region.

Keywords: hazards, floods, El Niño/Southern Oscillation, United States

Craig Colten, Louisiana State University. Email: ccolten@lsu.edu; *The Primacy of Place in the Geographical Review*

In a world of "Red and Blue" states, a globalizing economy, and faith-based conflict, daily newspapers highlight geographic difference. For most of the past century, the Geographical Review has set itself apart from other academic geographical periodicals by continuing to showcase the primacy of place that accounts for the dynamism in our contemporary world. This paper will draw on sterling examples of geographical research that expose the particularities of one region that I am most familiar with, the American South. For decades, geographers have examined issues of race, human-environment interaction and public policy, rural-based economic activities, and sub-tropical resources and their management. Using many different methodologies and examining places through the lens of diverse theories, the common strength has come from authors who bring great expertise about the place that they write about. Reviews of articles about other parts of the world would yield comparable results. The insights gleaned from this review indicate the enduring value of place-based geographic inquiry and will provide direction for the future of the Geographical Review.

Keywords: place, South, Geographical Review

Joshua Comaroff, UCLA. Email: comaroff@onebox.com; *Islands of the sovereign fantastic: discontinuity and power in the national imaginary*

Island prisons are the quintessential arenas of power-in-action. Like other prisons, which have frequently been described as archipelagic, these particular islands are among the great crucibles of the socio-geographical imaginary. An agency is possible in these forgotten places, these "islands of history" (to borrow Marshall Sahlin's phrase), which would be simply unthinkable elsewhere. Islands drift out of national-territorial space, into the limen of the Westphalian order?becoming places where the absurd is powerfully emergent; where given structures are, in the manner of the carnival and The Tempest, overturned and righted. This paper explores the history of these islands of power, in two forms: the literary-fantastic (including the utopian) and the carceral. Examples include Devil's Island and Utopia, the Chateau d'If and the Garden of Eden, Verne's Mysterious Island, and the haunts of Doctor Moreau and Robinson Crusoe. Through these examples, certain spatio-political theories of social power and control, from Michael Mann to Jean Genet, will be interrogated. These will be used to triangulate a relationship between sovereignty, fantasy, and spatial disarticulation in the figure of the island?which, it will be argued, serves as "laboratory" of state disciplinary power itself.

Keywords: islands, prisons, carceral geographies

H. Jason Combs, Arkansas State University. Email: hcombs@astate.edu; *The South's Slave Culture Transplanted to the Western Frontier*

The Missouri Compromise of 1820 had a significant impact on northwest Missouri's settlement patterns. Missouri's slave state status attracted a higher number of southern pioneers than what would have normally been expected. These early settlers brought with them their entire cultural-economic system?the production of hemp and tobacco with slave labor. Within the Platte region, the

geographic distribution of these cultural variables is explained by pioneer origins. Those areas settled primarily by Upper Southerners possessed the greatest number of slaves and produced the most hemp and tobacco. The findings demonstrate that by 1850 the Upper South's southern slave culture had been transplanted to northwest Missouri's Platte region.

Keywords: Culture, Demography, Pioneer Settlement, and Slavery

Joshua Comenetz, Dr., University of Florida. Email:

comenetz@geog.ufl.edu; *Census-Based Estimation of the American Hasidic Population*

An accurate estimate of the size of the Hasidic Jewish population in the USA was obtained by mapping census data on language and age?there being no religion question in the US census. Cartographic methods were enhanced by qualitative and quantitative information on Hasidic geography from the sociology literature. The estimate was validated through comparison with studies of school enrollment and has a margin of error of about five percent.

Keywords: population, census, language, cartography, religion, Jewish, Judaism, census

Jonathan C. Comer, Oklahoma State University. Email:

jon.comer@okstate.edu; *Influences on the Locations of Professional Sports Stadiums in North America*

A recent slowdown in the expansion of North America's top professional sports leagues (MLB, NBA, NFL, and NHL) does not seem to have had much influence on the pace of new facility construction. This stadium "arms race" escalates the competition between cities for teams, raises the stakes in the public versus private funding debate, and increases the demands on already scarce tax dollars. Given that the average cost of a new facility is nearing \$500 million, understanding the influences on how and where new stadiums get built can provide key insights for both legislators and taxpayers. Such insights can help legislators make important funding decisions and can help taxpayers decide whether or not to vote for such activities, providing the funding package is even put to a vote. Both geographic and socioeconomic variables are analyzed in an attempt to make sense of what appears to be a chaotic and even random process of funding and siting professional sports stadiums. Though the overall sports industry is modest in size and is on roughly the same economic scale as the envelope industry, the corporate welfare directed towards sports represents a huge drain on local and state government finances and a questionable investment of these funds.

Keywords: sports stadiums, location analysis, professional sports

Patrick J Comer, NatureServe. Email: pat_comer@natureserve.org; *Terrestrial Ecosystem Classification, Mapping, and Applications to Ecosystem Management*

Natural resource conservation assessments often lack comprehensive, consistent and detailed classification systems to guide mapping. Over the past decade NatureServe has collaborated with partners to classify and map terrestrial ecological systems and vegetation throughout the Americas. Here we discuss lessons learned pertaining to classification approaches, mapping methods, and application of these concepts to ecosystem management.

Keywords: ecosystem classification, ecosystem mapping, ecosystem assessment

Claude Comtois, University of Montreal. Email:

claudio.comtois@umontreal.ca; *Spatial dimension of containerization: the transformation of China's landscape*

This paper canvasses the spatial impact of containerization in China. Initially, we conceptualize the spatial dimension of containerization. Consideration is then given to the impact of containerization upon China's spatial economy since 1985. An examination is then made of China's land and water transport networks. The corresponding transformation in China's landscape are identified. Future orientations are suggested to take advantage of current trends in shipping patterns to restructure the spatial economy in line with sustainable development objectives

Keywords: China, containerization, transport, sustainable development

Ramon Luis Concepcion Torres, Binghamton University. Email:

ramonupr@yahoo.com; *Latino and Puerto Rican Migrants Characteristics in the Orlando Metropolitan Statistical Area*

This research will consist of explaining the migration, settlement, and assimilation patterns of Puerto Ricans and Latinos in the Orlando MSA. By using the Census 2000 Migration Data, this research will examine the Latino migrants' variables of household type, household income, nativity, education, and the age and sex of the total population that migrated from the different United States regions under study (Northeast, Midwest, South, and West) and settled in the Orlando area. By the use of the US Census Bureau, the research will also examine

the Puerto Rican migration flow to the Orlando MSA, their ethnic enclaves, and their characteristics of place of birth, household income, labor market outcomes, and educational attainment. The goal of this research will be to identify the differences and equalities among the Puerto Rican and Latino immigrants in the Metropolitan Statistical Area of Orlando. In this way, we will not only be able to identify their characteristics as immigrants, but also their assimilation levels to the American culture.

Keywords: migration, settlement and assimilation patterns, Orlando MSA

Alina Congreve, University College London. Email: alina@congreve.prestel.co.uk; *People, participation and planning: the continued significance of the Skeffington report.*

This paper explores the emergence of public involvement in planning. The experience of the US has been very influential in terms of shaping UK practice in public participation and common themes will be developed. Public involvement in planning first emerged in Britain in the 1960s. Realisation that the systems of regulation were failing developers and the public led to a number of government committees being established to address key issues, including the Skeffington report which was commissioned to examine the role of public participation. However, despite being almost universally quoted in research and policy documents, limited research has been carried out on the Skeffington report and its implications. Did the report lead to the development of more effective processes of public involvement in planning in the immediately period after publication? What is the longer term legacy of the Skeffington report? The issues that pre-occupied Skeffington still pre-occupy us today: that public involvement often comes too late after plans are made; that public involvement can slow down the process; that most members of the public have limited understanding of the planning system; and that it is easier to publicise activities than to create genuine public engagement. There is, a strong current of optimism that runs through the report that tries to overcome the difficulties. At the heart of the report is the aim that "People should be able to say what kind of community they want and how it should develop". This is something that still resonates with us today

Keywords: planning, participation, US/UK comparison

Heather K Conley, Ph.D., Illinois State University. Email: hkconley@ilstu.edu; *Did El Nino Cause the Emergence of Hantavirus Pulmonary Syndrome?*

The emergence of Hantavirus Pulmonary Syndrome (HPS) in the western United States highlighted the importance of environmental variability in the emergence of infectious diseases. This was the case in the 1993 Hantavirus Pulmonary Syndrome (HPS) outbreak, where El Nino-driven rains increased food resources, causing a rapid increase in the rodent population and spill-over into susceptible human populations. Several subsequent studies examined the role of interannual climate variability on HPS incidence. The goal of this presentation is to re-examine the role climate variability played in the emergence of HPS. Specifically, this research incorporates theories derived from population ecology and phenology to explain unstable rodent population dynamics in the area, and the implications on the prevalence of Sin Nombre Virus (SNV) within the rodent population. This study suggests that although El Nino may have created ideal conditions for an HPS outbreak in 1993, more subtle changes in the intensity and duration of wet- and dry-spells may have created ideal conditions for the outbreak to occur. This study offers insights into indirect climate impacts on human health, but it also demonstrates how gradual climate changes may increase vulnerability to infectious diseases when an extreme event occurs within the context of gradual environmental changes.

Keywords: Hantavirus Pulmonary Syndrome, disease ecology, rodent-borne disease, climatology

Jamison F. Conley, Pennsylvania State University. Email: jfc173@psu.edu; Mark Gahegan, Pennsylvania State University. Email: mng1@psu.edu; *Visual Analytics and Terrorist Surveillance: Safeguarding Privacy and Public Trust*

One of the prominent applications of visual analytics is detecting and tracking suspected terrorists. The Total Information Awareness (TIA) program was a federal government initiative to use data mining technologies for this purpose. However, the TIA was vigorously opposed on many grounds, with concerns about whether the government should have access to personal data about each US resident, concerns about privacy, and concerns about errors leading to wrongful accusations of innocent people. Because of these concerns, the TIA program was terminated after Congress halted its funding. Visual analytics for intelligence analysis requires "the ability to piece together information buried in disparate data?including immigration records; patterns of travel; telephone calls; and names, affiliations, and locations of suspected terrorists?to enable them to spot an emerging attack" (Thomas and Cook 2005, p. 2). The same primary issue facing the TIA also faces visual analytics: how to be responsible stewards and analysts of data to ensure that the government's use of visual analytics and

data mining retains the public trust. The research agenda for visual analytics, "Illuminating the Path" (Thomas and Cook 2005) addresses these concerns and lists several strategies for safeguarding privacy, including data minimization, data anonymization, feature perturbation, and Hippocratic databases. This talk examines the state of the art in these strategies and compares them to lessons learned from the TIA program's termination to inform research in ways to retain the public trust.

Keywords: visual analytics; privacy; Total Information Awareness

Deirdre Conlon, Graduate Center - CUNY. Email: dconlon@gc.cuny.edu; *Women's migration and the 'necessitarian logic' of the contemporary Irish nation-state*

Over the past two centuries Ireland's renown has been as an emigrant nation, but in the past decade, and associated with rapid economic growth and shifting state policies, Ireland has emerged as an immigrant-receiving nation. Therefore, throughout its history and in the present the Irish nation-state as well as questions of identity and belonging therein have been tied up with the issue of migration. Focusing on recent inward migration to Ireland and taking narrative accounts of everyday life by refugee and asylum seeker women as its specific locus, this paper explores some of the intersections between women's migration and the burgeoning of the neo-liberal Irish nation-state. This focus is combined with theoretical interest in Henri Lefebvre's oeuvre, specifically, the interconnected critiques of everyday life and of the state. This analysis draws on work by Neil Brenner and Stuart Elden that elucidates Lefebvre's critical examination of the 'necessitarian logic' of the neo-liberal state. The analysis also draws on Cindi Katz's discussion of countertopography as methodology and political project. By threading the representations and day-to-day experiences of migrant women through the social and spatial production of the Irish nation-state this paper aims to further an understanding of the relations between women's migration, nationhood, and the contemporary Irish nation-state.

Keywords: women's migration, neoliberal state, Henri Lefebvre

Steven Connett, University of Nevada, Reno. Email: SteveConnett@hughes.net; Steve Subith, University of Nevada, Reno. Email: subith@charter.net; Scott Mensing, University of Nevada, Reno. Email: smensing@unr.edu; *Vegetation and Climate Reconstruction Using Pollen Analysis From a Lake Within the Lake Tahoe Basin, Sierra Nevada Range, California.*

Evidence from sunken stumps in lakes and stream beds in the eastern Sierra Nevada suggests that there have been significant periods of drought. Trees 23 m tall that appear to be rooted in place have been found at a depth of 30 m in Fallen Leaf Lake, at the south end of Lake Tahoe, California. Limbs on these sunken trees have been cross dated with living juniper in the region and have an age of 1085 - 1153 A.D. Sunken stumps have also been found in Lake Tahoe, dating to between 5500 and 6200 cal yr BP. Those stumps are generally thought to represent lowered lake levels during the Middle Holocene. In this poster we present data from pollen analysis of a shallow lake within the Lake Tahoe Basin. We recovered a 540 cm sediment core from "Lily Lake," a site within 2 km of Lake Tahoe and 10 km of Fallen Leaf Lake. Radiocarbon dates on organic sediment confirmed that the core spanned the Holocene. We analyzed sediments at 1 to 10 cm increments in an attempt to obtain as high a resolution record as possible during periods previously identified as droughts. This enabled us to reconstruct an independent record of Holocene climate change within the Lake Tahoe Basin. These results provide a better understanding of the potential for significant droughts in the Sierra Nevada that could affect the water supply to Northern California and Nevada.

Keywords: Drought, stumps, pollen, Holocene, Lily Lake, and Fallen Leaf Lake.

James JT Connolly, Ph.D. Candidate, Columbia University. Email: jjc2119@columbia.edu; Elizabeth Currid, University of Southern California. Email: currid@usc.edu; *Agglomeration Effects: Art and Culture in the Advanced Service Economy*

The emphasis being placed by multiple fields on the importance of agglomeration economies as a fundamental element of the global production system has generated a great deal of research at both the macro and micro level. We argue in previous work that the qualitative evidence on industrial clustering developed by the micro level case study approach is evocative of broader macro patterns that are both similar and dissimilar across industries and geographies. We build on this to further highlight the need for meso level methodological approaches that bridge between the specifics of place found mostly within the economic geography literature and the abstraction of space that generally characterizes the geographical economics literature. In this paper, we further develop this argument by expanding upon a three-tiered spatial analysis methodology in order to examine the degree, type and location of clustering within metropolitan regions and draw conclusions informed by previous work on

advanced service industries. Specifically, we test the robustness of our initial findings which show that among advanced service sectors, art/culture and media are the most inclined to cluster and to possess the most uniquely urban, as opposed to regional, geographies of production. We expand our analysis to include all mid- and large-sized MSAs in the U.S. in an effort to confirm and refine our initial findings and further focus our conclusions on the social and political impacts of the spatial patterning and clustering tendencies that we observe within urban regions and within specific industries across regions.

Keywords: Art and Culture, Advanced Services, Agglomeration

John P Connors, Clark University. Email: jconnors@clarku.edu; Incorporating spatial dependence into land cover classification using texture analysis and object-based methods

One of the fundamental concepts of geography is spatial dependence. This concept is expressed in Tobler's first law of geography, which states that everything is related, but things that are closer are more related. Nonetheless, this concept is often overlooked when classifying remotely sensed data. This paper incorporates spatial dependence variables into the classification process and examines the impact of these variables on an object-based classifier and a pixel-based classifier. Furthermore, this paper compares the impacts of spatial dependence on data of different spatial resolutions (i.e. Ikonos and Landsat 7 ETM+) for a heterogeneous landscape. The methods presented in this paper seek to increase the accuracy of land cover classification for fine resolution data, so that it may be comparable to that of medium resolution data. Classification of fine resolution data is problematic because as spatial resolution decreases, within-class spectral variance increases, decreasing spectral separability. The approach of this paper differs from many common approaches to classification of remotely sensed data, which are often performed on a per-pixel basis and consider each pixel's spectral response independent of its neighbors. Thus, per-pixel classification undermines the potential usefulness of spatial relationships present in the data.

Keywords: spatial dependence, object-based classification, texture analysis

David Conradson, University of Southampton. Email: d.conradson@soton.ac.uk; Faith-based welfare and expressions of justice: organisational theologies and practices in New Zealand

Over the last decade, a number of church-based welfare agencies in New Zealand have begun to re-evaluate their service provision for marginalised citizens. One outcome has been a growing critique of traditional forms of charity, as expressed in the provision of emergency relief for instance, and a stronger engagement with the structures underlying social inequality. Drawing on research with four professionalised agencies in the city of Christchurch, the paper explores the external impetuses and dynamics surrounding this shift in focus from what some have described as "mercy" to "justice". Attention is given to the neoliberal social policy context within which this development has occurred, and to the theological and institutional resources that organisations have drawn upon in these new expressions of faith-based welfare. The study suggests that some Christian social service organisations in New Zealand have achieved a measure of independence from government, which in turn enables them to articulate a critique of contemporary social policy. Whether this amounts to a radical challenge of the status quo, however, is a matter for consideration.

Keywords: Faith-based welfare, social justice, neoliberalism, theology, New Zealand

Mary Conran, Student, University of Hawaii. Email: conran@hawaii.edu; Returning the Gaze: Exploring the Possibility for a Dialogical Tourism

Postmodern sensibilities that celebrate difference and locality have opened up new possibilities for tourism operators who have come to realize market potential for the commodification of local culture. Local governments and local peoples themselves have become savvy to opportunities to more fully participate in the global capitalist economy through tourism. Perceived isolation, and lack of economic and material development is often the main attraction in what can generally be called cultural tourism. This is not to say that tourists who participate in these forms of cultural commodification and consumption are unaware of their contradictory position as a consumer of what they may hope to be the essential non-commodified, unmediated experience. Rather, as it has been shown elsewhere, the postmodern, authenticity seeking tourist often hopes to overcome their own postcolonial positionality through dialogical interaction. For tourism planners, this phenomenon should not be overlooked, as there is an increasingly lucrative market for more dialogically organized touristic experiences. In what I call dialogical tourism, the quality and exceptionality of the touristic experience can be translated into increased profits for local communities. Of equal importance is the potential for the "mobilization of scale" where spaces of dialogue between local peoples and a global network of supporters may contribute to the realization of local objectives. As an attempt to contribute to

the realization of mutually beneficial tourism, this paper will offer a new direction for tourism planners in local communities, where rather than being unidirectional, the tourist gaze is returned.

Keywords: Cultural Tourism, Dialogical Tourism, Tourism Planning, and the Tourist Gaze

Stavros T. Constantinou, Ohio State University. Email: constantinou.1@osu.edu; Dimensions of Contemporary Greek American Ethnic Identity: The View of Converts.

The purpose of this paper is to explore the persistence of key dimensions of Greek American ethnicity through the use of focus group analysis, with particular emphasis on the views of converts to Orthodoxy. This work follows on the survey findings of earlier studies in northeastern Ohio. The focus group consisted of members of the Annunciation Greek Orthodox Church in Akron, Ohio and was balanced by age, gender, generation, and parishioners who converted to Orthodoxy. Participants were asked to rank the top five attributes of Greek American ethnicity from a prepared list or they could create their own. After completing their selections, participants were asked to comment on their choices. The entire focus group session was taped and transcribed. The combined ranking produced the following attributes: attendance at the liturgy, emotional orientation toward Greece, knowledge of the Greek language, Greek cooking at home, holding office in Greek American organizations, including the church, and exchange of visits with Greek Americans. Although participants expressed a wide range of opinion, their comments underscored the importance of church, family, socialization, and place. One participant summarized the most important dimensions of Greek American identity in the following statement: "I was attracted to the family and the religion . . . it all comes back to the Church, the center point of keeping the Greek thing going." Another put it this way: I married a Greek and there was no question that I would become Greek Orthodox."

Keywords: Greek Americans, ethnic identity, church

Michael Contreras, The University of Akron. Email: muhalo@hotmail.com; Site Suitability for Locating Coffee Production Facilities in Puerto Rico

According to the US Department of Agriculture, Puerto Rico coffee production for the 2005-2006 crop year is forecasted to exceed 20 million pounds. Even with this level of production, Puerto Rico occasionally needs to import coffee from Costa Rica and the Dominican Republic in order to meet demand. There is a strong business justification for the expansion of coffee production on the island. This research will explore a site suitability model to determine the most environmentally suitable locations for expansion of existing plantations and location of new plantations. The business geography of coffee production on the island will be explored.

Keywords: coffee, Puerto Rico

Kristen Conway-Gomez, Ph.D., California State Polytechnic University, Pomona. Email: kconwaygomez@csupomona.edu; Cross Cultural Research: Implications for data collection

Humans in the Bolivian Amazon have utilized Podocnemis river turtles in their diets since at least the 16th century. Such consumption has led to species decline throughout their ranges. This study examined the potential effects of market and perception of wealth on the consumption patterns of Podocnemis unifilis and P. expansa. Findings suggest that proximity to market does not lead to greater turtle consumption and the relationship is negative with declining perception of wealth. Data collection was affected by my standing as an outsider. The implications of this reality are worthy of note as this may be an issue faced in cross-cultural studies, an essential geographic research theme. While the data analysis findings have potentially important conservation and management implications I explore here the implications for data collection in a cross-cultural research setting.

Keywords: human geography research, culture, Latin America, natural resources

Mindy M Conyers, Texas State University. Email: mindyconyers@hotmail.com; Flow Resistance Estimation in the Upper Animas River Watershed, Colorado, USA

Small mountain rivers often lack stream gauging networks making the collection of field data and estimation of certain channel characteristics extremely important. Accurate estimates of river velocity are of particular interest to those who study land use management, flood plain development, and channel change prediction. The Manning equation is one of the most common techniques used to estimate velocity, and it incorporates an empirical variable, n , which describes flow resistance. Previous research focused on the difficulties associated with using the estimation formulas and the high variations in resultant n values. Very little research has its focus on the geographic distributions of this flow resistance parameter. By combining data collected in the field with

estimations of certain channel characteristics, it is possible to examine these distributions in order to determine whether geographic patterns of flow resistance exist. This research will investigate the possibility of such patterns at the watershed scale following the computation of resistance coefficients described by the Manning, Jarrett, Chezy, and Darcy-Weisbach equations. The study area for this research is the Upper Animas River Watershed located in southwestern Colorado just above the city of Silverton. The impacts to the fluvial system caused by historic mining practices in this area are prevalent. Knowledge of the future dispersion of contaminated sediments from mining relies heavily on the ability of researchers to predict channel change, and this prediction relates directly to the channel's estimated resistance to flow.

Keywords: fluvial geomorphology, mountains, channel roughness

Brian William Konz, University of Massachusetts, Amherst. Email: bwkonz@hotmail.com; Los Altos de San Miguel: Forest Change, Protected Landscapes and Autonomy in Guatemala's K'ichean Altiplano

In the nine years since the creation of the regional municipal park Los Altos de San Miguel in the communal forests of Guatemala's K'iche' Maya department of Totonicapán a number of interesting changes have occurred. From the perspective of the park's creators, which included NGOs, government agencies, municipal politicians and various local leaders, the park's creation involved both the consent and participation of local people. From the perspective of critics however, the park was hastily declared and is part of a larger trend throughout the highlands whereby authority over communal forests is being concentrated in the hands of municipal authorities. On the basis of recent fieldwork, including in-depth interviews with samples of 20 households from each of two villages within the park's boundaries, interviews with leaders and public officials, I examine some of the park's effects and ongoing controversies. Specifically, I discuss three themes. First, I show that a constellation of factors has led to a degree of forest resurgence though this phenomenon is spatially uneven across the park. Second, I show how local perceptions of the protected area are instructive, not only of the failure of planners to inform residents of what the protected area would mean, but also of some of the more wide-ranging challenges facing the promotion of protected landscapes in indigenous people's homelands and in so-called developing regions. Finally, I explore some of the implications the park has had for Totonicapán's status as one of Guatemala's semi-autonomous regions and what it could mean in the future.

Keywords: K'iche' Maya, Guatemala, Political Ecology, Protected Landscapes

Michael P. Conzen, University of Chicago. Email: m-conzen@uchicago.edu; Americanizing Russia's Colonial Capital: Sitka, Alaska, from Prince Maksutov to the U.S. Townsite Survey

What the United States inherited in New Archangel (Sitka) with the purchase of Alaska in 1867 was a very small 62-year-old capital city of a vast colony ruinously exploited for its coastal fur-bearing wealth. Sitka was a company town built by the Russian-American Company holding a monopoly Russian colonial charter and garrisoned by the Czar's navy. As a nineteenth century trading enterprise, it was a strange mercantile city by American standards. After the takeover American authorities hardly knew what to do with it. Notwithstanding that the town was the capital of Alaska, they starved it of resources, and long delayed the creation of civil government. This paper traces the evolution of Sitka from a rotting, moss-covered, log company citadel and workshop community at the end of Russian ownership?without streets or plumbing?into an American maritime port with regional functions and more-or-less standard urban infrastructure and appearance. It examines the effects of waiting 57 years for American authorities to survey and retrofit a townsite plat (1923-4) and confirm title to most property. This inversion of the usual city-building sequence complicated Sitka's spatial development and, through its resulting irregularities, has lent it a certain undeniable modern-day charm. However, the price paid was decades of slow and chaotic economic growth, political neglect, and social privation. As an early American pseudo-colonial possession it stood in sharp contrast to most towns in the Far West. This historical geography needs proper interpretation by the Sitka National Historical Park interpretive program.

Keywords: urban, cultural change, infrastructure development, decolonization, Alaska

Andrew C G Cook, PhD Researcher, Queen Mary University of London. Email: a.c.g.cook@qmul.ac.uk; On Expatriates and Elitism: The production of everyday geographies and exclusions in post-socialist Prague.

Since the tumultuous events of 1989, Eastern Central Europe (ECE) has experienced a variety of social, economic, cultural and political transformations that have had spatial implications at a variety of scales. The significant political-economic transformations at the regional, national and local scales have invariably impacted upon the everyday lives and spatialities of many individuals

(Smith & Stenning, 2006; Stenning, 2004). Concomitant with the transformations to individual's everyday lives has been an increase in highly skilled 'West-East' transnational migration that is, I argue, a direct outcome of the structural political-economic (neo)liberalisation that has pervaded the region. Such transformational processes have led to the formation of significant 'communities' of expatriates within many of the EU accession countries, especially within the Czech Republic and Prague specifically. This paper then, serves to highlight how the everyday lives and geographies of transnational professionals construct narratives and spatialities of exclusion/inclusion. Drawing upon and rethinking the theoretical work of several spatial/political theorists, this paper aims to reconceptualise the micro-foundations of difference, alienation and Othering between foreign professionals and Czech professionals and residents. Such an approach serves to demonstrate how the struggle over various forms of capital in spaces of production and consumption can lead to a re-articulation of difference between these groups. Additionally, I argue, the temporal (and spatial) trajectories of such individuals are dependent upon the possession of these various forms of capital, particularly in breaking down perceived barriers and fostering a more inclusive set of social and economic relations.

Keywords: Transnational professionals, Eastern Central Europe, exclusion

Ian R Cook, University of Manchester. Email: ian.cook@postgrad.manchester.ac.uk; Business Improvement Districts, urban governance and the politics of creating safe, welcoming and profitable consumption spaces

Accompanying the remaking of English town and city centres into consumption-orientated, investment-friendly spaces has been a intensive securitisation and monitorisation of these spaces. In order to encourage increased investment and consumer spending it is widely believed that these spaces must be redesigned and promoted as safe, welcoming and profitable. A variety of overlapping and very-visible agents, technologies and policies of urban social control have been developed and called upon within these securitisation agendas. What is more, the governance, delivery and financing of these agendas have increasingly involved private sector agents, institutions and monies often in partnership with those of public sector. In light of these observations, this paper will explore the contemporary governance of town and city centres in England, their urban social control agendas, and the critical role and influence of the private sector and public-private partnerships within this. The recent introduction and increasing importance of privately-funded and privately-governed Business Improvement Districts (BIDs) will be focused on and their urban social control agendas, technologies and relations critically analysed. Within this, two aspects of the BIDs will be explored in detail: first, the roles, performances and rationales behind the frequently-used BID warden schemes and the increasing funding and governing of Police Community Support Officers (PCSOs) by BIDs; and second, the relations and joint-working between the BID social control agendas-including the wardens and PCSOs?and the other burgeoning public and private agents, institutions and technologies of urban social control.

Keywords: urban governance, urban social control, Business Improvement Districts, town centre management, England

Ian Cook, School of Geography, University of Birmingham. Email: i.j.cook@bham.ac.uk; Citizenship, kinship, thingship: hydrocortisone relatedness

Responding to recent critiques of 'defetishising' research arguing that this concentrates on a limited range of symbolic identity-affirming commodities, this paper reports on a 'follow the thing' auto-ethnography of hydrocortisone, a widely prescribed steroid which a) is necessary to the normal bodily functioning of people with a variety of medical conditions (e.g. asthma, eczema, sarcoidosis); b) enters the market via health care networks of research, manufacturing, diagnosis, monitoring and prescription; and c) whose fleshy connectivities draw together debates about 'relatedness' and 'thingship' to question and expand belonging with, and responsibilities for/to, others near and far.

Keywords: thingship, medicine, relatedness, autoethnography

Nancy E. Cook, Brock University. Email: ncook@brocku.ca; Gendered Globetrotting: Mapping Development Travels to Northern Pakistan

Scholars interested in processes of cultural globalization have increasingly focused on global flows of people to understand the impact these migrations have on power relations at both local and transnational scales. I contribute to this body of work by examining the relationship between gender and global mobility in the transnational context of international development. In particular, I draw on ethnographic fieldwork in Gilgit, northern Pakistan to investigate how Euro-American women use the global mobility enabled by overseas development work to negotiate constraining regimes of femininity at 'home,' enhancing their self-determination in the process. Historically, Euro-American women have had a marginal relationship to global mobility. The requirements of femininity involve sticking close to home, thus making travel a masculine activity. By choosing to

leave home, women development workers in Gilgit disrupt discourses of femininity related to travel, and thereby enhance their self-definition as independent and autonomous individuals. But as they read their own global mobility as a sign of Euro-American women's freedom and gendered empowerment on the global stage, they simultaneously draw on discourses of race, Orientalism and imperialism to construct Muslim Gilgiti women (the supposed 'recipients' of development) as immobile subjects rooted to the domestic sphere by the Islamic institutions of purdah and hijab. This binary construction of mobile Self/immobile Other enhances development workers' self-understandings as autonomous globetrotters, as it perpetuates both colonial-era discourses of oppressed, dependent Muslim women and imperial power relations at the local and transnational scale.

Keywords: gender, mobility, globalization, development, transcultural relations, Pakistan

Amy E. Cooke, University of North Carolina - Chapel Hill. Email: acooke@email.unc.edu; *The State of the Range: the influence of boundary creation on land-use and vegetation in northern Tanzania*

In this paper I use ethnographic and ecological data to examine how fragmentation of traditional rangelands has altered the grazing regime and resource base of the Tanzania Maasai. Historically, East African rangelands have been maintained through the complex interactions of rainfall, fire and grazing. Pastoralists have been an integral component of these interactions for hundreds of years, grazing cattle, sheep and goats and setting fires to improve forage quality. In 1971, Tarangire National Park was carved from the territory of the Kisongo Maasai, separating dry season grazing areas from the rich wet-season pastures of the Simanjoro Plains, one of the first among many new boundaries created during the 20th century. Removed from the park borders, the traditional Maasai grazing system was compressed into half its territory, while wildlife continued to move freely between wet and dry pastures. Simanjoro Maasai are currently undergoing intense political pressure as conservation interests and national policy makers debate the importance of the area for wildlife preservation and commercial agriculture. Plowing the plains reduces resource availability for migrating wildlife and pastoralism; alterations in land-use patterns may also subtly alter resource quality, which impacts the long term sustainability of these rangelands. By comparing historical resource use and vegetation composition to recent ethnographic and ecological data, this paper attempts to examine both the easily observable as well as these more subtle shifts in Simanjoro ecology. The results of this study have important implications for both traditional pastoral subsistence strategies and wildlife preservation on the African savanna.

Keywords: Africa, pastoralist, conservation, political ecology, land-use change

Philip Cooke, Professor, Centre for Advanced Studies, cardiff University. Email: cookepn@cf.ac.uk; *Organics-Aesthetics: Authenticity as a Regional Development Instrument*

To the extent we can say that a 'knowledge economy' exists, all the relevant indicators show it is a highly urban, mainly metropolitan phenomenon. Once more, talent moves increasingly towards these spaces for employment. But there is a backlash to the associated agglomeration diseconomies that values the authentic over the generic, quality over quantity and rural over urban living and working. In this presentation an evolutionary economic geography model is derived for application in low knowledge economy but high authenticity settings. These are predominantly rural, score relatively poorly on measures of knowledge intensive manufacturing and services industries but can be classified as 'agro-touristic regions'. They include, for example, Galicia, La Rioja, Asturias, Valencia, Andalucia, Puglia, Umbria, Trentino-Alto Adige, Sardinia, Mecklenburg, Sicily and Tuscany. All these regions score between 60% and 80% of the EU average (100 - leader regions score up to 160%) on the knowledge economy index but many are highly accomplished 'creative regions' characterised by high quality cultural infrastructures, gastronomy, natural environments and associated agro-tourism. The research points to a positive future for regions of this kind, in which recognition of embryonic, system-like connectivity to institutions supporting sustainable continuation and growth gives them 'cumulative causation' rather than 'creative destruction' capabilities more commonly associated with metropolitan knowledge economies. Accordingly, they become, through the application of 'cultural knowledge,' magnets rather than resistors for demographic and economic growth.

Keywords: arts, culture, organics, tourism

Thomas J. Cooke, University of Connecticut. Email: thomas.cooke@uconn.edu; Sarah Marchant, Assistant Planner, Milford, NH. Email: smarchant@milford.nh.gov; Brian Mikelbank, Cleveland State University. Email: mik@urban.csuohio.edu; *Residential Mobility of the Poor and the Growth of High Poverty Inner Ring Suburbs*

The geographic concentration of the urban poor is viewed as both a cause

and a consequence of a range of social and economic issues. Research regarding the extent of high poverty neighborhoods has generally focused on the entire metropolitan area and assumed that most high poverty neighborhoods were within the central city. More recent research hints that the geographic distribution of high poverty neighborhoods may have been very slowly shifting over the last 20 years from central city to suburban areas. The purpose of this research is to delve deeper into the demographic and geographic processes leading to the recent emergence of high poverty inner ring suburbs.

Keywords: Poverty, Inner ring suburbs, mobility, concentrated urban poverty

Brad Coombes, University of Auckland. Email: b.coombes@auckland.ac.nz; *Challenging the Collaborative Ideal: Exploring the Dilemmas in Joint Research with Indigenous Claimants to New Zealand's Waitangi Tribunal*

Driven by 'benefit sharing' requirements and the institutionalisation of research ethics, collaborative inquiry has become orthodox in academic research with indigenous peoples. Yet, at the same time as this strategy has ascended to normative status, cultural geographers and indigenous academics have increasingly challenged both autochthony and the essentialisation of indigenous peoples as singular collectives, problematising the assumption that there is a research partner with whom to collaborate. Despite increasing recognition of indigenous plurality and its associated ethical dilemmas in, for example, land claims settlement, collaborative research is typically conducted with traditional leadership structures and may, therefore, accentuate rather than address the justice, representativeness and ethical consequences of academic research. The ethical dimensions of four of the author's research projects for Treaty of Waitangi settlements in Aotearoa/New Zealand illuminate the fallacies of the collaborative ideal. In each case, literal implementation of contractual requirements for collaboration would have disadvantaged particular tribal and sub-tribal groupings, perpetuating the cultural violence of colonial and pre-colonial power structures.

Keywords: collaborative research, indigenous peoples, plurality, claims settlement

Adam Coomes, University of Louisville. Email: Adamjc22@yahoo.com; Alvin Rentsch, University of Louisville. Email: arrentsch@hotmail.com; *Unsupervised Classification of Iroquois Park in South Jefferson County, Kentucky*

This paper examines the effectiveness of an unsupervised classification of Iroquois Park in South Jefferson County Kentucky- an isolated knob with diverse land cover features. The unsupervised classification was used with ground truthing to categorize land cover from LANDSAT imagery of the area (2003; 30 x 30m color). The spectral bands that would be used to create the classifications and to determine the number of classification categories were chosen using ERDAS IMAGINE. Eight classifications were used in order to cover all the major features within the park. The approximate longitude and latitude of sixteen locations, including two sites for each class, were identified and a photographic recording of each site was made to aid in accurately classifying the areas. The unsupervised classification worked well for the area and thus this could be used to complete classification studies at additional sites in the area.

Keywords: Remote Sensing, Unsupervised Classification, ERDAS,

Oliver T. Coomes, Dept. of Geography, McGill University, Montreal, PQ, Canada. Email: coomes@felix.geog.mcgill.ca; Bill Turner, Dept. of Geography, Clark University, Worcester, MA, USA. Email: Bturner@clarku.edu; Tom Rudel, Dept. of Human Ecology, Rutgers University, New Brunswick, NJ, USA. Email: rudel@aesop.rutgers.edu; Eric Lambin, Dept. of Geography, Catholic University of Louvain, Louvain-la-Neuve, Belgium. Email: lambin@geog.ucl.ac.be; Arild Angelsen, Dept. of Economics & Social Sciences, Agricultural University of Norway, Aas, Norway. Email: arild.angelsen@umb.no; *Will Land Use Intensification Save the World's Critical Ecosystems?*

Scientists, policy makers and NGOs throughout the world are striving to find effective strategies to protect the critical ecosystems and habitats that sustain life on Earth while provisioning an increasing demand for food, fiber, and fuel from agriculture. Land use intensification (i.e., using land currently in use, more intensively) is promoted on the grounds that it spares more remote, fragile and often biological diverse areas. This policy is supported by the belief that the prime agricultural lands have long been cultivated and that future demands are most efficiently met by increasing production on those lands. The base assumption is that by promoting intensification everywhere, critical ecosystems will experience less pressure from extensification. Drawing on land use theory and empirical evidence in three environments of concern - tropical rain forests, savannas and drylands, and coastal mangrove swamps? we challenge this view, suggesting that effective protection can arise only through tailored intervention and an improved understanding of land use intensification and the land use

transition.

Keywords: land use/cover change, intensification, agriculture, deforestation

Meghan Cope, University of Vermont. Email: mcope@uvm.edu; *Child-Friendly Cities? Design and Policy Implications in the Context of US Cities' and Social/Spatial Injustice*

The concept of 'child-friendly cities' has achieved a fair amount of support in European nations, in part as a response to the UN's Convention on the Rights of the Child, resulting in hundreds of large and small examples of urban design and policy practices that welcome, accommodate, and focus on children and youth as valuable members of local communities. Ranging from 'home zones' and the Dutch woonerf (entire neighborhoods constructed around streets for play where cars are merely slow, occasional guests) to city charters that facilitate Youth Councils to represent young people's views and wishes, the notion of breaking down the barriers of childhood for urban residents has resonated in the realms of academia, policy, planning, and youth advocacy. Several Canadian cities have also implemented some of these strategies, but few US cities are aware of, much less embracing, child-friendly strategies. This paper critically reviews the concept of 'child-friendliness', which tends to be heavy on design and light on social change, and considers its potential adaptability and applicability in US cities, especially those plagued by high levels of racial and economic marginalization.

Keywords: child-friendly cities, social justice, children's geographies, urban geography

Catherine Corson, University of California, Berkeley. Email: ccorson@nature.berkeley.edu; *A Political Ecology Analysis of Madagascar's Biodiversity Conservation Agenda*

At the 5th World Parks Congress in September 2003, Madagascar's President announced his intention to triple protected areas in Madagascar. Drawing on analyses of project documents and ethnographic data collected in Madagascar and the United States, this paper investigates the production of the Madagascar biodiversity agenda across sites of policy-making that span local, national and international spheres. It examines how the interpretation and implementation of the effort to expand Madagascar's parks is being shaped through negotiations among the Malagasy State, multilateral and bilateral donors, international conservation organizations, and local authorities. It traces how these negotiations articulate both with the historical conflict between the Malagasy State and rural farmers over access to and control of Madagascar's forests and with the contemporary pressures imposed by a liberalizing economy. Finally, it shows how bureaucratic practices and power relations interact to restrict community participation in the initiative despite conservation narratives and associated programs advocating community forest management. Through these analyses, the research reveals the fractured and contested ongoing process of the territorialization of Madagascar's forests.

Keywords: political ecology, Madagascar, biodiversity, territorialization, development

Mark W. Corson, PhD, Northwest Missouri State University. Email: mcorson@nwmissouri.edu; *The Search for a Cost Effective Simulation Training Environment for Reserve Component Logistics Organizations*

US military logistics units are able to deploy world-wide and establish multi-functional logistics operations capable of fully sustaining large numbers of troops for long periods of time. Preparing for these complex operations poses many training challenges given that units are often geographically separated at their home stations, and seldom work together due to the high cost of field training exercises. Additionally, training exercises can never replicate the scale of effort required for a major operation. Reserve component logistics organizations provide a majority of US military logistics capability, yet suffer from a lack of training resources and opportunities even worse than that experienced by their active duty counterparts. Computer simulations utilizing virtual environments have great potential to facilitate the training of higher level logistics headquarters in logistics command and control functions. The ability to customize the virtual environment to represent potential operating areas using either maps or remotely sensed imagery may substantially improve the training experience. The ability to conduct training in a virtual environment via network or the internet could allow for geographically separated units to conduct multi-echelon training as often as needed using very few resources. This paper traces the research effort to find a cost effective, customizable, and simple to use simulation environment that will facilitate distributed, multi-echelon, and realistic multi-functional logistics command and control training primarily for reserve component units.

Keywords: military geography, logistics, simulation, training

Dominic J Corva, Ph.C., University of Washington. Email: corvad@u.washington.edu; *Neoliberal imperialism and its Others in Latin America*

The concept of U.S.-enforced "regime change," as well as the practice of training and funding foreign police forces to pacify an insurgent population, is nothing new for Latin America. This paper traces the continuity of "neoliberal imperialism" in the region by examining the connections and differences among three key moments: the 9/11/1973 Pinochet coup, the 1989 invasion of Panama, and a recent press conference featuring Chilean president Michele Bachelet and Bolivian president Evo Morales. I argue while the Pinochet coup d'état represented the first moment of neoliberal imperialism in Latin America, the 1989 invasion of Panama should be considered a key "second moment" of neoliberal imperialism: regime change justified by geographical imaginations associated with security in a "borderless world." The third moment looks to the future of resistance to political and economic imperialism, by placing together two representatives of the "move to the left" in Latin America, both with close personal experiences of the first two articulations of neoliberalization and imperialism in Latin America.

Keywords: neoliberalism, imperialism, Latin America

Geraldo M. Costa, federal university of minas ge. Email: gemcosta.bhz@terra.com.br; Carlos Eduardo Flores, Federal University of Minas Gerais. Email: carloseduflores@terra.com.br; *Socio-spatial issues of urbanization in Brazil: the case of labor force commuting in the Metropolitan Region of Belo Horizonte (MRBH)*

Since the 1980s a process of moderate population growth has occurred in the major Brazilian metropolitan regions. This was a turning point after a long period of intense population growth that had peaked in the 1970s. Despite this slowing down, there is still significant population growth occurring in poor peripheral metropolitan areas. This growth shapes a socially segregated space in terms of social reproduction, and characterizing an asymmetry between the localization of jobs and the residence of workers. As a result there is an intense low-income labor force commuting process. This paper analyzes this process in the Metropolitan Region of Belo Horizonte, an urban agglomeration of about four million people located in the southeast, the most developed region of the country. First, the paper approaches the spatial formation of that urban region on the basis of the existing literature that considers the actions of the main social agents responsible for the metropolitan space production since the fifties. Secondly, the paper explores the empirical evidence from an origin-destination survey to analyze socio-spatial implications of commuting. Besides understanding the particularities of that urban region from the perspective of asymmetrical relation between residence of labor force and jobs location, the paper invites a dialogue between researchers dealing with similar issues in Brazil and Latin America more generally, and in other parts of the world.

Keywords: metropolitan region, labor force, commuting, Brazil

Heloisa S.M. Costa, Federal University Of Minas Gerais. Email: hsmcosta@terra.com.br; *Urban peripheries in Brazil: new challenges to multi scale policies and politics*

The articulation between urbanization, nature and social production of space are discussed in the context of recent metropolitan expansion in Brazil. The paper focuses on the ambiguous role of the social agents - state, organized society and capital ? in creating the conditions of production, while still neglecting social reproduction, housing included. These agents thus contribute to patterns of inequality in the production and appropriation of urban space ? from well provided developments, usually luxury gated communities, to the so-called peripheral popular settlements. The urban peripheries embody the complexity of contemporary urbanization, with important implications in terms of social demands and regulation. The paper explores urban and environmental policies to assess whether they lead to social justice or maintain inequalities. Recent urban legislation and politics reinforce local planning and participation within a context of multi-centered regional metropolitan expansion. At the same time new forms regional and metropolitan planning have to be reinvented after authoritarian metropolitan regulations were dismantled. Struggles around social demands sometimes coincide and other times clash with social and environmental values, depending on the public or private appropriation of gains associated with property. Evidence comes from research in the southern area of Belo Horizonte, the third largest Brazilian metropolitan region. There is an interesting convergence of urban and environmental policies in the area characterized by land use conflicts between the collective interests of environmental preservation, the private interests of iron ore mining, and those of property developers and upscale housing dwellers.

Keywords: Urban expansion, state regulation, property market, nature

Pedro Costa, ISCTE. Email: pedro.costa@iscte.pt; *Agglomeration for creativity in cultural activities: What difference does it make?*

Recent interest on "creative cities" makes clear the relation between urban territory and creativity-led sustainable development dynamics. Numerous academic research and policy-making has been developed on this lately, linking those dynamics to the development of creative activities, creative classes or even creative institutional solutions. Being urban territories the natural center for creative dynamics, some spaces have been though particularly noticed, as they distinguish in offering specific conditions, in terms of dimension and agglomeration effects, which seem to be determinant to expand creative processes, particularly in the case of the production of cultural products, our particular research interest. In effect, creative process is clearly related to urban space, particularly to agglomeration effects, both by theoretical approaches in multiple fields (e.g. geography, sociology, economics, psychology,?) and by quite a few empirical studies. However, the complex roots of this relation are not totally understood and many of its determinant factors still remain quite unexplained. This paper aims to explore this relation between creativity and the agglomeration of cultural activities in specific parts of urban space, where creative mechanisms predominantly embed and develop. In the first part, a transdisciplinary conceptual framework to analyze the relation between creativity and agglomeration is developed, identifying the main motivations which explain the importance of urban agglomeration to creative processes in art and culture. In the second part, some empirical results of an on-going research are presented. Based on a survey to cultural agents in Lisbon, Portugal, a typology of motivations for explaining these creative roots is presented.

Keywords: Creativity; Agglomeration; Cultural activities; Urban; Lisbon

Kimberly Coulter, University of Wisconsin-Madison. Email: kcoulter@wisc.edu; *Territorial appeals: A discursive approach to nation narration. The case of German film*

Feature films are highly effective in producing and reproducing nations: their industries fuel territorial economies, while their images construct borders in the mind. Contemporary German national narratives that succeed commercially outside of their home markets, however, emerge as co-products of multiple regional, state, and supranational interests. As they cross more borders in their production and distribution, these bordering processes are becoming more interdependent and indirect. To understand the relational networks out of which cinematic national representations emerge, I propose an approach that focuses on the discursive, performative paths through which a film is funded, produced, marketed, and talked about. In these discourses, I pay critical attention to how territory is invoked to justify a project or win support for a position. These invocations, which I call territorial appeals, appear in a variety of forms but ultimately aim to shore up support for either a specific territory or even the legitimacy of territory itself. This approach demonstrates the power of territorial subjects in the continuous and contingent renegotiations of nation. Based on in-depth interviews with government and film industry stakeholders and analysis of supporting texts, I bring this approach to bear on the border-crossing production and distribution of contemporary German films about the national past.

Keywords: national identity, territory, discourse, film, Germany, Europe

Thayne A. Coulter, Bureau of Reclamation. Email: tcoulter@do.usbr.gov; John Wilkins-Wells, PhD., Colorado State University. Email: johnww@lamar.colostate.edu; *Local Water and Land Use Planning Interface Opportunities*

Traditional irrigation districts in the Western United States continue to be faced with major challenges associated with urbanization. This is often due to the fact that regional land and water use planning are not sufficiently coordinated in many localities. Irrigation districts as water suppliers are often required to make adjustments to changes in land use with minimal forecasting or planning tools, most of which are located in the hands of city and county planning offices. Because irrigation districts were not originally designed as land use planning entities, but rather as water purveyors, greater effort is needed to ensure that they are provided with such information. This paper explores ways in which improved coordination between land use planning agencies and traditional irrigation districts might be realized. Experience is drawn from a series of workshops and forums conducted on this issue in the West over the past several years, and funded through the Bureau of Reclamation's Science and Technology program. Innovative methodologies for data gathering, analysis and technology transfer are emphasized based on experience with multiple application examples.

Keywords: Water Resources, Irrigation, Land Use, Conflict, Urbanization, Planning

Claudia Coulton, Center on Urban Poverty and Community Development, Case Western Reserve University. Email: ; Kristen M Mikelbank, Center on Urban Poverty and Community Development, Case Western Reserve University. Email: kmm30@case.edu; Tsui Chan, Center on Urban Poverty and Community Development, Case Western Reserve University. Email: ; Ned English, NORC. Email: ; *Residents' perceptions of neighborhood and the implications for community change*

When presented with the task of drawing the boundaries of their neighborhood, how do people respond? Do people living in the same area, refer to it by the same name? Does one's view of neighborhood depend upon age, race, income, or family structure? This paper will explore these questions in greater detail for neighborhoods in ten U.S. cities - Denver, Des Moines, Hartford, Indianapolis, Louisville, Milwaukee, Oakland, Providence, San Antonio, and Seattle. Respondents in each neighborhood completed a survey and drew their neighborhood on a map. These respondent drawn maps were analyzed for consensus within a geographic information system. The maps from residents who shared the same neighborhood name were examined to determine the degree of consensus among them in terms of the areas included in their perceived neighborhood. Additionally, we identified neighborhoods about which there was consensus using nearest neighbor hierarchical clustering. Each consensus area was then explored along demographic, social, and economic dimensions. The neighborhoods examined in this paper are involved in the Annie E. Casey Foundation's Making Connections initiative, which works to improve conditions for families and children in isolated neighborhoods. How residents view their neighborhood has implications for community organizing and neighborhood change. The final component of this paper considers how the role of the neighborhood and how residents' neighborhood identity can influence community organizing efforts.

Keywords: mental maps, U.S. cities, defining neighborhoods, community change

Francois Courchesne, Professor, Université De Montréal. Email: francois.courchesne@umontreal.ca; *Root-induced acidification and trace metal speciation in the rhizosphere of forest soils*

Tree growth and atmospheric deposition represent two key sources of acidity to forest soils. We investigated the contribution of tree roots to acidification and to the speciation of metals in soils. To do so, bulk and rhizosphere soil materials were collected in a range of contaminated and pristine forested sites from southeastern Canada. Water-soluble organic C (WSOC), pH, and the concentrations of trace metals Cd, Cu, Ni, Pb and Zn were determined. At all sites, the rhizosphere was generally more acidic and its WSOC content was higher. The mineralogy, notably the abundance of amphiboles and plagioclases, significantly differed between the two components because of accelerated weathering in this corrosive microenvironment. The fraction of water-soluble Cu present as Cu²⁺ was higher in the bulk soil because of Cu complexation by organics in the rhizosphere. As a corollary, the activity of Cu²⁺ did not significantly vary with proximity to roots but Zn²⁺ increased in the rhizosphere. The total concentrations of most water-soluble and salt-extractable metals were however higher in the rhizosphere. Yet, the acid-extractable metals only marginally differ between the two components. These results were supported by speciation analyses conducted on the solid phase of soils. In brief, the processes acting in the rhizosphere strongly impact on the acid-base status of forest soils and, consequently, on the speciation of metals. Because of the key roles played by the rhizosphere, we submit that it should be considered when estimating bioavailability and the ecological risks associated to metals in soils.

Keywords: Soil, forest, metals, bioavailability

Joshua J Coutts, U.S. Bureau Of the Census. Email: joshua.j.coutts@census.gov; *Re-Evaluation of Approaches to Delineating Statistical Geographic Areas*

The development of statistical geographic areas for use in tabulating and publishing demographic data traditionally has focused on the representation of geographic concepts, with demographic and statistical concerns in the background. Concerns about reliability and quality of data have prompted an increased focus on more rigorous approaches to defining statistical geographic areas. An argument is advanced advocating movement away from this traditional view of statistical geographies as passive containers of data. Consideration is given to development of statistical geographic concepts and criteria that both delimit area associated with a particular demographic group or geographic concept, and foster production and dissemination of reliable and meaningful data.

Keywords: population; statistical geography; data reliability

Tom Cova, University of Utah. Email: cova@geog.utah.edu; *An agent-based approach to modeling warning diffusion in emergencies*

A number of models exist for representing the process of people leaving an area in an emergency at macro, meso and micro scales. In almost all cases, however, the process of notification and warning diffusion is overlooked. Evacuation models begin with vehicles entering a network at varying rates without regard to the information gathering, dissemination and decision making processes that led to these trips. In short, a large body of behavioral research has not found its way into contemporary modeling efforts. For this reason, it is difficult for emergency managers to utilize the results of this research in practice. This paper proposes an agent-based approach for incorporating findings from the disaster behavioral literature into a model for better representing notification, warning diffusion and, ultimately, evacuee departure rates.

Keywords: hazards, evacuation, transportation, GIS

Steven Covington, The Aerospace Corporation. Email: steven.covington.1@gsfc.nasa.gov; Jeff Masek, NASA. Email: Jeffery.G.Masek@nasa.gov; *The NASA/USGS Mid-Decadal Global Land Survey*

The U.S. Geological Survey (USGS) and the U.S. National Aeronautics and Space Administration (NASA) are augmenting a series of decadal global land surveys with one based around the 2005-2006 epoch. The Mid-Decadal Global Land Survey (MDGLS) will build on previous datasets from the 1970's, 1990 and 2000, while increasing the total coverage and, for the first time, include Antarctica. The MDGLS project will utilize remote sensing data from the Landsat 5 and 7 satellites operated by the USGS. The activity has been organized into two phases with the USGS leading the first phase: Data Acquisition, and NASA leading Phase 2: Product Generation. In Phase 1, data acquisition is based on each scene's geographic location, climate and land cover seasonality. To mitigate the perennial risk of cloud contamination, the strategy is to maximize the collection from both the Landsat 7 ETM+ and the Landsat 5 TM instruments. Phase 2 of the MDGLS will concentrate on production of a set of images that best reflect the land cover/land use of the Earth while providing products with a temporal compatibility to previous surveys; facilitating land change analysis across the four survey epochs. Product specifications and distribution policies are being formulated in consultation with a Science Steering Committee, the NASA Land Cover/Land Use Change Science Team, and the USGS LDCM Science Team. This paper will provide a synopsis on the strategies taken for the implementation of both Phases 1 & 2 of the project and give an update on the progress of each.

Keywords: Landsat, USGS, NASA, Global Survey

David J. Cowen, University Of South Carolina. Email: cowend@sc.edu; *A National Vision for Land Parcel Databases in the United States*

Early in 2006 the National Research Council's Mapping Science Committee formed a committee to develop a National vision for Land Parcel Databases. Building from the NRC's 1980 report "Need for a Multipurpose Cadastre," this study is designed to highlight the status of land parcel databases in the United States, provide a vision for the future, and develop a strategy to complete this NSDI Framework data layer. Specifically, the committee was asked to (1) identify the benefits of parcel databases to all stakeholders (public and private); (2) describe the current status of parcel databases across the nation at all levels of government; (3) document what is possible using examples of successful systems; (4) provide a vision of what could be possible nationwide; and (5) identify a strategy to achieve the vision, including the role of the federal agencies, and accounting for challenges that must be overcome. The paper will report on the findings and recommendations from this study. It will highlight the analysis of more than 400 responses from a wide range of stakeholders and discuss the comments from Federal Agencies, The Private Sector, and Policy-Makers and National Associations who participated in the committee's land parcel summit. An important part of the committee's work focused on the current intergovernmental relationships that impact the sharing of parcel data. This relates directly to the role of land parcels as a National Spatial Data Infrastructure (NSDI) framework data layer and as part of the OMB Geospatial Line of Business.

Keywords: Cadastre, Parcels, Federal, Spatial Data Infrastructure

Deborah Cowen, York University. Email: dcowen@yorku.ca; *Anti-Social Security?*

Crises of national security have historically been definitive periods for nation building and for the genesis of 'solidarity' and social security. Exceptional moments of crisis like war have allowed labouring citizens to make forceful political claims and institutionalize new forms of entitlement. The current moment is markedly different. Contemporary national security policy severely compromises labour rights and social forms of security. Ironically, national security projects also pose acute challenges for global trade by impeding the efficient movement of goods across borders, with transnational corporations like

Wal-Mart systematically undermining security initiatives. Port workers are at the epicenter of conflicts over 'economy' and 'security', and struggles over the changing meanings and relations between social and national security. They, at once, play a pivotal role in policing the territorial borders of the nation and are central to the global movement of goods. In both the US and Canada, security clearance programs administered through biometric identity cards are under development for workers in this sector. Proposed measures subject workers and their families to extensive screenings and threaten to institutionalize racial profiling, undermine job security and civil rights, and blur the boundaries between 'terror' and crime. In this paper I explore the restructuring of work and citizenship as a vital dimension of national security projects. I suggest that there is urgent political need and rich theoretical insight available from thinking through struggles over different forms and geographies of 'security'.

Keywords: security, the social, labour, trans-port

Helen M. Cox, Geography Department, California State University, Northridge. Email: helen.m.cox@csun.edu; Alan Yong, Geography and Geology Departments, California State University, Northridge. Email: yong@usgs.gov; *Geomorphological feature extraction using satellite imagery and contextual-based image analysis*

Remote sensing imagery from the ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) and Landsat 7 ETM+ satellites are commonly used for geologic mapping work, but not common in seismic studies (Yong et al, 2006). Local rock and soil conditions (geotechnical site conditions) are critical for determining the amount of shaking and damage that can be expected in an earthquake. Traditionally these have been determined from conventional geological maps, which have been drawn from seismic field experiments and from local sampling over many decades (Wills and Clahan, 2006). Data have been recorded by different geologists and a variety of means, which has led to inconsistencies. In addition, the spatial precision of the maps is poor in some areas, and in many regions of the world the required data simply do not exist. The use of remote sensing data allows for the possibility of global scale mapping of geotechnical site conditions at a high and consistent spatial resolution. Multi-wavelength spectral reflectance data from ASTER are available at a high spatial resolution and at enough channels to potentially allow for the classification of rock and mineral type from this imagery. In addition, software now exists for the extraction of features from digital data through the use of color, shape, size, and contextual information. An exploration of the results of using digital imagery in concert with context-based image analysis to distinguish geomorphological features will be presented. This work offers exciting potential for applications in other geographic fields such as vegetation and land-use mapping.

Keywords: remote sensing, geomorphology, geologic mapping, feature extraction, satellite image

Jennifer R Cox, Regional Plan Association / CUNY Grad Center. Email: jennifer@rpa.org; Cynthia Rosenzweig, PHD, NASA Goddard Institute for Space Studies at Columbia University. Email: crosenzweig@giss.nasa.gov; William Solecki, PHD, CUNY Hunter College. Email: wsolecki@hunter.cuny.edu; Richard Goldberg, NASA Goddard Institute for Space Studies at Columbia University. Email: ccrag@giss.nasa.gov; Patrick Kinney, Sc.D, Columbia University Mailman School of Public Health. Email: plk3@columbia.edu; *FairWeather Factors: Social Vulnerability in the Northeast Megaregion*

Currently 49 million people reside within the neighborhoods of the Northeast megaregion; projections claim another 18 million will by 2050. Current population growth is complimented by extensive and intensive urban spatial development and corresponding increase in the number of weather related societal impacts. The objective of this paper was to use 2000 neighborhood level data to construct a comparative megaregion index of social vulnerability to climate change. The use of a factor analysis method simplified our final 27 variables into clusters of six analogous factors to explain 79 percentage of the variability of the original variables. The individual factor variances were used as a weighting schema for each factor before their incorporation into an additive model which generated the index of social vulnerability. Mapping the six factors and the index of social vulnerability to climate change provided a general foundation for analyzing megaregion vulnerability trends and hot-spots. Highlighting four major cities as case studies (Boston, Hartford, New York - New Jersey, and Philadelphia) provided an opportunity for closer review of the data and to demonstrate the presence of spatial heterogeneity within counties, states, and metropolitan regions that make up the megaregion. Variability within the megaregion demonstrates that different variable combinations actually generate different social vulnerability profiles for each neighborhood. Greater understanding of the neighborhoods' social vulnerability will potentially shape policy interventions, foster opportunities for interdisciplinary research, and progress towards the reduction of societal impacts.

Keywords: Social Vulnerability, climate change, urban areas, neighborhood, northeast, megalopolis, megaregion

Kevin R. Cox, Ohio State University. Email: cox.13@osu.edu; *Urban Governance in Question*

Urban governance has become a major issue for both academics and local economic development professionals. The literature on the topic raises questions of a critically analytic nature, two of which are explored in this paper. In the first place, the paper questions the significance of urban governance as a problem in local economic development. The conclusion is that it is seriously exaggerated. On the one hand there has been a fixation on a set menu of 'solutions' at the expense of recognizing the innovative way in which agents cope with problems of governance in an ongoing way. On the other hand, assumptions about competition are also oversimplified. To the extent that firms compete in terms of cost then failures of governance could be problematic. But many firms don't, and their technical dynamism can offset local cost problems. The second major issue raised in the paper is that of the relation of governance to space. Problems of governance, to the extent that they exist, can by no means be limited to the urban. Rather the socio-spatial relations to be harmonized are often of a much more complex nature. Even if one accepts the 'urban' qualification it is far from clear that regulation of the urban has to be in the urban.

Keywords: urban development governance competition

Rosie Cox, Birkbeck, University of London. Email: r.cox@bbk.ac.uk; Lewis Holloway, University of Hull. Email: ; Elizabeth Dowler, Warwick University. Email: ; Moya Kneafsey, Coventry University. Email: ; Laura Venn, West Midlands Observatory. Email: ; Helena Tuomainen, Warwick University. Email: ; *Greater than the sum of the parts? Unpacking notions of care within 'Alternative Food Networks'*

This paper draws on findings from a research project that has worked in depth with producers and consumers participating in six diverse 'alternative food networks' (AFN). In this research, which took us from pastures in Italian mountains to kitchen tables in the British Midlands, we were often engaged in discussions of care: care for people, places, plants, animals, soil, water and for relationships and ways of life. Notions of care permeated and saturated our participants' discussions of their involvement in AFN. Yet the notions of care that were drawn on were diverse and the things being carried for were various. Producers and consumers each constructed their own 'careful geographies' of consumption focused on different scales, objects and actors. However, while these geographies might appear to be competing - pitching care for the body against care for an environment, for example? they actually co-exist quite comfortably and actors in AFN seemed able to acknowledge and act on their own priorities while still respecting, and perhaps being influenced by, those of others. Recent literature has cautioned that discourses of care within consumption and retailing can be problematic and may undermine care for people and places out of sight whilst privileging those that are close by. This paper suggests that in some situations care for a variety of things creates an additive rather than a competing effect. The commitment of various actors to care about their different priorities can accrete to create a larger, overall ethical framework that AFN can work within.

Keywords: 'Alternative food networks', care, 'food consumption', 'sustainable actions'

Susan Craddock, Associate Professor, University of Minnesota. Email: craddock@umn.edu; *Antiretrovirals and the body politics of inequality*

The 1990s saw the convergence of two phenomena bearing equally critical impact on what Nicholas Rose has termed 'the politics of life itself' (Rose 2001). The first is the advent of antiretrovirals designed to prolong the lives of people living with AIDS by intervening in viral replication and destruction of the immune system; and the second is the simultaneous development of global intellectual property regulations largely preventing those same drugs from reaching the vast majority of those who need them. This reconfigured political landscape of preventable deaths from AIDS in turn points to a juncture where an array of global assemblages including pharmaceutical companies, international trade organizations, government trade representatives, scientists, and social movements both collide and collude. My intention in this paper is to examine this collision/collusion as a way of extending conversations on the new modes of citizenship that have emerged within the nexus of medical research, biotechnological innovations, bioethics, and privatization of medical capital. The kinds of governance and its contestation that has revolved around access to antiretrovirals, or ARVs, suggest new dimensions to discussions of how biological citizenship is defined and the players involved in shaping that definition and its experience.

Keywords: ARVs, biocitizenship, science, regulation

Ruth Craggs, University of Nottingham. Email: lgxrc1@nottingham.ac.uk; *The Commonwealth Institute: Architecture and the geographies of optimism and decline*

Many engagements with ideas about the end of Empire, Commonwealth and multiculturalism in Britain in the sixties have focussed on the re-racialisation of Britain, race riots and arguments about immigration, alongside a persistent 'culture of decline'. In contrast, this paper considers one positive engagement with the idea of Commonwealth which occurred during this period. It argues that ideas about progress, cooperation, modernity and multiculturalism were made concrete through the construction and architecture of the Commonwealth Institute in Holland Park. This building, completed in 1962, provides an opportunity to understand London as a space in which competing ideas about Commonwealth were present which included optimistic visions for the future alongside more negative visions for the Commonwealth and nation. Discussions continuing today about the future of the building (which is in doubt) and the future of the multiracial nation illustrate the continued resonance of these debates.

Keywords: Commonwealth, Architecture, London, Optimism, Decline

Michael Craghan, Middle Atlantic Center for Geog. & Env'l Studies. Email: mcraghan@macges.org; *Springs, storms, suspended sediment, and sediment sizes in a salt marsh*

High tides and storm surge floods are the only opportunity for sedimentary material to be transported onto the high salt marsh surface. This research focuses on how suspended sediment concentrations and particle size distributions vary during the period of time a salt marsh surface is inundated. Suspended sediment samples were collected in a tidal creek and on the adjacent high salt marsh during four spring tide floods and two coastal storms. The relationship of suspended sediment concentration with tidal stage at this site is typical of relationships found at other salt marsh research sites. This research found that concentration varies with water height. At the start and end of inundation, concentration on the marsh is greater than at the highest flood levels. Particle size distributions of material in suspension also vary with water height. Size distributions show coarser material is not in suspension at the highest flood levels, but those particles reappear in samples as the ebb progresses. There is also a relationship between particle size and suspended sediment concentration. When larger sizes are in suspension concentrations are higher. When smaller sizes make up large proportions of the sample mass, then concentrations are lower, regardless of maximum particle sizes. At the highest water levels on the marsh, particle sizes are smallest and concentrations are lowest. Temporal changes to the sizes in suspension and to concentrations have implications for models of salt marsh sedimentary processes.

Keywords: salt marsh, sedimentation, suspended sediment, floods, New Jersey

James Craine, California State University Northridge. Email: jwc53531@csun.edu; *See Your West: Standard Oil Markets Manifest Destiny*

In the immediate post-World War II period, Standard Oil of California launched its See Your West advertising program. The advertising was in the form of a series of collectable high-quality photographic prints of "scenic views of the West prepared for your enjoyment: to recall to memory certain favorite spots you visited in the past, and to help you visualize the beauties of those regions you yet to see." The use of famous photographers and writers increased the desirability of these prints enabling Standard Oil, in their effort to sell more products to our new and highly mobile society, to take advantage of the burgeoning westward movement of the population. By linking photographic images and ideas with specific places in the Western United States, Standard Oil could define the meanings of those identities and then reify those definitions by inscribing them onto the landscape through the use of the See Your West advertising campaign. This unique form of advertising had the power to change not only the way our landscapes are constructed, but also to alter how we relate to and consume those landscapes thus fetishizing travel to the West and fulfilling the long-standing doctrine of Manifest Destiny.

Keywords: media, cultural, the West

Jeremy Crampton, Georgia State University. Email: jcrampton@gsu.edu; *The Geographical Reinscription of Race*

In his work on governmentality and bio-politics, Michel Foucault argued that race-based divisions were central to modern governmental rationalities, not only in colonization, but provocatively also within colonizing societies themselves. However, the geographical component of race was never made explicit in his work. In this paper I examine archival papers from 20th century proponents of eugenics (such as American eugenics leader Charles Davenport and American Geographical Society board member Madison Grant) to bring forth how and why biological racism was produced cartographically and geographically. I show that maps at this time were essential in creating spaces for supposedly innately populations based on popular ideas of race and biology. Although decades

of anthropological research has shown that race divisions are arbitrary and have no biological component, then, as now, race was construed as the intersection of socio-biological traits, in which group membership was often circumscribed by geographical boundaries. Similarly, today's biological conceptions of race have geographic implications. The first race-based federally approved drug, BiDil, will be marketed in the South and in largely black urban areas. Companies such as African Ancestry in Washington DC offer home DNA kits in order to trace African ancestry to specific tribes despite the fact that DNA does not follow sharp linguistic or cultural boundaries. Comparing these events to those of a hundred years ago, I examine Foucault's claim that biological notions of race are necessary to government, and explore how the geographical reinscription of race may be countered and resisted.

Keywords: Race, Foucault, Bio-politics, Cartography

Nicholas Jon Crane, Masters Student, Ohio State University. Email: crane.61@osu.edu; *Improvement District Publics? Places of Accountability*

With this paper, I examine the 'place-of-accountability' operative in urban management strategies of emerging business improvement districts (BIDs). Through data from a case study in downtown Columbus, Ohio, I clarify the 'geographies of responsibility' (see Mason, 2001; Popke, 2003, 2004; Massey: 2004) produced by this sub-local strategy. Towards this end, I attend to BID boundary-making practices, indicating how these practices are informed by a spatial imaginary of (BID-) place, which governs managerial performances of accountability. Against this conceptualization of an inflexibly bounded place-of-accountability (bounded, that is, by the property of an investor-public), I imagine the place-of-accountability as spatially open, socially embedded, and historically constituted (see Massey: 1993, 2005). With this normative spatial imaginary, I implicitly call into question the adequacy of contemporary managerial performances of accountability, and I advocate a revision(ing) of accountability as "(shared) political responsibility" (see Young: 2003).

Keywords: geographies of responsibility, Business Improvement Districts, place-of-accountability, public formation

Randall Crane, UCLA. Email: crane@ucla.edu; *U.S. Housing Affordability and Crowding Trends, 1985-2005*

This paper will use the American Housing Survey to examine housing behaviors in the U.S., particularly among low-income households, over the last two decades. My focus is housing consumption and its costs. Several researchers have recently pointed out that the extent and even definition of the "affordability problem" is far from clear (Linneman and Megbolugbe, 1992; Hulchanski, 1995; O'Flaherty, 1996). In part the difficulty for policy analysts is that affordability is a reduced form measure of both supply and demand factors, like any market-determined price, rather than a simple and meaningful measure of need. For home buyers the confusion is somewhat worse, given the central roles of mortgage interest rates in determining housing cash flow, of property appreciation rates in determining net wealth effects, and of the down-payment constraint and credit history generally in determining access to financing. However, there is little comparative detailed knowledge at both national and local scales for low-income households in the metropolitan areas of the U.S. in recent years. Among the merits of the American Housing Survey for this purpose, beyond its panel structure and large sample size, are that data for 2005 are available today. I therefore plan to carefully examine and explain low-income housing trends in central versus suburban settings for all major metropolitan areas from 1985 to 2005. In addition to tracking interesting trends, over time and space, I will estimate panel models of housing consumption in order to explore the respective roles of alternative explanatory factors.

Keywords: housing consumption affordability crowding shelter

Mike A. Crang, Durham University. Email: m.a.crang@durham.ac.uk; *Displacing Destinations, Becoming Tourists*

Tourists are often noted but rarely figure favourably in imaginaries of mobility. Tourism tends to be taken as emblematic of a decadent mobility - as opposed to forms of movement seen as challenging, subversive and intellectually exciting. Looking at analyses of tourism they tend to suggest the reproduction of fixity and stability - with people travelling to stabilise and support their identities through visiting places circumscribed by the geographies of place marketing and package provision marked by a spatiality of containment from charter plane to inclusive resort to tour bus. All of which seems true at some level, but also replicates a hierarchy of taste in mobility that has long valorised exploration over travel, and travel over tourism. This paper will take a slightly different line located in an ethnography of tourists. It will look at the production and destabilisation of places through touristic imaginaries. Material will be drawn from Greek and Mediterranean tourism to ask how the subject of tourism is constructed through places and how their presence disrupts places. Taking the example of Kefalonia it will examine the multi layered geography of a landscape encoded by history, by a novel and film (Captain Corelli's Mandolin), the

performance of tourists and then the rather clumsy performance of tourism by ethnographers. This layered account will suggest rather more instabilities in both locating the places of tourism and accomplishments of becoming a tourist.

Keywords: tourists; ethnography; mobility; place images; Greece; film; landscape

Ryan Craven, University of Western Ontario. Email: rj_craven@hotmail.com; Jason Gilliland, PhD, University of Western Ontario. Email: jgillila@uwo.ca; *Artists' Impressions of Creative City Strategies in London, Canada*

Creative city concepts of economic development popularized by Richard Florida have been widely accepted by planners and policy makers in cities throughout the developed world. Previous research on these concepts has focused heavily on the search for correlations among certain socio-cultural characteristics (e.g., diversity, tolerance) and indicators of economic performance in city-regions. In this case study of the creative economy in the city of London, Ontario, Canada, we seek to gain a better understanding of how creative city concepts are translated into actions by local governments, and how such actions are perceived and experienced by the core of the so-called 'creative class' (e.g., visual artists, musicians, dancers). In the first part of the presentation we will present the results of a content analysis of municipal government reports in order to identify official creative city strategies. In the latter part of the presentation we will present highlights from detailed interviews with local artists living/working in London's Old East Village (OEV) neighborhood. Using data from the interviews we are able to better identify specific community characteristics and government strategies that encourage/discourage the success of the creative class. This research seeks to fill the knowledge gap which exists between the policy makers (municipal, provincial and federal governments) and members of the creative community in terms of the elements required for fostering a stronger creative economy.

Keywords: creative economy, community development, artists

Altha J. Cravey, University Of North Carolina. Email: cravey@unc.edu; *Racialized Spaces: US labor recruitment from Mexico*

Recruitment of foreign labor in the US is highly contentious and contradictory. This paper examines the historical geography of recruitment from Mexico and argues that geopolitical and trade relationships have a profound influence on both official recruitment efforts and unofficial ones. I explore the interplay between these migratory flows in order to understand contradictions in the governments's guest worker programs and corporate labor recruitment strategies. An ethnography of Mexican transnational lives illuminates the way in which recruitment practices produce gradations of citizenship and sovereignty.

Keywords: labor, immigration, Mexico, transnationality

Christopher J. Crawford, Virginia Polytechnic Institute and State University. Email: ccrawf05@vt.edu; Lisa M. Kennedy, PhD, Virginia Polytechnic Institute and State University. Email: likennel@vt.edu; Carolyn Copenheaver, PhD, Virginia Polytechnic Institute and State University. Email: ccopenhe@vt.edu; *A Tree-Ring Record of Climate, Disturbance, and Tree Encroachment in a Southern Appalachian Grass/Heath Bald*

High elevation un-forested openings known as grass balds in the southern Appalachians have been the subject of vigorous scientific debate concerning their origin, maintenance, and future. Grass balds support a variety of endangered flora and fauna. Recent tree encroachment into these grass-dominated systems represents undesirable change to many land managers who value their unique biota and the scenic vistas they provide. At Craggy Gardens, a grass/heath bald on the Blue Ridge Parkway in western North Carolina, we used a combination of dendrochronology and aerial photography to investigate the spatial and temporal patterns of tree invasion of the bald. We cored trees within 5m-wide belt transects from the grass-forest boundary extending downslope into mature forest. A chronology (n=128) from the dominant canopy tree, northern red oak (*Quercus rubra*), revealed an inter-series correlation of 0.587 (ARSTAN provided standardization). Pearson's correlation analysis showed significant correlations with the previous year's May and June temperatures ($r = 0.25, 0.26$ respectively) and June precipitation ($r = -0.21$). The spatial analysis of *Quercus rubra* indicated two distinct periods of tree establishment: gradual recruitment from the 1760s in an open woodland habitat, and a period of heavy recruitment around the early 1930s, which continued to the late 1960s closing the canopy and then declining rapidly. Historical photos indicate livestock grazing before the 1930s and cessation of grazing after 1935 that we think is linked to heavy oak recruitment. Analysis of aerial photographs (1940s to 1990s) revealed substantial changes from open land to forest cover that support our interpretation.

Keywords: dendrochronology, aerial photography, southern Appalachian bald

Thomas Crawford, East Carolina University. Email: crawfordt@ecu.edu; North Carolina's Final Coastal Frontier: Land Cover Change Analysis for the Inner Banks, 1992-2001.

Media accounts report that North Carolina's inland estuarine region is experiencing dramatic land cover change described as the "coastal boom moves inland". This follows a history of development along the Outer Banks and other barrier island settings related to land scarcity along the oceanfront. The region is being actively promoted as the Inner Banks to attract economic growth and immigration. This paper uses multi-date land cover data from the National Land Cover Dataset to characterize land cover transitions and provide a baseline analysis of change during the period 1992 to 2001. A methodological extension to traditional transition matrix analysis is employed to separate systematic from random transition and highlight important signals of change on the landscape. Results are consistent with the inland coastal boom theme and demonstrate a systematic transition primarily from agriculture and secondarily from forest to developed cover. While much of the region remains in agriculture, forest, or wetlands, results suggest the need for continued monitoring and future modeling efforts to better understand drivers and impacts of land cover change which, if continued or accelerated above rates found during the study period, may have significant impacts on the region's rich natural resource base and sense of place.

Keywords: GIS, remote sensing, coastal, estuarine, development

Richard J. Crepeau, Appalachian State University. Email: crepeaurj@appstate.edu; Theoretical Issues and Practical Applications of Landscape Ecology for Geographers and Planners

Landscape ecology concerns itself with the structure, function and change of spatial units within a large area. In the 1930s, regional planning efforts in Europe incorporated issues of landscape ecology - at least conceptually. Ian McHarg has addressed the issues inherent in determining the impact that the built environment has on the natural environment, which is a focus of landscape ecology. This object of inquiry has made a resurgence lately among architects and planners. Within the past decade, landscape ecology has taken a decidedly quantitative turn. Building upon information theory, ecologists developed measures that describe the interaction of land types and relate their character of interaction with a phenomenon that is influenced by its environment. Planners have adapted the ecologist's perspective to the built environment and the landscapes in which we live. It is important at this stage to revisit the theoretical underpinnings of landscape ecology and discuss its practical applications, especially as it relates to issues of transportation and land use activity systems.

Keywords: Landscape, Ecology, Transportation, Land Use

Tim Cresswell, Royal Holloway, University of London. Email: tim.cresswell@rhul.ac.uk; Mobility constellations - movement, meaning, practice

This paper develops an approach to mobility that consider the connections between aspects of moving that are normally held apart - the physical act of movement, meanings given to movement, and experience or practice of movement. The paper suggests that considering these aspects in tandem reveals "constellations of mobility" that are more or less stable and structured worlds of mobility that change spatially and temporally. The paper will trace the value of thinking in these terms for an historical geography of mobility.

Keywords: Mobility, Movement, Meaning, Practice

Tijs Creutzberg, Ph.D., University of Toronto. Email: t.creutzberg@utoronto.ca; Filling in the 'governance gap': The role of local strategic governance networks in resolving the challenges and problems of high-tech development in Austin and Toronto

This paper examines the role that informal regional governance structures play in resolving the many challenges associated with the development of a regional high-tech economy in Austin, Texas, and Toronto, Ontario. These structures, called 'local strategic governance networks', are animated by civic leaders, regional organizations and business associations, and shown to be increasingly important to resolving issues ranging from environmental degradation to growing social inequity within a particular locality. The comparative analysis traces the necessity of this mode of governance to the fact that many of these problems associated with high-tech development, require a multi-jurisdictional response, the result of which is a 'governance gap' whereby no one government entity can effectively attend to their resolution. Due in part to a higher degree of municipal fragmentation, this governance gap is shown to be more pronounced in Austin than in Toronto, though in the former, a more effective local strategic governance network has emerged to respond to this gap. Through mobilizing the necessary authorities and resources, these networks act to fill this gap and provide a degree of strategic attention to local public problems that are often beyond the policy horizon, or jurisdiction, of any one level of government. The analysis contributes to the understanding of how governance networks function by examining the types of actors that comprise the network,

and by linking their effectiveness to the formal institutional context in which they operate.

Keywords: Governance, networks, economic development

Bruce R. Crew, Michigan State University. Email: crewbruc@pilot.msu.edu; The Influences of Ancient Philistia's Military Strategy against the Israelites upon General Allenby's 1917-1918 Palestine Campaigns

This paper involves an examination of ancient Philistia's military strategy against the Israelites in relation to its influences upon General Allenby's 1917-1918 military campaigns in Palestine during World War I. In particular, it focuses upon the military strategy and objectives employed by Allenby against Ottoman forces as compared with the military strategy and objectives used by the Philistines against the ancient Israelites during the 11th-10th Centuries B.C. It explores the manner in which these two military campaigns closely resemble one another in a number of ways despite their chronological separation over a period of many centuries. Through the application of a principle known as 'internal self-consistency' to the study of Biblical and extra-Biblical texts, the paper consists of three main points. First, it demonstrates that the military strategy of "divide and conquer" used by the Philistines against the Israelites contains a number of similarities to the strategy employed by Allenby in his efforts to wrest Palestine from Ottoman rule. Second, it attempts to show how Allenby's use of ancient sources in planning and executing his military strategy against the Ottoman Turks permitted British forces to overcome obstacles that blocked earlier efforts to conquer the country. Third, it seeks to provide an example of how the application of spatial-temporal information from Biblical and extra-Biblical texts to develop a successful military strategy remains a viable option for this area of the world even in modern-day times.

Keywords: General Edmund Allenby, Military Strategy, 1917-1918 Palestine Campaigns, Middle East, Ancient Philistia-Israel

Kelley A. Crews-Meyer, University of Texas. Email: kacm@uts.cc.utexas.edu; Kenneth R Young, PhD, University of Texas. Email: kryoung@mail.utexas.edu; Resilience and Stability as a Framework for Health: The Interplay of Social and Environmental Vulnerabilities

The importance of human health, particularly in developing countries, continues to demand response from scholars. Yet despite advances in population-environment interaction research, there remains a gap in the explicit expression of the interconnectedness of human health and ecosystem health. This research examines the nexus of these typologies of health through two potentially synergistic frameworks: ecological resilience / stability and vulnerability. Specifically, this work integrates social and environmental components of vulnerability to elicit, build, and test expectations regarding population-environment interactions in an urbanizing Amazonian environment. Preliminary enumeration and analysis indicate that social vulnerability is greatest in less accessible areas but which, in the case of ribereños communities, may be mitigated by stronger community networks; environmental vulnerability, however, appears highest in areas with less diverse endowments, whether access to white versus black water systems, white sands versus red clay soils, or to both floodplain and upland croplands. It is expected that social and environmental vulnerability may mitigate each other through the peri-urbanization process while varying with population group and household residence time, such that recent migrants (colonists) suffer the (relatively) highest levels of vulnerability, indigenous peoples experience moderate levels of vulnerability, and longer-term migrants (ribereños) undergo the lowest levels of vulnerability. These temporal trajectories are couched in the context of ecosystem resilience and stability to understand the potential longer term effects of viewing health as a good which is inextricably and simultaneously built around humans and ecosystems.

Keywords: health, environment, Amazon

Lee Crookes, University of Sheffield. Email: L.Crookes@sheffield.ac.uk; Ethical issues in policy-relevant research: how much do we care?

Calls for more policy-relevant research in geography continue to resonate through the discipline. But exactly whose interests are served by policy-oriented research? With much of this work funded by government and with academics under pressure to generate research income, to what extent are the needs of policy-makers prioritised over community interests? In these circumstances, what responsibilities do/should geographers have to the community? These questions arise at a time when the notion of 'public geographies' is gaining some ascendancy (Ward, 2006) and when the moral and ethical dimensions of research are receiving increased attention. This increased commitment to reflexive and ethically-aware research, particularly evident in the fields of qualitative and participatory research, for example, serves to highlight the comparatively limited engagement with moral and ethical issues, both in the wider debate on 'relevance' and, perhaps, in the actual conduct of policy-oriented research. This

paper is therefore an attempt to begin to explore the ethical lacuna in funded, policy-oriented research. In particular it examines the Blair government's housing market renewal programme as an example of a research-driven, evidence-based policy that, in several instances, is leading to extensive housing demolition and the disruption and displacement of established communities. The paper contrasts the severity of these impacts and the apparent lack of ethical concern with the high levels of ethical reflection and insight that are commonly expected from researchers in other contexts that generally involve much less potential for doing 'harm'.

Keywords: ethics, relevance, public geographies

Mary Crooks, University of Oregon. Email: mcrooks@uoregon.edu; *A geographical look at students' experiences: cognitive maps of the University of Oregon campus*

This paper addresses how participation in different student groups on the University of Oregon campus affects students' cognitive maps of their spatial campus environment. Freshman students are a population that is overwhelmingly the result of recent in-migration. Consequently, many of their cognitive maps are newly formed and in the process of dramatic change, making it easier to look at influences on those conceptions. Cognitive maps of university freshmen students' show differences in campus features and the size of the campus as a whole, as well as the more complex spatial environment in which students' day-to-day experiences are conducted. There are many ways that students are introduced and oriented to the campus. Two important ways at the University of Oregon are through Residential Halls and Freshman Interest Groups, and both of these groups seek to help new students become better acquainted with other students and campus resources. Analysis of questionnaires, student-drawn cognitive maps and interviews with freshman students for this project helps fill in a gap in the literature on cognitive maps, campus life and migratory student populations. Scholars across a wide range of disciplines have become interested in the social effects of residential housing and university groups, such as the development of skills, group interaction, territoriality and social hierarchies. However, cognitive maps of campus are a prime situation to look at newly formed spatial realities and the effects of first year experiences on students' perceptions of the campus environment.

Keywords: cognitive mapping, campus, environment, place, migration, education

Valorie Crooks, Simon Fraser University. Email: crooks@sfu.ca; Michaela Hynie, York University. Email: ; Jackeline Barragan, Black Creek Community Health Centre. Email: ; *Marginalized Residents, Marginal Spaces: Female newcomers' experiences of mental health in Toronto's poorest neighbourhoods and implications for front-line health service providers*

Canada is a nation that receives immigrants from a variety of cultural and socio-economic backgrounds in order to meet labour market needs and stave off population decline. There is no guarantee, however, that the situations in which newcomers find themselves will be conducive to their well-being. This may be particularly true of recent newcomers' mental health needs; the disruption caused by the process of resettlement after migration can lead to the onset of stress disorders and other forms of mental ill-health, but the manner in which mental health services are offered, if and when they are, may not be culturally inappropriate. Female newcomers are particularly vulnerable to distress during this process. Upon arrival to Canada, they are more likely to experience isolation due to socio-cultural and linguistic barriers than are male newcomers, thereby placing them in a marginalized social position. Here we draw on the findings of in-depth interviews conducted with female newcomers from five cultural groups and front-line health service providers at two community health centres in Toronto, Canada. Both centres serve residents of the poorest neighbourhoods and are thus situated in some of Toronto's most marginal spaces. We focus on female newcomers' culture-specific experiences with respect to stress, well-being and mental (ill) health, and with the barriers they confront in seeking and using primary mental health care. We also reflect on the ways in which service providers consider perceived cultural needs when interacting with such clients. We conclude by considering the implications for primary health care providers.

Keywords: health services, mental health, immigrant, women, Toronto, community health

Christopher J Crosby, Arizona State University. Email: chris.crosby@asu.edu; J Ramon Arrowsmith, Arizona State University. Email: ramon.arrowsmith@asu.edu; Efrat Jaeger-Frank, San Diego Supercomputer Center. Email: efrat@sdsc.edu; Viswanath Nandigam, San Diego Supercomputer Center. Email: viswanat@sdsc.edu; Han Suk Kim, University of California, San Diego. Email: hskim@cs.ucsd.edu; Jeffrey Conner, Arizona State University. Email: jconner@mainex1.asu.edu; Ashraf Memon, San Diego Supercomputer Center. Email: amemon@sdsc.edu; Chaitan Baru, San Diego

Supercomputer Center. Email: baru@sdsc.edu; *Enabling Access to High-Resolution LiDAR Topography through Cyberinfrastructure-Based Data Distribution and Processing*

Digital data acquisition technologies such as LiDAR (Light Distance And Ranging) topography have resulted in an increase in the volume and complexity of scientific data that must be efficiently managed, distributed and processed in order for it to be of use to the scientific community. Capable of generating digital elevation models (DEMs) more than an order of magnitude more accurate than those currently available, LiDAR data offers the opportunity to study earth surface processes at resolutions not previously possible yet essential for their appropriate representation. Unfortunately, access to these datasets for the average user is difficult because of the massive volumes of data generated by LiDAR. The distribution and processing of large LiDAR datasets, which frequently exceed billions of data-points, challenge internet-based data distribution systems and readily available desktop software. Our approach to the distribution and processing of LiDAR data capitalizes on cyberinfrastructure developed by the GEON project (<http://www.geon.org>) to harness distributed computing resources. We utilize a workflow-based solution, the GEON LiDAR Workflow (GLW), which begins with user-defined selection of a subset of point data and ends with download and visualization of DEMs and derived products. Users perform point cloud data selection, interactive DEM generation and analysis, and visualization all from an internet-based portal. Users may experiment with DEM resolution and DEM generation algorithms so as to optimize terrain models for their application. By using cyberinfrastructure resources, this approach allows users to carry out computationally intensive LiDAR data processing without having appropriate resources locally.

Keywords: cyberinfrastructure, lidar, gis, topography, geomorphology

John A. Cross, Ph.D., University of Wisconsin-Oshkosh. Email: cross@uwosh.edu; *Teaching Hazards Geography: A Decade of Change*

This study reports the results of a survey of instructors teaching hazards courses that updates the findings of a similar survey conducted a decade ago. Utilizing a questionnaire containing many of the previously asked questions, the latest survey sought information regarding the topical content of undergraduate hazards courses taught throughout the United States and Canada. Well over one hundred instructors were questioned in particular about the targeted audience for their courses, whether they emphasize a discussion of the physical or social aspects of hazards, which specific topics are emphasized in their discussion of physical hazards and human responses, the particular hazards models or paradigms that are considered, and what aspects of the spatial patterns of hazard that are considered. The survey also provided information about the instructors' selection of textbooks and utilization of hazards maps and GIS software within the hazards classroom. Instructors were queried regarding the role that recent catastrophes, such as Hurricane Katrina, have played in the shaping of their hazards courses. Instructors were also questioned about their inclusion of material about terrorism and war hazards. Additional information was gathered about the education of the instructors and their involvement in hazards research.

Keywords: hazards, teaching

Sean Crotty, San Diego State University. Email: crotty@rohan.sdsu.edu; *Westalgia in the Suburbs: Main Street Redevelopment in Suburban San Diego*

30 years ago Donald Meinig identified the "Main Street" as one of three symbolic American Landscapes (1979). Each of the three landscapes was idealized and based on an amalgam of landscape characteristics, taken from various urban areas throughout the United States. Despite the idealized basis of Meinig's symbolic landscapes they remain a powerful influence on the American landscape today. Today the Main Street landscape is recreated and preserved for the purpose of economic revitalization in urban areas throughout the United States. This paper critically examines the "Main Street" development/preservation projects in two suburban edge cities in San Diego County. Both La Mesa and El Cajon are located in eastern San Diego County. They share a similar, but not identical history. Yet both towns are heavily invested in the success of their Main Street preservation efforts, financially and emotionally. This paper compares the preservation efforts in terms of landscape and architecture, types of businesses that are "preserved", and the regulation of public space use in preservation areas.

Keywords: Historical Preservation, Urban Redevelopment

David Crouch, Professor, University of Derby UK. Email: d.c.crouch@derby.ac.uk; *creativity in lay geographies: gardening*

in this paper creativity is examined in terms of mundane activities, as performances, through which feelings of 'holding on' and 'going further' in individuals' lives, identities, are discussed. creativity emerges as potentially process that is engaged in the negotiation of self and inter-subjective identities, with tensions and opportunities alike. thus, gardening, as processual, rather than the familiarised notion of 'the garden' in geographical thinking, is considered as a means through which such processes may be understood. Individuals can thus be

creative in mundane practices and their performance. working with recent social science understandings of performance, and of dwelling [Thrift, Ingold, etc] this paper provokes Shotter's argument concerning practical knowledges/onotologies in terms of the making of space, or to deploy Deleuze's 'space-ing' as creative too. the emerging potential of modest creativity is considered also in terms of embodied semiotics through which individuals may make lay geographies, space as a conduit and 'product' of this process. Time and memory are also inferred in this discussion. the paper makes use of the author's work on gardening, but also of the mundane spaces and performances of artists.

Keywords: lay geography, performance, dwelling, space-ing, identities, mundane geographies

Ben Crow, University of California, Santa Cruz. Email: bencrow@ucsc.edu; *Emancipatory Urbanism? Women and Water in Rural Villages and Urban Slums*

As the global south becomes increasingly urban, livelihoods and living conditions in peri-urban slums become an ever more pressing concern. In some ways, cities set people free of rural ties, provide more social options and even offer the prospect of greater environmental sustainability. The realities of urban living for slum-dwellers and recent migrants, however, may provide little more than the hope of better lives. In this paper, I compare women's access to water in rural and urban areas. My principle points of reference will be Kenya and Bangladesh. In addition, I will draw on findings from other parts of the global south. The question that I want to explore is this. What are the social and natural constraints and opportunities that influence women's access to water and sanitation in slums and rural areas?

Keywords: gender, water, urban, slum, access, emancipation

Jeff Crump, Housing Studies, University of Minnesota. Email: jrcrump@umn.edu; *Whose Street? Our Street! Telegraph Avenue in the 1960s*

Running due east from the campus of the University of California at Berkeley, Telegraph Avenue is a colorful mélange of hippies, leftist politicians, bikers and assorted vagabonds attracted to the street life. Telegraph Avenue gained notoriety in the 1960s as the site for numerous anti-war demonstrations and often violent civil disorders. And Telegraph's reputation for violent confrontation was cemented by the People's Park demonstrations of May 1969 which resulted in numerous injuries and the death of James Rector at the hands of Alameda County Sheriffs who used shotguns on Telegraph Avenue against demonstrators and innocent bystanders alike. Telegraph was (and is) one of the nerve centers for the counterculture. During the 1960s it was the place where new left politicians rubbed shoulders with Hells Angels, street people came into contact with middle class students, and tourists gazed open mouthed at the wild variety of costumes and behavior. Telegraph was also a center of psychedelic art and alternative media as well as the location for unconventional forms of commerce that ranged from selling underground newspapers such as the Berkeley Barb to drug dealing. The purpose of this paper is to explore Telegraph from several viewpoints; as a center of alternative politics and culture, as a spatial system; a hearth of alternative media and a complex marketplace of legal and illicit commodities. Like Telegraph Avenue itself, this exploratory paper is intended to be an unruly mix of autoethnography, images, interviews, and archival research.

Keywords: 1960s, public space, counterculture

Gilbert Cuevas, M.A. Geography, Retired Educator. Email: flacorp@aol.com; *Immigration, Demographic Changes, and the Challenge for America*

Demographic Shift, Immigration, And The Challenge For America - The human exodus from Mexico and other Latin American countries, which began in the early 1970's and continues to the present day, poses a serious challenge for America. Unraveling the problems caused by a lax immigration authority in the United States and creating an effective immigration policy will now require major reforms in Mexico especially and difficult changes in the United States. Public pressure in the United States is increasing and demands are mounting for solutions. Why the ambivalence among government leaders? There have been great efforts in our history to limit immigration, and except for the seven census years from 1860 to 1930, we were successful. Until 1965 we also had laws that restricted immigration from all areas of the world - except Europe. Since 2000, our immigration picture has changed in significant ways: immigration has consistently remained at or above 10 percent of our total population per year, the immigrants are no longer European, and immigration, unlike the past, is now uncontrolled. What has caused these changes and how significant is it that the immigrants are now heavily Latin American rather than European? And, most critically, why have we allowed uncontrolled and illegal immigration? Americans must now squarely face the immigration problem. The only option that is not

possible for the United States, is to remain passive in the face of a situation that needs resolution.

Keywords: Immigration, Demographic changes

Kurt M. Cuffey, University Of California, Berkeley. Email: kcuffey@berkeley.edu; *Comprehensive Models of Climate and Ice Sheets: Uses, Abuses, Status, and Needs*

Comprehensive models of environmental systems are models that try to represent the totality of processes and characteristics that are quantitatively important for the evolution of the system. Global climate models and whole-ice-sheet models are two types of comprehensive models at the core of scientific debates about anthropogenic global warming and its impacts. I will review the status of these models (how good are they?) and outline the main challenges they face (how should they be improved?). This discussion will serve as a foundation for a perhaps opinionated overview of how models have been used and mis-used in the scientific debates (as opposed to political debates) about anthropogenic global warming.

Keywords: climate, global warming, ice sheets

Karen Culcasi, Syracuse University. Email: klcucas@maxwell.syr.edu; *Cartography and the Construction of the "Middle East"*

Cartography has the ability to produce and reproduce our geographical imaginations. By graphically articulating and representing social-spatial phenomenon, the production of maps and map discourses are vital to the creation, institutionalization, and naturalization of socially constructed geographical imaginings, such as world-regions. Coupled with concern that many map users construe maps as accurate, objective, and scientific representations of a static and uncontested world, it becomes evident that maps are part of powerful discourses that inform and construct our geographical imaginations of places. With this conceptual foundation, I examined how maps construct, naturalize, and at times even contest the basic geographical concept of world-regions. Specifically, I critically examined approximately 500 maps of the tenuously defined "Middle East" - including maps used to divide the Ottoman Empire during and following WWI, world and regional atlases, school textbooks and atlases, college-level geography books, and government funded surveys ? produced in the U.K., U.S., and Egypt from 1914 to the present. In this illustrated paper, I use these maps to show first that the "Middle East" was constructed within systematic and purposeful geopolitical and imperialist motives, and second that the conceptions, delimitations, and definitions of the region changed dramatically over both time and space. Through this narrative of the construction, legitimization, and alteration of a region that was practically nonexistent before WWI, I argue that these maps are an integral part of the wider discourses that produced this region as a part of our geographical imaginations.

Keywords: Cartography, Middle East, geographical imagination

Bradley T. Cullen, Univ of New Mexico. Email: bcullen@unm.edu; *'Out' Business Owners*

The obstacles facing small, sexual minority business owners are daunting. In addition to the problems facing all entrepreneurs (securing plenty of capital, researching consumer behavior and needs, marketing, location decisions, and competition from chain stores), sexual minority entrepreneurs must also contend with the burdens of prejudice and safety. Yet Yankelovich's survey in 1994 found that gays and lesbians were more likely to be self-employed than their heterosexual counterparts. This raises the following questions: What are the characteristics of sexual minority entrepreneurs? Why do they open their own businesses? What types of businesses do they own? And Where do they locate their businesses? The study area for this analysis of 'out' business owners was Albuquerque, NM. To answer these questions, a survey was administered to all the business owners listed in the Albuquerque Lesbian and Gay Chamber of Commerce's Buyers Guide. The respondents to the questionnaire tended to be older and experienced. The major motivating factors for becoming an independent entrepreneur were passion for the product/service and a desire for more independence. In addition, most of the business owners were 'out' and found being a sexual minority business owner an asset.

Keywords: sexual minorities, businesses, Albuquerque, NM

Rebecca Cumming, University of Victoria. Email: bmcbees@gmail.com; Ian J Walker, Ph.D., University of Victoria. Email: ijwalker@uvic.ca; *Morphodynamics and climate variability responses of macrotidal beach-dune systems, Haida Gwaii (Queen Charlotte Islands), British Columbia*

Macrotidal beach-dune systems that are exposed to extreme wind and wave climates are morphodynamically responsive to climate change and variability. These macrotidal systems are relatively understudied in the Canadian context and, on the West coast, their morphodynamics are responsive to extreme seasonal storms and known climate variability events (e.g., ENSO, PDO). This research examines and characterizes the morphodynamic regime of 2

geomorphically distinct macrotidal beach-dune systems in Gwaii Haanas National Park and Haida Heritage Reserve, British Columbia. Using regional wind data and Fryberger's sediment drift potential model we assess the potential for onshore sediment delivery via aeolian action. Using statistical analysis of annual mean and maximum water levels and climate variability indices, this study sheds new light on the response of macrotidal beaches in the NE Pacific to climate variability (e.g. increased storminess) and change (e.g. sea-level rise) impacts. This research has direct relevance for parks planning and management initiatives as well as for understanding one of Canada's most sensitive coasts to climate change and sea-level rise.

Keywords: coastal geomorphology, morphodynamics, aeolian, macrotidal beaches, climate variability

Steven Cummins, PhD, Queen Mary, University Of London. Email: s.c.j.cummins@qmul.ac.uk; Stephen Matthews, PhD, Penn State University. Email: matthews@pop.psu.edu; *Neighbourhood food environment and obesity: The PFFFI Study*

It is increasingly recognised that environmental factors may be related to obesity through the modification of diet and physical activity behaviors. However despite much conceptual work the empirical evidence for the contribution of the local food environment to obesity outcomes is still relatively poor. In this paper we present data collected as part of a study evaluating the impact on diet and obesity of the Philadelphia Fresh Food Financing Initiative, a \$40 million programme that seeks to encourage food retailers to location in underserved areas of the city. For this paper we investigate associations between features of the local food environment in Philadelphia (fast-food and grocery retail environments) and diet and obesity outcomes controlling for other confounding variables. The paper will seek to provide robust observational evidence for a role for plausible environmental predictors of obesity in a major urban center of the United States.

Keywords: neighborhood, context, diet, food, obesity, health

Mary Ann Cunningham, Vassar College. Email: macunningham@vassar.edu; Kirsten Menking, Vassar College. Email: kimenking@vassar.edu; *Effects of Landscape-scale Factors on Stream Water Quality in the Hudson Valley*

Stream water quality responds to environmental factors at a range of scales, including the riparian zone, landscapes, and watershed. Policies regarding water quality, however, are frequently implemented only at the scale of the riparian-zone, and analysis tends to focus on watersheds as a whole. Variables measured at intermediate, landscape-scales may also help explain stream water quality. We examined the effects of landscape-scale factors, represented here by nested sub-basins, in a small (31 km²) stream in eastern New York. Inputs from sub-basins strongly affected water quality parameters. Non-point-source pollutants were the most important contaminants. These pollutants result from landscape-scale land use conditions, rather than point sources or watershed-wide conditions. Salinity, our main contaminant, responded strongly to sub-basin impervious cover. Nutrients did not respond to impervious cover in the basin as a whole, but below a threshold of ~30% impervious cover, nutrients did correlate strongly with impervious cover. Past about 30 percent impervious, then, increasing density of development did not necessarily affect nutrient inputs to the stream. Impervious cover was strongly correlated with normalized difference vegetation index (NDVI), which may be more reliably calculated from remotely sensed data than impervious cover. We conclude from these measures that landscape-scale factors are useful predictors of common water-quality parameters in surface waters. Water quality in this region would be improved by concentrating impervious areas and roads and by leaving rural areas undeveloped. Managing landcover at the landscape scale, however, remains problematic, as it requires stronger planning and zoning than have, thus far, been acceptable here.

Keywords: Water quality, Landscape ecology, GIS, road salt, watersheds

Kenny Cupers, Harvard GSD. Email: cupers@fas.harvard.edu; *Tactics of Mobility, Strategies of Localization: The Spatial Politics of Street Vending in Los Angeles*

How do street vendors fit in the contemporary city? Are they remnants of traditional culture, inevitable by-products of modern economies, or signs of a novel global condition? In many Western settings, street vending tends to be understood as part of what is called the 'informal' sector: activities that are unregulated by the state, and thus untaxed and uncontrolled. This paper focuses on street vending in Los Angeles as a conspicuous example of such informal economic practices in an 'advanced' Western context. Despite the general prohibition on street vending in LA, the practice has been growing conspicuously over the last few decades. By investigating the public perceptions, discourse and political institutions that legalize, regulate and enforce street vending in Los Angeles, the research sheds light on the forms of urbanism that street vending as

a spatial practice creates. The premise of the paper is to show how street vending in Los Angeles illustrates a particular politics of urban space, in which mobility constitutes the main source of contestation and problem for contemporary urban governance. The paper examines three essential perspectives on this issue. First, there is the ambivalent rationale behind legislation on vending and the divergent reasons why it is prohibited and enforced against. Secondly, the paper traces the perspectives of the vendors by taking into account their personal experiences. Finally, the paper assesses some of the recent attempts, by non-profit organizations in collaboration with the city council, to regulate vending in restricted areas of the city.

Keywords: mobility, circulation, urban politics, street vending, Los Angeles

Andrew Currah, University of Oxford. Email: andrew.currah@ouce.ox.ac.uk; *Rip, mix, and burn: the emergence of user-generated innovation in the media and entertainment industries*

In this paper, I critically evaluate the emergence of 'user-led' innovation in the media and entertainment industries. There is a specific focus on audio-visual works, such as documentaries, motion pictures, music videos, and television; although the analysis also has general relevance to works from related sectors, such as music, publishing and video games. In a digital form, these creative works can be appropriated from multiple sources, re-combined into new forms, and then disseminated both online and offline. These are the essential hallmarks of the 'rip, mix, burn' culture. The paper has three broad objectives. First, I develop a conceptual framework for understanding user-led innovation in media and entertainment. Here, I argue that the Internet has brought about a profound shift in the material conditions of production, which is substantively different from the existing industrial system of 'producer-led' innovation. Second, I then provide an economic geographical analysis of the emergence of user-led innovation. In particular, I discuss the kinds of economic incentives that are driving users, as well as the commercial innovators that provide the business models necessary for this form of innovation to thrive. Third, I assess in greater detail the collision between user-led and producer-led forms of innovation in media and entertainment. I highlight the promise and perils of the emerging 'remix culture' from the perspective of economics, law and social welfare. Overall, the paper seeks to contribute to broader debates about the changing shape of creativity and cultural production in a digital economy.

Keywords: Copyright, Internet, Media, Entertainment, Digital Technology

Claude Curran, Southern Oregon State. Email: kimiakin@juno.com; *"Lake Sacramento" : Can it Happen Again?*

During the floods of 1861-62 several thousand square miles of California's Sacramento Valley were inundated. Storm events on the western Sierra Nevada mountains concentrated in a fifty-two day period beginning in December 1861 and ending in January 1862 produced flooding unparalleled since then. Sacramento endured destructive flooding. The Yuba River basin was identified for a case study. Historical precipitation data from numerous locations in the basin were gleaned from actual measurements, newspaper reports and eyewitness accounts. Conditions on the American River watershed were extrapolated from Yuba basin findings. Four significant storm periods occurred during that fifty-two day period. The greatest stream flows occurred on January 10, 1862. Peak flows were estimated at approximately 190,000 cfs at Englebright Dam site east of Marysville and 320,000 cfs on the American River at Folsom. Other researchers have estimated peak flow at Folsom at 265,000 cfs. (1862) and 295,000 cfs (1997). On January 10, a hydrograph in Sacramento recorded a three foot rise in river level already at flood stage. Several important factors apparently were discounted in previous studies: areal extent of bare ground, unusually cold temperatures which produced frozen ground followed by fresh snowfall up to thirty-six inches on the lower part of the watershed. Based on these factors it is probable that Sacramento is subject to future devastating floods. Agencies mitigating effects of deleterious flooding must find these results compelling.

Keywords: California floods (1861-1862), "Lake Sacramento", frozen ground.

Mary E. Curran, Eastern Connecticut State University. Email: curranm@easternct.edu; *Pequot in Performance: through the 'white man's looking glass'?*

In 1983, almost 350 years after the genocide known as the 'Pequot Massacre', the U.S. Congress granted tribal status to Connecticut's reconstituted Mashantucket Pequots. In 1998, the tribe opened a 308,000-square foot museum/research library on its Ledyard reservation, which is also home to the tribe's Foxwoods casino. The museum space re-presents 18,000 years of Native and natural history for predominately white audiences. Using the instigths of postcolonial theorists and Indian scholar and activist Vine Deloria, we interrogate the present-day Pequot identity that is asserted by the tropes that are spatialized and historicized in the museum in order to consider the problematics of

indigenous production of indigenous identity within the constraints of white representational systems.

Keywords: Pequot, representational systems, cultural landscape

Steven James Curran, Academic Staff, University of Wisconsin-Whitewater. Email: bullgoose1@hotmail.com; Nathan P Boerner, . Email: ; Climatology of Tornado Death and Injury: A New Way of Determining 'Tornado Alley'

Historically, investigations of tornado climatologies have focused primarily on patterns of seasonality, location and frequency of occurrence. This research has given the public a general knowledge of the timing and location of tornado season and tornado alley. However, the public's knowledge of areas with a high risk of devastating tornado development is lacking and little-to-no research has been done on this aspect of tornado climatology. Our study looked for a 'tornado alley based on human impact,' instead of the standard frequency-based tornado alley that runs from approximately Texas to Nebraska. This was done using a G.I.S. to locate the areas with the highest density for devastating tornadoes, which were classified as having caused 20 or more injuries or five or more fatalities, between the years 1950 - 2005. Once this was done, more traditional variables in tornado climatology could be investigated, including differences in decadal changes, seasonality, ENSO, and diurnal patterns. Preliminary analysis suggests that there is a higher prevalence for devastating tornadoes outside of the traditional tornado alley. The hypotheses for the potential causes for the geographical distribution include that there may be less awareness due to the lower frequency of occurrence, poor warning systems, or perhaps poorer quality of building construction. Keywords: Tornado, Tornado Climatology, Human Impact

Keywords: Tornado, Tornado Climatology, Human Impact

Winifred Curran, DePaul University. Email: wcurran@depaul.edu; Alison Mountz, Syracuse University. Email: amountz@maxwell.syr.edu; "Mexico City is not New York": Rudy Giuliani and the New Urban Imperialism

Increasingly, national and local governments are pursuing urban strategies based on neoliberalism, the idea that the function of government is to facilitate for-profit economic investment in the urban environment. These strategies include public-private partnerships, quality-of-life campaigns, and marketing of urban spaces for private consumption. With urban strategies becoming increasingly international, it is important to examine how this "one-size-fits-all" approach to urban geography is worked out in distinct locations. México City, the second-largest city in the world, has a long history of crime and corruption. Into this context steps former New York City Mayor Rudolph Giuliani, famous for his zero tolerance crime reduction policies, credited by some as the transformative mechanism that turned the Rotten Apple into the Big Apple that once again attracts tourists and businesses alike. In October of 2002, the Giuliani Partners Group announced a \$4,000,000 contract with Mexico's wealthiest resident to apply Giuliani's home-grown model to the streets of Mexico City. This plan met with significant skepticism, given Mexico City's size, history of corruption, lack of confidence in the city police department, and distinct cultural contexts. In this paper, we question whether a neoliberal policy designed in one setting be realized in a different political, economic, and cultural landscape and what the geographical effects of transposing urban policy from one 'glocal' setting to another are.

Keywords: zero tolerance, policing, neoliberalism

Timothy Currie, Clark University. Email: tcurrie@clarku.edu; Weathered Livelihoods: Climate Change, Market Expansion, and Vulnerability in the Central Andes

Agriculturalists of extremely high altitudinal regions in the Peruvian Andes currently face new suites of land-use decisions hastened by arising vulnerabilities to interactions of climatic change and market expansion. Preliminary research suggests the altitudinal limit of cultivation in regions such as the Cordillera Vilcanota of Peru has risen in recent decades, with cultivation now practiced in increasingly high-altitude, marginal environments. Agriculturalists in the central Andes tend to be low-income subsistence campesino farmers for whom the uncertainties inherent in high altitude cultivation can be exacerbated by the omnipresent risks of disease, nutritional shortfall, hypoxic conditions, and extremely stressful regional climate. Contemporary research in the Andes has examined human-environmental change either in terms of livelihood practices and socioeconomic dynamics, or climatic regimes. A gap thus exists in how understandings, explanations, and predictions of change in such regions are theoretically and methodologically conceptualized and empirically examined. To address this lacuna an analytical framework of mixed-methods integrating livelihoods research with the capabilities of geographic information science is proposed. Ethnographic techniques are coupled with extant remotely sensed and climate data to identify or model land-use/cover-change, and the potential anthropogenic and biophysical drivers of such change across time and space. The

study elucidates how characteristics of land-use and cover change are identifiable in records of livelihood narratives and the composition, condition, and abundance of vegetation reflectance of remote sensed data; and extend the effectiveness of these methods to assess livelihood practices in terms of current vulnerability and under future scenarios of potential human-environmental change.

Keywords: Livelihoods, Climate Change, Vulnerability, remote-sensing, Mixed-methods, Peru, Andes

Nate Currit, Texas State University - San Marcos. Email: currit@txstate.edu; Land-use impact on LAI and combustibles in the Sierra Madre of Chihuahua, Mexico

The Sierra Madre of Chihuahua, Mexico is experiencing rapid land-use and ecosystem changes. The Ejido El Largo y Anexos is communally managed forest land with pine forests above 1800 m elevation. Logging is the primary land-use driver of forest change. Consequences of logging in this region include a reduction in suitable wildlife habitat and increased risk of wildfire. The goal of this project is to relate remotely sensed images to in situ measurements of leaf area index (LAI), and forest litter/combustibles. LAI and forest combustibles are randomly measured within plots of different logging practices. LAI is indirectly measured by measuring light penetration through the forest canopy. The mass of combustibles is measured. Regression-based techniques are used to model relationships between in situ measurements and satellite image reflectance values. Model parameters are then used to estimate LAI and combustibles regionally. These efforts produce spatially explicit estimates of LAI and combustibles that can be incorporated into Ejido El Largo y Anexos management plans to simultaneously protect existing habitat and reduce wildfire risk.

Keywords: remote sensing, LAI, Chihuahua

Giorgio Hadi Curti, San Diego State University. Email: cedarboot@rocketmail.com; From a Wall of Bodies to a Body of Walls: The politics of memory/the politics of war in Palestine/Israel

In this paper I examine impacts of the politics of memory and identity at the bi-national scale of the Palestinian-Israeli conflict. In approaching the land of Palestine/Israel as a landscape of memory, I take the position that memory and identity are simultaneously material and immaterial phenomena which cannot be detached from the emotions, movements, expressions, or creations of socialized and affective human bodies and their roles in the (re)constitutions of space and place. Two related and mutually constitutive emotional and affective corporeal manifestations serve as the focus of this paper - the construction of the West Bank separation wall(s) and bodies of Palestinian resistance. Through this focus, I argue that at the base of the conflict is an intricate and long standing fight over memory, forgetting and identity and demonstrate that the politics of memory are sometimes also the politics of war.

Keywords: Palestinian-Israeli Conflict, Politics of Memory, Identity, War, Emotion, Affect

Kevin M. Curtin, PhD, University Of Texas at Dallas. Email: curtin@utdallas.edu; An Analysis of Traveling Salesman Implementations in Geographic Information Systems

The Traveling Salesman Problem is arguably the most prominent problem in combinatorial optimization, and is regularly employed in a wide variety of applications. In this paper, an analysis is made of Traveling Salesman implementations in Geographic Information Systems (GIS). An investigation into the solution procedures used in four software packages is presented, and these implementations are tested against the optimal solution for a range of problem sizes. Computational results are presented in the context of a school bus routing application. This analysis concludes that no Traveling Salesman implementation in GIS is likely to find the optimal solution when problems exceed 12 cities. In contrast, optimal solutions can be generated with desktop linear programming software for up to 25 cities. Moreover, one GIS implementation consistently found solutions that were closer to optimal than its competitors. This research suggests that for some applications, the use of an optimal solution procedure is advised, and GIS implementations can benefit from the integration of more robust optimization techniques.

Keywords: Traveling Salesman, Network, GIS, Optimization, Heuristics

Andrew Curtis, LSU. Email: acurt1@lsu.edu; Katrina and Vulnerability: The Geography of Stress

Stress associated with Katrina, both "acute" in association with the initial rescue and evacuation to a shelter, and "chronic" in terms of living in an unfamiliar environment, the uncertainty of not knowing when to return, and what will be faced on that return, can manifest in a variety of negative health outcomes. The most vulnerable population from New Orleans suffered and continues to suffer disproportionately, both in terms of the stress load and the resulting poor health outcomes. Even within this vulnerable population, the susceptibility to stress is not evenly distributed. For example, not only is stress in

itself a harmful influence on pregnancy, but so too are many of the coping mechanisms (alcohol and tobacco use) frequently employed to alleviate that stress. Katrina related stress can be framed in terms of the geography of pre-storm location, the geography of immediate post-catastrophe experience and the geography of relocation / return. When this geography is combined with our understanding of how stress relates to health outcomes, a first step is made in understanding where future resources need to be targeted. This paper draws on experiences and data from the initial response to the storm, and an ongoing relationship with various state agencies and non-profit organizations focused on understanding the health consequences of Katrina.

Keywords: GIS, vulnerability, medical geography, disasters, Katrina.

Sarah Curtis, Durham University. Email: s.e.curtis@durham.ac.uk; Wil Gesler, Queen Mary, University of London. Email: ; *New Spaces of Inpatient Care for People with Mental Illness.*

This paper considers the implications for design of inpatient settings in the context of models of care and treatment of mental illness which emphasise care in the community. A community care model has not obviated the need for suitably adapted inpatient facilities for people with mental illness. In the UK, private-public partnerships under the Private Finance Initiative have provided the opportunity to construct new facilities which are intended to meet the needs of mentally ill patients under this care regime. Drawing on material from a study which explored the views of patients and staff from a new Psychiatric Inpatient Unit in a deprived area of East London, as well as NHS policy documents, we show how the combination of 'care in the community' and PFI strategies raise issues for the design of these new care spaces for mentally ill people. We discuss in particular: the emphasis on links between an acute inpatient facility and its local community; the tension between providing a caring and supportive institutional environment and ensuring that patients are returned to the community as soon as they are ready; the potential significance of the psychiatric hospital as a relatively stable feature in the otherwise insecure and unpredictable geographical experience of people with long term mental illnesses. We consider how these observations can be interpreted using relational geographical perspectives and ideas about risk and stigma. We argue for a stronger engagement with ideas from health geography in the design of new psychiatric inpatient facilities.

Keywords: psychiatric hospitals, relational geography, stigma, risk

John Cusick, University of Hawai'i at Manoa. Email: jcusick@hawaii.edu; *Place making, identity and resistance in East Maui, Hawai'i*

East Maui is a catalyst for considering the significance of place and the roles of protected areas in contemporary societies. Haleakala (3055m), a dormant volcano effectively separating Hana District from Central and West Maui, creates an ecological zonation from sea level to alpine habitats. The identity of East Maui as a center of biological diversity and cultural preservation is largely due to this geographic isolation. The relatively unsuccessful plantation agricultural economy in the late 19th century, coupled with the later arrival of Christian missionaries to East Maui, enabled the continuation of many traditional cultural and land use practices. Some residents continue fishing, gathering, and hunting activities in coastal waters and upland forests and maintain connections to the past for themselves, their families, and visitors to the small communities that are strung along the rugged East Maui coastline. Resident resistance to complete cultural assimilation into mainstream North American society has lessened, but not completely prevented, threats to both ecological and cultural integrity. The protection and restoration of cultural landscapes are underlying themes of resistance that reconfirm place identity and transform resident sense of empowerment. The situation in East Maui draws attention to rural Hawai'i in general, and to Kipahulu District of Haleakala National Park in particular, where the interests of resident, research and recreation stakeholders intersect. This paper situates a protected area in the context of its place, function, and image to explain reasons for and success of resistance to external forces of change.

Keywords: protected areas, political ecology, Hawaiian Islands

Susan L. Cutter, University of South Carolina. Email: scutter@sc.edu; Christopher Burton, University of South Carolina. Email: burton@mailbox.sc.edu; *Social Vulnerability to Levee Failures in the Sacramento-San Joaquin Delta*

In the aftermath of the levee failures in New Orleans, there is considerable public interest in where the next catastrophe might occur. Many have pointed to the Sacramento-San Joaquin Delta region as a likely worst case scenario given the concentration of levees and potential mechanisms for initiating breaches (seismic activity, design and maintenance, extreme runoff). This paper examines the spatial variability in the social vulnerability of residents to potential levee failures or breaches from this worst-case scenario. To determine the likely flood exposure, the levee system in the region was mapped with a distinction made

between levees with US Army Corps of Engineers (USACOE) certification and those without. The flood inundation risk was mapped using existing digital Flood Insurance Rate Maps and making adjustments as warranted based on USACOE certification. Utilizing the existing methodological approach on social vulnerability metrics (Cutter et al. 2003), a social vulnerability index was computed at the tract level for San Joaquin, Sacramento, and Yolo counties in order to assess the relative vulnerability of residents. When integrated with the flood exposure data, there is a clustering of increased social vulnerability zones with high risk flood areas. While the spatial pattern is not uniform throughout the tri-county area, there are sufficient pockets of high levels of social vulnerability (largely based on race, class, and gender indicators) to warrant management concern about the disproportionate impact of catastrophic levee failures on these populations and the level of local, state, and federal preparedness to cope with such a catastrophe.

Keywords: social vulnerability, levee failure, flood hazards, California

Matthew P Cuiello, . Email: cuiello@email.unc.edu; Charles E, Konrad II, PHD, . Email: cek@email.unc.edu; *A Synoptic Climatology of Snowfall in the Piedmont Region of North Carolina*

The forecasting of frozen precipitation is perhaps the most challenging winter weather forecast problem in the Southeast. Modest variations in the vertical temperature profile, the precipitation rate, and the synoptic pattern can mean the difference between a heavy versus light snow or an event dominated by freezing rain or sleet. The amount of snowfall in an event is of particular interest because it is highly correlated with economic impacts and safety concerns. In this study, a synoptic climatology is developed that identifies relationships between synoptic weather patterns, vertical temperature profiles, and snowfall accumulations at Greensboro, located in the center of the North Carolina Piedmont. Six hourly surface analyses are examined manually to document the position, strength, and movement of anticyclones and cyclones during all winter weather events identified between 1958 and 1995. Radiosonde data are extracted to ascertain the vertical thermal structure and its evolution during each event. In particular, 1000-850 hPa and 850-700 hPa partial thicknesses are computed and plotted to quantify the strength of the low-level cold air dam (CAD) and the overlying warm nose, respectively, as these are two features that are commonly found in winter weather events across the region. A classification scheme is developed that relates the presence and strength of these synoptic and thermal features to the snowfall accumulation. In particular, an artificial intelligence routine is being explored to identify a model that best explains the variance in snowfall totals and also clearly reveals the physical connections between snowfall accumulation and the synoptic environment.

Keywords: North Carolina, snowfall, synoptic climatology

Nicole M Czarnomski, Oregon State University. Email: ; David M Dreher, Oregon State University. Email: Dave Dreher ; Julia Jones, Oregon State University. Email: jonesj@geo.oregonstate.edu; Frederick J Swanson, US Forest Service Pacific Northwest Research Station. Email: fswanson@fs.fed.us; *Landscape-scale dynamics of wood in stream networks of the western Cascades, Oregon*

This study develops a network and patchwork dynamics approach to predict wood in a stream network in order to understand wood dynamics in river networks and address riparian reserve design for managed forest landscapes. We examined the effect of four factors on wood sources and transport: (1) forest harvest, removal of wood from streams, and creation of young forest plantations; (2) roads adjacent to or crossing the stream; (3) debris flows in tributary channels; and (4) capacity of the stream to transport wood by fluvial processes (i.e. floods). Wood volumes and numbers of pieces were surveyed along 25 km of 3rd- through 5th-order stream reaches in summer 2002 in a steep forested basin in western Oregon, and related to land use (forest harvest and roads) and fluvial geomorphic processes (debris flows and floods) recorded over the period 1948-2002. Wood patterns reflect 50-year legacies of land use practices, especially the conversion of old-growth forest to young forest near the stream, and the construction of roads alongside, or crossing, streams. In channels with low fluvial transport wood depletion was localized adjacent to harvest patches, but wood reductions were extensive in channels with high fluvial transport, or where debris flows have entered the mainstem. The configuration of harvest patches, road networks, and stream networks provide a landscape-scale basis to explain and predict patterns of wood in streams, and hence, the effectiveness of riparian reserves for sustaining wood in streams.

Keywords: legacies of clearcutting, riparian buffers, roads

Silvia D'Addario, York University. Email: silviad@yorku.ca; *Constructing Identities Here: (re)creating Italianess in transnational Toronto.*

This paper examines the ways that 'ethnic' identities are created in places. I look at how multicultural practices construct Toronto's landscape and how such places influence the (re)negotiation of ethno-cultural identities. In doing so, I use the idea of symbolic materialism, tangible everyday objects that work to elicit

sentiments and (re)produce place-based identities. The idea of symbolic materialism implies a very real sense of recreating memories that work to construct identity so as to draw (spatially) separate places into meaningful proximity with one another. The purpose here is to move away from a given 'global' space where ethnic identities are seen to be transported from locality to locality via the global medium of travel. Ethnic identities are not transported alongside one's passport, but instead are created in multiple localities. In this paper I look at the ways in which being Italian are created and negotiated in Toronto. Very few Italian-born or Italian-speaking people still live in Toronto's highly gentrified Little Italy. However, there are unique place-based processes that continually recreate Italianess in Toronto. At the same time, these place specific processes also shape and construct Toronto's transnational urban landscape.

Keywords: Identity, Multiculturalism, Symbolic Materialism, Italian and Toronto.

Bruce D'Arcus, Miami University of Ohio. Email: darcusb@muohio.edu; Sovereignty, Law and the Spatial Architecture of Rights: The Exceptional Spaces of Extraordinary Rendition

This paper examines the spatiality of the intersection of law, sovereignty and rights. I argue that liberal rights are in part defined through law which can be conceived as a space structured along two axes. First, traditional legal protections around privacy, in particular, define an uneven vertical terrain that protects individual rights through limiting where certain forms of statecraft may be applied within domestic space. Second, spatial distinctions of jurisdiction provide the horizontal limits to rights; simultaneously containing particular rights regimes, and excluding others. Indeed this very notion of spatial-differentiation is central to dominant norms of sovereignty. I present this argument through an analysis of recent Bush Administration tactics in the "War on Terror." Placing extraordinary rendition and other counter-terrorism tactics before the backdrop of the previous two centuries of American history, I suggest they represent a profound reordering of the spatial structures of liberalism. Such a reordering represents a flattening of the spatial distinctions that make legal rights possible, and demonstrate the deeply spatial implications of the contemporary state of exception.

Keywords: law, rights, geopolitics

Anne-Marie d'Hauteserre, University Of Waikato. Email: adhautes@waikato.ac.nz; Constructing Alterity? The Walt Disney Company and urban landscapes in the Paris Basin

"There is a will both to see order in the world and to impose order on the world" (Sibley 1998), though this commitment is more a rejection of disorder or of elements considered abject. Difference (alterity) disturbs the desirable order of social life. But, as we are pushed, unconsciously or not, to seek new ways of constructing urban areas (Dear 1999), who is imposing this order and for whom, in Val d'Europe? This presentation questions the orderly urban palimpsest that the Walt Disney Company embraces. Urbanisation by the Walt Disney Company of Val d'Europe (in the Eastern Paris Basin) is critiqued as a form of 'constructed spatial otherness' relative to the rest of the urban Francilian landscape. Has Marne-La-Vallée, whose area and heritage have suffered a wholesale 'resignifying', been 're-colonised'? This presentation will thus investigate a number of questions to determine whether Val d'Europe is constructed as a landscape of alterity. Does this alterity translate a need for respite from a chaotic, violent urban life, socially contrasted to be requited by a kind of mystical alternative urban 'becoming' that the Walt Disney Company champions? Or should Val d'Europe be characterised as a heterotopia of mindless decoration (Vattimo, 1992), a degraded universe of simulacra? Is the Walt Disney Company a major agent of the socio-spatial changes in Val d'Europe, or just one among so many others? Are the residents reduced to passive spectators or did they search for such a mediated utopia to frame their daily life?

Keywords: landscape of alterity, urbanisation, land use planning, private/public partnerships, urban tourism

Graziela Miot da Silva, Dr, Louisiana State University. Email: gdasilva@lsu.edu; Foredune Vegetation Patterns And Alongshore Environmental Gradients

This paper examines the spatial variation in foredune vegetation along Moçambique beach, a headland bay beach in southern Brazil. This embayment extends through 600 of curvature, and displays significant alongshore variations in exposure to the prevailing winds and waves, beach/surfzone morphodynamic type, type and dimensions of the dune systems, foredune vegetation cover and diversity. In order to assess the characteristics of the foredune vegetation, two surveys were carried out in contiguous quadrats of 1m² extending across 6 foredune profiles. The results show that the vegetation cover decreases from south to north, possibly reflecting the increasing exposure to wind and wave energy. Distinct patterns of species distributions occur along Moçambique beach,

such that different plant species are dominant in the southern, middle and northern ends of the beach. A cluster analysis demonstrated two associations: the first one is represented by the profiles located in the lower energy zone of the beach and the second association is represented by the profiles more exposed to wind and wave energy, sediment deposition and salt spray. There is a relatively higher diversity of species in the middle of the beach, and the lowest diversity occurred in the northernmost end of the beach, possibly influenced by the surfzone type, number of breaking waves and highest aeolian transport.

Keywords: foredune vegetation, coastline orientation, Brazil-southern

Carl Thor Dahlman, PhD, Miami University. Email: dahlmac@muohio.edu; Re-Orienting the Future of Europe: The EU External Dynamic in Southeast Europe

This paper critically analyzes populist contentions that enlargement has reached its limit. Instead, I argue that the European Union project of enlargement into Southeast Europe and further integration through the EU Constitution are no longer only captured by the internal dynamics of widening and deepening. These internal dynamics, which recently produced the rejection of the EU Constitution over anxieties relating to enlargement, have been complemented by the recent development of a robust diplomatic and foreign relations agenda by the European Commission, which operates relatively independently of the member states. This 'external dynamic' seeks not only to secure a European zone of peace and stability and to exert a European agenda in world affairs, but also to neutralize the negative internal effects of extra-European uncertainties, such as the transatlantic alliance, immigration, unstable border regions, and Middle East crises. In other words, the development of an explicitly EU foreign policy seeks to secure and legitimize the European project by quelling the external factors contributing to popular internal dissent within EU members states. In this capacity, the EU is reorganizing and 'reorienting' Southeast Europe, preparing for eventual enlargement while redrawing the discursive and physical limits of Europe.

Keywords: European Union, expansion, Southeast Europe, Balkans, Turkey

Dennis Dahms, Department of Geography, University of Northern Iowa. Email: dennis.dahms@uni.edu; John Gosse, Dalhousie University, Halifax NS, Canada. Email: JCGosse@Dal.ca; Early- to Mid-Pleistocene Cosmogenic Exposure Ages for Moraines, Table Mountain, Wyoming.

Preliminary 10Be/26Al ages from moraine boulders on Table Mountain, Wyoming suggest the deposit may provide evidence for an early-to-middle Pleistocene glaciation in the Wind River Range. Cosmogenic nuclide exposure age-analyses of six granitic boulders on the same deposit generated ages that range from 270 to 736 ka (using estimated boulder erosion rate of 0.2-to-0.22 cm/kyr). Many of the generated ages are too young for the apparent age of the deposit, relative to adjacent moraines; this suggests that our erosion estimates are too low. One sample, however, could not have a higher erosion rate and still have amount of 10Be that was measured. Thus, it is obvious that some of the boulders were once buried and that we must consider not only the boulder erosion rate, but the rate of erosion of the moraine sediments as well. An accurate age estimate for this deposit then depends on at least three parameters: (1) how deep the boulders were buried in the moraine, (2) how long it took for the buried boulders to be uncovered by erosion (sediment erosion rate), and (3) what is a realistic erosion scenario for granitic boulders in this environment? These results suggest that the diamicton in which the boulders are imbedded was deposited between O-isotope stages 16 and 6. Final age determination must wait until the above erosion systematics can more clearly be estimated.

Keywords: Middle Pleistocene, moraines, Wind River Range

Dajun Dai, Southern Illinois University at Carbondale. Email: dljt@siu.edu; Tonny J Oyana, Southern Illinois University at Carbondale. Email: tjoyana@siu.edu; A genetic algorithm for cluster detection and analysis in both space-time and more complex hyperspace

Although increased exploration of large-scale databases has provided the impetus for better detection and analysis of spatial clusters, there is slow progress in developing clustering algorithms for classifying space-time multidimensional attributes and space-time-attribute interactions. The objective of this study is to enhance the genetic algorithm for detecting clusters in spatiotemporal or more complex hyperspace. Our motivation is guided by the idea of representing the gene structure using an elliptic cylinder allowing the detection and analysis of spatial clusters that have space-time components or space-time-attribute dimensions. A more sophisticated gene representation through elliptic cylinders can model variable of spaces of two dimensions and greater. To assess the method, we employed a published real-world dataset with known spatiotemporal clusters of brain cancer incidence in New Mexico. Experimental results are compared with the results obtained from the very popular cluster detection method, Kulldorff's space-time scan statistic. The results indicate that the proposed method provides a better representation of clusters in space-time and

space-time-attribute interaction at faster and more computationally efficient runtime than Kulldorff's method.

Keywords: spatiotemporal analysis, clustering, space-time, hyperspace

Simon Dalby, Carleton University. Email: sdalby@gmail.com; *Warrior Geopolitics*

Warrior Geopolitics: Gladiator, Black Hawk Down And The Kingdom Of Heaven - By Simon Dalby Carleton University sdalby@gmail.com The "war on terror" and remilitarization of political anxiety in the aftermath of September 11th in the West, is both facilitated and challenged by representations of geopolitical danger and the supposed necessity for warriors to fight wars in distant lands. Ridley Scott's three movies, "Gladiator", "Black Hawk Down" and most recently "The Kingdom of Heaven" explore the morality and identity of warriors. They do so in exotic landscapes and settings that emphasise the confrontation with danger as external and frequently unknowable and political violence as something that has complicated geographies. From the putative left in the case Michael Ignatieff and the Warrior's Honor or the right in the case of Robert Kaplan's Warrior Politics, the public discussion of the necessity for warfare and "intervention" is enmeshed in discourses of moralities, rights and "just war". The professional Western warrior, whether a special forces operative or garrison soldier in peacekeeping mode, is a key figure of the post September 11 th era, physically securing the West, and simultaneously securing its identity as the repository of virtue against barbaric threats to civilization. These themes are key to Ridley Scott's work.

Keywords: Warrior Geopolitics

Britt Dale, Dept. of Geography, Norwegian University of Science and Technology. Email: britt.dale@svt.ntnu.no; *Place Identity in the Rural-Urban Fringe*

The aim of the paper is to address questions around conflicts, resistance and negotiations over place and identity in a rural-urban fringe. It is based on a case study of a region west of Bergen in Norway, where relatively poor rural areas have been transformed into middle class suburbs over a rather short time period. Some of the questions that are addressed are: What kinds of images of the region as a home-place are dominating today? Do 'old' and 'new' residents express different values regarding the 'urbanity' versus the 'rurality' of their home-place? At which scale do different groups of residents define their home-place? (e.g. house, neighbourhood, region). The study rests on interviews with key informants and residents, registration and observation as well as secondary sources (local newspapers, local reports, statistics).

Keywords: rural-urban fringe, place identity, conflicts, negotiations

Brian Daley, University of the Virgin Islands. Email: bdaley@uvi.edu; *Virgin Island Land cover change analysis*

Virgin Islands Land Cover Change Analysis. Brian Daley, University of the Virgin Islands, Agriculture Experiment Station, RR 1 Box 10,000, Kingshill, VI. 00850. bdaley@uvi.edu We conducted a land cover change analysis of St. Croix, US Virgin Islands between 1992-2002 using Landsat imagery. A January, 2002 ETM+ image was classified into eight cover types (forest, secondary forest, coastal scrub, regenerating pasture, pasture/grass, rural residential, urban/industrial and water) using both supervised and unsupervised classification in Erdas Imagine 8.4. Cover type definitions and accuracy assessments were based on data collected from 254 training samples randomly distributed across the island. These same points were then overlaid on a 1994 aerial photograph, reclassified through photo-interpretation, then used to drive the classification of an August 1992 Landsat TM image. The classified images for both image dates were condensed into forest/non-forest maps and change trajectories were created. Additional change detection using continuous variables such as NDVI and tasseled cap were also used to show change in quality within cover types.

Keywords: remote sensing, landsat, caribbean,

Patricia Daley, University of Oxford. Email: Patricia.Daley@Jesus.ox.ac.uk; *The Hierarchical Geographies of Peace and Security: Neo-liberal Post-War Reconstruction in the Central African State of Burundi*

Peace and security have become essential policy areas for development institutions operating in Africa. The paper examines the policies and practices associated with the promotion of the 'liberal peace' in the Central African state of Burundi, as they affect the state, the economy and the Burundian citizenry. The contention is that the liberal peace, as implemented in Africa, exposes the hierarchical geographies of peace that are embedded in global geo-political economy. The paper challenges claims that the 'liberal peace' can end direct and structural violence and enhance democratic accountability within the context of market liberalism. It argues that liberal policies of power-sharing, peace-keeping and security sector reform give legitimacy to insurgent violence as part of the political discourse and encourage the persistence of a culture of impunity.

Therefore, the liberal peace, inadvertently, reinforces the power of the genocidal state and reconstructs the conditions for the continued exploitation of the region's resources by global capitalism. The paper concludes that, despite its practice of electoral democracy, the liberal peace is non-transformative and seriously flawed as an avenue for the emancipation of the body politic. It calls for greater emphasis to be given to locally-articulated visions of peace, and a more geographically and socially inclusive concept of security; one that prioritizes the care of African bodies.

Keywords: Peace, Africa, Burundi

Sandy Dall'erba, University of Arizona. Email: dallerba@email.arizona.edu; Rachel Guillain, University of Burgundy, France. Email: guillain@u-bourgogne.fr; *Impact Of Structural Funds On Regional Growth: How To Reconsider A 6 Year-Old Black-Box*

There is still plenty of room for empirical estimations of the impact of structural funds on the convergence process. It is striking to realize that all previous estimations in this field are based on some form of the neoclassical growth model (Solow's model). This model is still used today despite the numerous critics it has raised (Quah, 1996) and its complete lack of consideration for increasing returns to scale at the origin of agglomeration and growth according to the endogenous growth theory and the new economic geography. In addition, few estimations have paid any attention to the nature of the cohesion objective under study. The expected impact of objective 1 funds, devoted to public infrastructures, is indeed theoretically and empirically very different from the one of, say, objective 3 funds devoted to long-term unemployed. As a result, this paper proposes a careful assessment of structural on the manufacturing sector in the context of a Verdoorn's law. Interregional linkages are considered by means of the usual spatial econometric techniques.

Keywords: Europe, regional policy, convergence, spatial econometrics

Kristin DallaPiazza, Virginia Tech. Email: klm0474@vt.edu; Korine Kolivras, Virginia Tech. Email: ; *Modeling the Risk of West Nile fever in Virginia Using a GIS Approach*

West Nile virus has become a major public health problem in North America, affecting humans, birds, and/or horses throughout the 48 mainland states, several Canadian provinces, and parts of Mexico. Since its first introduction to the United States in 1999, reports show it is responsible for over 20,000 human cases of infection and 782 deaths. Transmitted through the bite of a mosquito, humans and other mammals are considered dead-end hosts, whereas birds appear to be the principle reservoir harboring the virus. West Nile virus has spread much faster and further than expected showing officials the effect that mosquito-borne diseases can have on public health. Using remote sensing, GIS, vector surveillance, incident reports, and environmental factors, attempts have been made to monitor and model the prevalence of the disease. This study examines the approaches and methods used to assess the risk potential for exposure to West Nile virus and produces a model that represents areas with and without reported cases of infection within each county of Virginia using GIS and spatial analysis techniques. Results will be compared to a recent spatial study performed in Fairfax County, which is where West Nile virus was first detected in the state of Virginia and where the majority of cases have been diagnosed. The objective is to determine the similarities and differences between the neighboring counties that may account for lower rates of incidence.

Keywords: Medical Geography, West Nile virus, Mosquito-borne disease, GIS, Habitat Modeling

Craig Dalton, UNC-Chapel Hill. Email: craig.dalton@unc.edu; *DisOrientations: Remapping the University*

This "Disorientation Guide" re-thinks cartography by mapping in a new way. It is a mode of investigation that seeks not to trace out representations of the real, but to construct mappings in ways that render alternative worlds. These ideas are based on the 'new cartography' of Foucault and Deleuze. Mapping in this way has two objectives. First, it aids in constructing alternate social and economic practices by allowing different approaches to thinking and performing Chapel Hill. Second, creating and using it teaches us about how the Deleuzeian approach to mapping can work. The guide itself maps UNC-Chapel Hill as (1) a factory, (2) a functioning body, (3) producing your world and (4) possible reorientations. Each of these themes maps Chapel Hill not as a bounded territorial space, but constructs a constellation of spaces and places that we can navigate every day. Examples include labor in the research triangle, international study through UNC, the social networks of Chapel Hill and local progressive organizations. The guide was distributed for free through classes, activist organizations and other local contacts in the fall of 2006. DisOrientations is part of a larger project, The Counter Cartographies Collective of UNC. It works within the trend of invigorating map-making to suggest or create critical interventions into everyday life. While this trend is emerging within Geography, it is being even further explored by groups working outside of the discipline and

the academy. DisOrientations works as a bridge between these different conversations about critical/counter activist mapping and social use.

Keywords: Counter Cartography, Critical Cartography, Mapping, Social Theory, Activist Geography

Bent Dalum, Head of Department, Department of Business Studies, Aalborg University, Denmark. Email: bd@business.aau.dk; Growth and evolution of the Danish IT sector: geographical concentration, specialisation and diversity

The paper analyses the growth and spatial evolution of the Danish IT sector during the upswing of the 1990s as well as the early years after the 'burst of the bubble' in 2000/2001. The IT sector employment and the number of firms have more than doubled during a decade, but the evolution indicates a 'non random' agglomeration of the industry around urban areas. The paper focuses on dominant forces in shaping the growth and spatial evolution of the industry and analyses how industrial dynamics caused the industry to agglomerate mainly in the two largest urban areas. The paper also contains a detailed account of the development in the 16 Danish counties over the period of analysis. In previously published work we have focused on the 'C' within the Information and Communications Technology sector, ICT. This paper is focused on the IT, i.e. e.g. telecommunications is excluded.

Keywords: IT sector, industry evolution, clusters, specialisation

Ryan Danby, University of Alberta. Email: rdanby@ualberta.ca; David Hik, University of Alberta. Email: dhik@ualberta.ca; Plant Physiology Influences Landscape Pattern at Subarctic Alpine Treeline

Despite an absence of large natural disturbances, the white spruce treeline in southwest Yukon exhibits substantial variability at the landscape scale. We examined the causes of this heterogeneity at two focal scales. At a coarse scale we analyzed patterns of spruce distribution and abundance. Potential direct solar radiation was identified as the topoclimatic factor most responsible for treeline heterogeneity. Treeline was nearly 100m higher on south-facing slopes but stem density was greater on north-facing slopes. At a fine scale we examined growth and physiology of seedlings on opposing aspects. Soil temperatures were significantly warmer on south aspects and the snow-free period was longer. These seedlings had higher rates of above-ground productivity, but had reduced Photosystem II efficiency and experienced higher needle mortality. Thus, lower densities of treeline spruce on south-facing slopes appear related to cold-induced photoinhibition and winter desiccation which increase seedling mortality. The depressed elevation of treeline on north-facing slopes appears due to growth inhibition resulting from lower soil temperatures. We conclude that a reciprocal "top-down/bottom-up" interaction exists in this system: terrain-induced gradients of solar radiation result in fundamental differences in plant-scale biological processes which, in turn, structure vegetation pattern at the landscape scale.

Keywords: alpine, arctic, biogeography, scale, Yukon

Christina E. Dando, University of Nebraska-Omaha. Email: cdando@mail.unomaha.edu; "The Map Proves It": The Suffrage Map and the American Suffrage Movement

In the early 20th century, American suffragettes utilized maps showing the spread of suffrage on posters, pamphlets, and broadsides. Published by the National Woman Suffrage Publishing Company, "Six Arguments from the Suffrage Map" and "Votes for Women a Success: The Map Proves It" were part of a shift in tactics utilized by the suffrage movement. Leaving the parlors and taking to the streets, the suffragettes were claiming public space. The suffrage maps take this a step further, claiming national space for women and providing a strong graphic representation of their claim. This paper will explore the verbal and graphic rhetoric of the suffrage maps, as well as the politics of their placement, exploring how suffragettes molded and utilized these traditionally masculinist ways of knowing to advance their cause, not only to reach other women but also to reach a male audience. Further, the maps became iconic, referenced in speeches and reports and visually cued in cartoons, extending their message further. Their adoption of maps — "the quintessential symbol of masculinist ways of knowing, the ultimate representation of masculinist space" (Huffman 1997) — represents an adoption of "the master's tools" to advance their own interests (Lorde 1984).

Keywords: cartography, gender, cartographic culture, historical geography

William A. Dando, Indiana State University. Email: gedando@isugw.indstate.edu; Viewing Jerusalem from Above: New Technologies for Understanding the Bible in Context

Technologies available to gain insights into site and situation, geopolitical, and land use issues in ancient Jerusalem have increased markedly in the past fifty years. An expansion in the number of new technologies available to research Biblical topics, combined with easier access to geospatial data, hardware, and software, has opened new pathways for geographic investigations and city

monitoring. In tandem, these technologies provide scholars with deeper understanding of complex events and issues. A tool that has limited utilization by geographers in researching Biblical topics is the helicopter. Political tensions and civil strife have restricted the application of helicopters, equipped with high resolution remote sensing sensors, to selected sites. Believing that "the land speaks" and contending that land use, topography, climate, vegetation, and the urban development of Jerusalem serve as a podium to understand the message and the issues in Bible times, a visual archive and teaching tool now has been created. Combining Bible passages, archival data, and helicopter-based videography enhance understanding of the Bible in context.

Keywords: Jerusalem, helicopter videography, new technologies, sequent occupation

Amy E. Daniels, University of Florida, Land Use & Environmental Change Institute, School of Natural Resources & Environment. Email: adaniels@ufl.edu; Environmental Services as Non-exclusionary Goods: The Role of Institutional Scale in Conservation

The concept of ecosystem services is not new but has become increasingly popular and institutionalized as a framework for environmental management and conservation in the last decade. Payments for Environmental Service (PES) programs serve as a tether linking people, property rights and goods received from the environment. In this paper I draw from theory on common property and ecosystem functioning to analyze PES programs from several sites in Latin America. Juxtaposing the spatial and temporal scales of operation for ecosystem services and resource-management institutions reveals important incongruities. Results suggest that effective management and provision of ecosystem services must consider the way in which property rights are superimposed on the spatio-temporal niches of ecological functions relevant for the provision of desired ecosystem services. I conclude with recommendations for policy instruments and management approaches that may contribute to more effective PES designs.

Keywords: ecosystem services, institutions, scale, conservation, payments for environmental services

J. Michael Daniels, University Of Wyoming. Email: jmd@uwyo.edu; Clem L. Rawlins, University of Wyoming. Email: rawlins@uwyo.edu; Historical and Paleohydrologic Information for Flood Frequency Analysis of the North Platte River, Wyoming and Colorado

The flood hydrology of the North Platte River headwaters is dominated by spring snowmelt runoff from surrounding mountain ranges. Downstream from runoff-generating areas near the drainage basin boundary, the North Platte River flows through North Park, Colorado, a low-relief synclinal basin. Further downstream it enters Northgate Canyon, a steep bedrock-controlled reach with confined channel boundaries. The existence of a USGS gage with a 90-year record of peak discharges at the transition from North Park to Northgate canyon provides the opportunity to couple historical flood frequency data with paleohydrologic information. The historical record of annual peak discharges (1916 to 2004) reveals a relatively flat flood frequency curve in which the magnitude of the 100 yr flood (~ 200 cms) is only 2.4 times greater than the magnitude of the 2 yr flood (83 cms). Field surveys of water surface elevations in Northgate canyon during the 2005 peak discharge event (147 cms, 11 yr return interval) combined with detailed cross-sectional surveys permit the development of a HEC-RAS hydraulic model that predicts stages associated known discharges. Paleo-stage indicators (lichen frequencies, granite weathering features and obligate hydrophytes) tied to predicted stages from the hydraulic model therefore provide necessary field-based data to justify extrapolation of the flood frequency distribution beyond the historical record.

Keywords: hydrology, floods, paleohydrology, Rocky Mountains

Melinda D. Daniels, University of Connecticut. Email: melinda.daniels@uconn.edu; Anne Chin, Texas A&M University and The National Science Foundation. Email: ; Wendy Bigler, Southern Illinois University. Email: ; Kathryn Boyer, USDA Natural Resources Conservation Service. Email: ; Anya Butt, Central College. Email: ; Stan Gregory, Oregon State University. Email: ; Martin Lafrenz, Portland State University. Email: ; Michael Urban, University of Missouri. Email: ; Ellen Wohl, Colorado State University. Email: ; Herve Piegay, University Lyon III. Email: ; Kenneth Gregory, University of Southampton. Email: ; Yves Le Lay, University Lyon III. Email: ; Perceptions of Wood by River Managers: Challenges for Stream Restoration

This study presents results from a survey undertaken in several regions of the United States to assess how people involved in river management perceive wood in rivers. Using a web-based questionnaire, river managers at the local, state and national levels were asked to evaluate images of streams and rivers with and without wood present. The respondents rated the images according to how aesthetically pleasing they appeared, how natural they looked, how dangerous they felt, and whether the scenes needed improvement. This study builds on a

survey undertaken in 10 countries to assess how students perceive of wood in rivers (Piegay et al., 2005), and complements similar surveys of river managers in France and Poland. The perceptions of river managers are discussed in light of challenges for stream restoration in mountain watersheds in the United States and elsewhere.

Keywords: fluvial geomorphology, woody debris, river restoration

Peter W. Daniels, University of Birmingham. Email: p.w.daniels@bham.ac.uk; **John R Bryson, University of Birmingham. Email:** j.r.bryson@bham.ac.uk; *From global cities to global places: expertise-driven rural economies*

National and regional governments are often signed-up to the concept of a knowledge economy which they consider a key pillar of their policies for facilitating economic restructuring at a variety of spatial scales. The approaches they adopt are almost exclusively informed by research on the production of, and access to, knowledge and expertise in global and, to a more limited degree, second tier cities. It is suggested that this has caused the existing and potential capacity of rural communities around the edges of major city regions to function as expertise (knowledge)-driven economies to be overlooked, although there are some notable exceptions. This paper attempts to fill this vacuum using evidence from a study of the production of business and professional services in a rural county within the Birmingham city region, UK.

Keywords: Knowledge economy, business services, rural, skills

Stephen Daniels, Professor, University of Nottingham. Email: stephen.daniels@nottingham.ac.uk; *Art and environment in Sixties pop: Peter Blake's Americana*

British pop art addressed American culture and imagery in a variety of ways. The worlds of these art works, or to use the term of the time their "environments" (their visual complex of objects, images, scenery and personalities) are fabricated from an extensive field of mass and vernacular culture from both sides of the Atlantic. This paper considers the second phase of British pop art around 1961-62, which was crucial in transforming the 1960s into "The Sixties", and examines the early work of Peter Blake. Based on the author's recent interview with the artist, the paper explores the Anglo-American crosscurrents in Blake's iconic Self-Portrait with Badges (1961). It focuses on Blake's clothing, particularly his Levi jacket and jeans, then hard to find in British shops. It considers Blake's costume in terms of his awareness of older style populist American art movements, including those focussed on figures of working men in denim overalls, in the photographs of Walker Evans and the paintings of Ben Shahn.

Keywords: Pop Art, Sixties, Peter Blake, Americana, Levi jeans

Jeffrey J. Danielson, United States Geological Survey. Email: daniels@usgs.gov; *Implementing the Commercial Remote Sensing Space Policy (Helping Federal Users Obtain Imagery)*

Authors Pam Van Zee, Jeff Danielson, Elizabeth McCartney, Brenda Ellis SAIC, Contractor to USGS EROS Abstract: The U.S. Geological Survey (USGS) is implementing the President's U.S. Commercial Remote Sensing Space Policy (CRSSP) in partnership with the National Oceanic and Atmospheric Administration (NOAA), the National Geospatial Intelligence Agency (NGA), and other Federal civil agencies. NOAA leads the effort to document civil long-term Earth observation requirements that may drive the development of future commercial remote sensing systems. NGA chairs a senior management oversight committee and leads the effort to leverage Federal investments in commercial data and infrastructure, procurements and contracts. The USGS leads the near-term remote sensing data requirements process on behalf of the Federal government, with objectives include: ? Collecting the near-term land remote sensing data requirements of U.S. Federal civil agencies and provide query and report capabilities to help agencies leverage resources in areas of common interest ? Provide documented evidence for potential remote sensing funding initiatives ? Satisfy user requirements with existing data sources where possible ? Provide the commercial satellite and aerial industry with a snapshot of civil agency needs, thus allowing industry an opportunity to respond with accurate and specific data and services. The current USGS near-term requirements processes are being integrated with other data services to help government agencies meet more of their operational land imaging needs. Once data requirements are entered, searches will be performed to find existing imagery to meet the requirements. Customers will be connected to potential partners and contract vehicles to help acquire a solution to their remote sensing needs.

Keywords: CRSSP, Federal Users, Requirements, Imagery

Stentor Danielson, Clark University. Email: sdanielson@clarku.edu; *Discourses About Wildfire In New Jersey And New South Wales*

Australia and the United States have contrasting histories of wildfire management, but contemporary policies seem to show more convergence. Through an application of Q Methodology and a mail survey, this paper investigates the way residents of two case study sites, the Pine Barrens of New Jersey and the outer suburbs of Sydney, New South Wales, think about how wildfire should be handled. In general, the outlines of the debate in both countries were similar. Rather than sharp disagreements over particular management techniques, discourses took differing views on which characters in fire management, and what aspect of the policymaking and implementation process, are central.

Keywords: wildfire, risk perception, New Jersey, Sydney, discourse

Sarah K Danielsson, Assistant Professor, City University of New York. Email: danielssonsarah@hotmail.com; *Mapping the Organic Nation: Ratzel, Richthofen, Kjellen and German Imperial Geography, 1885-1933*

Friherr Ferdinand von Richthofen's pet project was the expansion of German Lebensraum into the East. As one of the most prominent German geographers he trained his students to continue his pan-German and imperialist legacy both in Asia and in Africa. Within the same context of German geographical schools of thought we find the work of Friedrich Ratzel and Rudolf Kjellen, geographers who unabashedly married their geographical pursuits with particular demographic and imperialist aims. Ratzel had been an important influence on Richthofen. Kjellen, in turn, was one of Ratzel's most prominent intellectual heirs and it was he who had the most profound influence on concepts such as Lebensraum. The developing pan-Nationalism - which went beyond the nation-state - and the invention of the concept of geopolitik - which entailed the expansion of an "organic nation" - guided this particular brand of geography. The radical demographic restructuring entailed in these concepts trained some German geographers, especially of the Richthofen school, to use their geographical work in the service of "the racial nation." As a result geographers played an important role in arguing for policies that would turn genocidal in nature. The paper argues that there is a direct link between this geographical school of ideas and genocidal policies pursued by the German empire in southwest Africa and on the European continent.

Keywords: nationalism, imperialism, genocide, geopolitik, lebensraum

Amrita G. Danieri, University of Toronto, Departm. Email: amrita.daniere@utoronto.ca; **Anchana NaRanong, NIDA, Bangkok Thailand. Email:** anchana@nida.nida.ac.th; *Tangible and Intangible Civic Spaces in Bangkok*

This paper combines research on community spaces in Bangkok with an in-depth discussion of the use and control of an important intangible civic space, i.e., community radio. Civic space is usually conceived of in physical terms or is described as an actual venue. The existence of community radio, however, illustrates that civic space (places where people come together and share information and knowledge) can sometimes also consist of airwaves, particularly, if access to radio is inexpensive and free of governmental and corporate control. Communities have been inspired to invest and build community radios, following a new set of regulations that opened up these opportunities as a result of Thailand's new constitution, and yet have almost immediately run into state opposition. The Thai state is currently undersupplying traditional kinds of community facilities as well as clamping down on the prevalence and openness of community radio. The clear desire for access to the communication possible via community radio on the part of many slums is a strong indication of the importance of civic space in Thailand as it moves towards enhancement of public participation. The paper ends with specific policy recommendations regarding community space provision within these struggling communities.

Keywords: urban governance, civic space, public participation, slum communities

Mike Danson, Professor, University of Paisley. Email: mike.danson@paisley.ac.uk; **John Lee, Volunteer Development Scotland. Email:** john.lee@vds.org.uk; *Addressing the Ageing of the Workforce and Population through Encouraging Volunteering as an Element of a Sustainable Lifestyle: The Role of Employee Supported Volunteering*

How people can and should be encouraged to continue to play full and active roles in society and the economy are addressed in this paper, the specific role of employer supported volunteering within the European and Scottish contexts are analysed especially. Most countries are facing a declining and ageing population and strategic options to address these developments have been widely discussed and debated in recent years. Speculation and reactions have ranged across many dimensions of public and private concern, including pensions, the size of the workforce, the capacities of the health and social services. Increasingly, promoting a prolonged, healthy and active life has come to the fore of many

agendas, with moves towards well-being and inclusion assuming greater significance in public policy objectives. Strategies are being adopted which support the 'third age' being a period where instead of a precipitous transition into inactivity on retirement, there is a better balance between continuing employment, leisure, domestic duties, civic involvement and volunteering for several years. As part of this evolving movement, this paper draws on evidence from Scotland and Europe to explore these issues. It catalogues direct policy responses to demographic changes at global, European, and Scottish levels, stressing the economic and labour market contexts. In particular, it examines policies to encourage employers to support volunteering by older workers as part of a wider approach to active ageing.

Keywords: Ageing, Volunteering, Population

Gerald A. Danzer, University of Illinois. Email: gdanzer@uic.edu; *Picturing Chicago through Historic Maps: Developing Visual Literacy and Geographic Understanding*

This paper explores the relationships between historical cartography, visual literacy, and geographic understanding as exhibited in *Picturing Chicago*, a curriculum project by Mark Newman and Costas Spirou funded by the National Endowment for the Humanities. Visual literacy pushes viewers to look beyond the things that first meet the eye. Maps provide a useful way to help students develop this habit of searching further because they challenge the quick look. When a person picks up a map, for almost any purpose, there is usually a pause to get oriented to the image. Maps seldom provoke instant responses. Instead, they invite readers to slow down and figure out what they are looking at. Then, once the readers are fully engaged, maps push them to extend their range of vision, consider various options, and develop new possibilities. Thus maps of the city of various types and from different periods, present unique resources for developing visual literacy and geographic understanding. A curriculum demands order and sequence. The five themes of geography can offer this structure and provide a convenient way for students to reflect on the message and meaning of any map. The five themes can also help us spell out some major aspects of visual literacy, broadly conceived.

Keywords: cartography-historical, visual literacy, Chicago, curriculum development

Kate Darby, School of Human Evolution and Social Change, Arizona State University. Email: kate.darby@asu.edu; *Reconceptualizing Local Food: Implications of Food Production in Phoenix, AZ*

Local food systems are part of a rapidly growing community food security movement in the United States. Local food system projects utilize a variety of mechanisms including community gardening, community supported agriculture, and farmers markets. They aim to ensure that residents have access to an adequate amount of healthy food while also decreasing the environmental impact of the community's food consumption. Recent scholars have suggested that this notion of "local" food is uncritical and romanticized. These concerns gain particular salience in desert regions of the U.S. Southwest, where urbanization and a limited water supply complicate local food production. In this paper, I explore the social, ecological and political-economic issues associated with food production in the Phoenix, AZ metropolitan region. Changing ecological conditions make agricultural production difficult, while agriculture simultaneously exacerbates some local environmental problems (e.g. particulate pollution) and mitigates others (e.g. urban heat island). I also explore the social implications of local food production through an environmental justice lens. Through the framework of metabolic rift and a discussion of current economic incentives for agricultural production in AZ, I explore the political-economic issues of local food systems. In investigating these issues, I begin to develop new ideas of what effective local food system projects could look like in the Phoenix metropolitan area.

Keywords: local food, Phoenix, agriculture

Joe T. Darden, Michigan State University. Email: jtdarden@msu.edu; *Does Black Residential Segregation and Black Demographic Dominance Enhance Black Business Ownership?*

The black population in the United States is highly residentially segregated in central cities. Most research has suggested that negative social and economic consequences are associated with such segregated patterns. Little research has revealed any positive consequences. The purpose of this paper is to determine whether black business ownership is enhanced by the high level of residential segregation and black demographic dominance in central cities. Data were obtained from the most recent United States Bureau of the Census Survey of Minority Owned Businesses and the 2000 Census of Population and Housing. The index of dissimilarity was used to measure black residential segregation in central cities and to compare cities with different demographic characteristics and different levels of computed black business participation rates. The results revealed the importance of black residential segregation and black demographic

dominance on black business ownership. Keyword: Residential Segregation, Black Business Ownership

Keywords: Residential Segregation, Black Business ownership

Ian Darke, University of Guelph. Email: idarke@uoguelph.ca; Robin Davidson-Arnott, University of Guelph. Email: rdarnott@uoguelph.ca; *Remote Monitoring of Beach Surface Moisture*

Surface moisture is known to be one of the most significant constraints on aeolian sand transport into the coastal foredune. However, acquiring accurate measurements of surface moisture that capture its spatial and temporal variability during a transport event is difficult and time-consuming. Using readily available digital photography and common software a new method for mapping beach surface has been tested in the field. The method, which is non-destructive of the beach surface, is based on the tonal change of beach sand with increasing moisture. Two digital video cameras were mounted at the top of a 5 metre tower at Greenwich Dunes, Prince Edward Island, Canada, and continually take photographs of the beach surface. The brightness of the resulting digital images are corrected for ambient light conditions by comparison with a white card and the resulting corrected images have been calibrated against simultaneous measurements of gravimetric moisture content. It is anticipated that by combining measurements of wind speed and direction with simultaneous data on surface moisture content improved modelling of sediment transport from the beach surface into the foredune can be achieved. This paper describes the monitoring system and calibration in detail and presents results from an application over a one month period.

Keywords: digital photography, beach surface moisture, aeolian sediment transport

Jonathan Darling, University of Durham. Email: j.m.darling@durham.ac.uk; *Becoming Bare Life: Asylum, Hospitality and the Politics of Encampment*

This paper examines the politics of contemporary encampment and enclosure within the UK with reference to the positioning of asylum seekers as a group subjected to a biopolitical logic of compassionate repression. The paper opens by examining the utility of presentations of the asylum seeker as an exemplar of Agamben's (1998) figure of the 'homo sacer'. I argue that whilst such a positioning holds resonance with contemporary political formations, it also consigns the asylum seeker to a position of perpetual hiatus, a liminal state of indeterminacy from which a self-fulfilling biopolitical logic of confinement denies any space for political transformation and casts action only as regulated by ethical sensibilities. The paper then questions such a post-political stance by firstly critiquing the diverse uses to which such a conceptual frame has been applied, and secondly by suggesting the need to (re)engage with political theories which draw the political as always already an ethical practice in itself. Here I argue that the politics of the camp needs to be reconsidered from a stance which takes the encamped liminality of the asylum seeker as its originary referent rather than its inevitable conclusion. I therefore conclude by sketching an ethico-political disposition conceptualised around the notion of opening space for the asylum seeker as a hospitable, and political, practice. Such practice may be actualised in everyday encounters through ethical acts of critical responsiveness which seek to question, and intersubjectively transform, repressive logics of camp thinking.

Keywords: asylum seekers, encampment, ethics

Ashok Das, University of California, Los Angeles. Email: adas@ucla.edu; *What is success in slum upgrading? Comparing Indian and Indonesian experiences from participatory projects*

Providing basic urban services to the poorest - slum dwellers and squatters ? continues to be a challenging task in developing countries. Over the years, slum upgrading (SU) has emerged as a viable urban policy and planning tool for extending essential infrastructure and services to such informal settlements. Following the implementation of decentralization policies in developing countries, SU is increasingly becoming a locally initiated, funded, and managed intervention. It is also believed that the successful implementation of SU hinges upon supportive institutional alliances among the public, private, and nonprofit sectors, as well as strong grassroots participation by the clients of such projects ? the urban poor themselves. Two such programs ? the Slum Networking Project (SNP) and the Comprehensive Kampung Improvement Program (CKIP) ? were initiated in India and Indonesia, respectively, in post-decentralization eras. Both programs are considered to be quite successful. However, using a comparative case study approach, this paper shows that while some program outcomes are indeed encouraging, in different ways, two key elements for the success of SU programs ? scaling-up and sustainability ? are much less promising because a) they have been not been able to stimulate the nonprofit sector's participation enough; b) the institutional frameworks governing SU are more rigid than flexible; and c) community participation is less than desirable. A combination of macro-level

regulatory frameworks, local governance characteristics, and socio-cultural idiosyncrasies can be considered as contributing to these shortcomings.

Keywords: slum upgrading, participation, decentralization, India, Indonesia

Robin E. Dattel, California State University - Sacramento. Email: dattel@csus.edu; *Patterns of the Foreign Born in Sacramento, California*

Sacramento's foreign-born settlement patterns suggest the presence of directional bias as described by John S. Adams in 1969. Historically, the foreign born were found in numerous small rural settlements and in a large multiethnic quarter in the West End of Sacramento city. The West End immigrant neighborhoods were destroyed by postwar urban renewal and freeway building and by the opening up of housing in suburban areas to immigrants of all races. Subsequent outward moves of various immigrant groups created clear sectoral patterns. These were shaped in part by earlier ethnic rural settlement patterns, but also by the timing and spacing of house and apartment construction that created an uneven map of opportunities for moving "up and out." The most recently arrived immigrants, some now going straight to the suburbs, have both reinforced these established sectors and created new patterns. Asian groups have shown a preference for the south side, although Asian Indians are something of an exception. Sacramento's Latino foreign-born population has both north side and south side concentrations and an important rural component. Recent Russian and Ukrainian refugees have gone to the noticeably "whiter" eastern suburbs. Immigrant businesses and institutions locate in immigrant residential areas, but draw patrons from across the metropolitan area, consistent with many other cross town movements in the galactic city.

Keywords: foreign born, immigration, housing, suburbs, Sacramento

Ayona Datta, PhD, London School of Economics. Email: a.datta2@lse.ac.uk; *Home, Migration, and the City: East European Construction Workers in London*

Since EU-enlargement a large number of East Europeans (mainly from Poland) have arrived in the UK and it is now estimated that more than 50,000 work legally or illegally in the construction sector. This paper focuses on the experiences of these migrant workers in London who work within the construction sector and mainly on residential projects. Through semi-structured interviews and participatory photography, this paper will discuss the connections between home, experience of migration, and everyday movement through London for these migrant workers. In particular, this paper is interested in exploring the importance of architecture and of place in the migrant experience as they construct homes away from homelands in London. The participants were recruited through snowballing techniques and an initial interview was conducted to learn about their experiences of home, migration, and the city. They were then provided with disposable cameras to capture their movement through London in pictures, after which a second interview was conducted where these pictures were discussed with the participants. This research illustrates how these men perform versions of 'laddish' masculinity in the workplace, while simultaneously performing domestic roles as equal partners in their houses. While these men build houses for others in London, they also evaluate the significance of home and draw connections to their homelands. Participant photography also illustrates how spatial perceptions of their workplaces, houses, and of London, shape attitudes towards their homelands, towards building (as a verb), and towards movement, and create hybrid identities in this moment of post-EU enlargement.

Keywords: Eastern Europe, migration, home, city, masculinity, construction workers

Eric H. DAUDE, CNRS- University of Rouen. Email: eric.daude@univ-rouen.fr; Emmanuel H. Eliot, CNRS/Universite Du Havre(France). Email: emmanuel.eliot@univ-lehavre.fr; *Circulation And Diffusion Of The 1831-32 Epidemic Of Cholera In Normandy (France)*

Among the epidemics which spread throughout the European subcontinent during the 19th century, the cholera is original for two reasons. First, it is characterized by a set of waves, which regularly and severely affected the populations through the century. Second, the disease produced many reactions and debates inside the society in a context of growing circulation of men and goods. This presentation focuses on the first wave (the 1831-32 epidemic) in France, and especially in Normandy. It examines the spatial course of the epidemic from different sets of data and by combining different methodologies. First, the presentation explores the components of the diffusion by using a multi-layer cellular automata. This model allows both to explore the structural effects of networks in the diffusion process and to compare the propagation waves between different periods. Second, based on the analysis of the medical and political discourses, the presentation proposes to trace the role of power in pathologizing groups (migrants, communities) and places and in constructing a specific response to the epidemic, which integrates its own way of interpreting space and places.

Keywords: Epidemic, Cholera, Diffusion, France, 19th century

Evangelia Daughtrey, Missouri State University. Email: edaughtr@drury.edu; *Economic Development in Mid-Sized Cities and the Relevance of Quasi-Governmental Entities*

This paper is part of the author's ongoing research on the rise of the Creative Class as defined by Richard Florida in the context of mid-sized cities. The city of Springfield, Missouri, serves as the case study and the reference point in terms of applying and analyzing theoretical frameworks. More specifically, in this paper traditional vehicles of economic development will be examined; mainly the Springfield Area Chamber of Commerce and secondarily initiatives by the City of Springfield. In this process, several questions arise: a) how relevant are traditional structures regarding economic development in the context of the knowledge economy? b) have institutions such as Chambers of Commerce and other public or quasi public entities evolved enough to offer meaningful solutions to modern problems, or are they trying to combat 21st century problems with Fordist solutions? c) do they work with or independent of the creative class? What is more, the nature of economic development in mid-sized cities and Springfield specifically will be analyzed. In summation, economic development efforts by institutions such as Chambers of Commerce and other public or quasi public entities will be evaluated.

Keywords: knowledge economies, innovation, post-fordism, economic development

Fiona M. Davidson, University Of Arkansas. Email: fdavidso@uark.edu; *Reds and Greens: The Diverging Politics of Scottish Cities*

The shift to proportional representation for Scottish parliamentary elections (and soon for Scottish council elections) has allowed previously under-represented political parties to flourish in Scotland in the last decade. Within the major Scottish cities in particular the emergence of alternatives to the standard fare of Labour, SNP, Liberal Democrat and Conservative candidates has greatly increased the range of political choices available to voters. In Glasgow and Edinburgh, this has created an unlikely divergence as Glasgow's disaffected voters have turned to the Scottish Socialist Party and Edinburgh's to the Green Party. This paper analyses voting behavior at the ward and constituency level for both these cities over the past thirty years to uncover the spatial and temporal shifts that have led to the emergence of these unconventional parties as viable alternative choices for the voters. While it is fairly clear that in Glasgow a long history of traditional Labour voting has been disrupted by the emergence of "New Labour", leading to political space for a new far left party to emerge, the situation in Edinburgh is rather different where it appears that the failure of any conventional party to address middle class concerns about the environment has energized a section of the population that was previously unrepresented in the political arena.

Keywords: Scotland, political parties, devolution

Mark A Davidson, Ph.D., Dartmouth College. Email: mark.davidson@dartmouth.edu; *Spoiled Mixture - Where does state-led 'positive' gentrification end?*

Over the past decade, policy makers in North America, Europe and Australia have introduced host of 'social mixing' initiatives that have sort to address urban social problems by de-concentrating poor and working class communities through attracting the middle classes back to the city. Such a policy objective clearly 'smells like gentrification'. However, some commentators have warned against being critical of these policies, pointing out that the types of inner city redevelopment generated by them is different from classical gentrification, and that state-led gentrification offers benefits for many poor and working class communities in much-maligned inner city neighborhoods. This paper draws upon research conducted in London, UK, to demonstrate how, despite having many applaudable aspects, pro-social mixing policy agendas carry with them significant threats of displacement - in its many forms - for lower income communities. The paper also argues that due to the mutating nature of gentrification these threats are increasingly context-bound, varying significantly from neighborhood to neighborhood. In conclusion, the paper calls for researchers to remain highly critical of gentrifying urban change since those state mechanisms which might 'manage' the unjust aspects of gentrification are inadequate to deal with the threat.

Keywords: Gentrification, Urban Policy, London

Ronald A. Davidson, California State University, Northridge. Email: rdavids@csun.edu; *A Thin Green Line? Frederick and May Rindge and the Morality of Keeping "The Malibu" Private, 1887-1941*

Battles between coastal home owners and the public over rights to the beach have a long history in Malibu. In the late 19th and early 20th centuries 27 miles of "the Malibu" (as it was then called) coast belonged to the Rindge family, which strove to keep the growing regional public out of their idealized personal arcadia. For (husband and wife) Frederick and May Rindge, Los Angeles represented urban-based modernity, the seat and product of what seemed to them immoral,

economically-driven developmental processes, while the Malibu was a redoubt of nature and morality. To complicate matters, Frederick Rindge was a successful businessman and owned a second house in West Addams. Using Frederick's memoirs and other archival sources, this paper explores and evaluates the Rindges' claims to moral superiority in seeking to withhold the public from the Malibu.

Keywords: California-Malibu, public space, beaches

Andrew Daniel Davies, University of Liverpool. Email: a.d.davies@liv.ac.uk; *Tibetan (Trans)nationalisms: Maintaining and Fragmenting Identities across space and place*

This paper examines the varied and contested ways in which nationalist ideologies are both created and modified across different spatial arenas. Examining Tibetan nationalism, it will explore how a discourse of nationhood is mobilised in order to hold together a diasporic exile community, but more importantly, will look at how this mobilisation works in practice. Following from Haldrup et al's (2006) article in *Geografiska Annaler* which examines 'Banal Orientalism' as a method of constructing an 'Other', the paper will look at the employment of a number of key issues in the establishment of a Tibetan form of Nationalism. Substantively building from ongoing PhD research, the paper will look at the building of a discourse around a few key symbols of 'Tibetanness', but crucially, its modification as it is mobilised in different spaces, such as its production amongst Western media, its reproduction in sites (and sights) of protest across the world and its enactment in sporting events such as the Tibetan National Football team. It will argue that simply examining nationalism as a discourse is not enough, instead calling for a more networked and situated account of the creation of an ideology.

Keywords: Tibet, Nationalism, Resistance

Caroline P. Davies, PhD, University of Missouri-Kansas City. Email: daviesc@umkc.edu; *A Geospatial Analysis of Airborne Particulates and Asthma in Kansas City: Implications for Environmental Health and Social Disparity*

Despite much research, the causes of asthma and the reasons for increasing rates of asthma cases remain largely unknown (Kinney et al., 2002). High levels of ground level ozone have been associated with respiratory illness, yet Kansas City does not rank in the top 25 US cities with the worst ozone air pollution (American Lung Association, 2005). Kansas City also does not rank in the top 25 for particulate pollution. Yet it does rank in the top ten US cities for asthma (Sperling's Best Places, 2003; CNN 2004). This research examines the spatial distribution of airborne particulates at street level across the urban core over several weeks in summer 2006. Collection of particulate data in six size classes ranging from 10 μm to 0.3 μm using a Lighthouse handheld particle counter occurred during peak morning and afternoon rush hours. Data was collected along major boulevards and residential side streets to examine particulate distribution from source area, penetration into urban residential neighborhoods, and schoolyard exposure. Asthma patient data by zip code are examined for the same geographic area and summer sampling period. The geospatial analysis of these variables explores the environmental factors and potential socioeconomic implications for environmental health disparity.

Keywords: asthma, airborne particulates, PM10, PM2.5, social justice

Gail Davies, University College London. Email: gdavies@geog.ucl.ac.uk; *'Always look on the bright side of life?' Biotechnology, affect and the bio-politics of humour*

In this paper, I want to argue it is not only academics that are turning their attention to the dark side of biopolitics. Biotechnology companies are increasingly speculating about the future of biotechnology in a darker vein. Speculation is central to the business of biotechnology. The growth of scientists as entrepreneurs, gaining from short-term rises in stock value, means there are incentives to make strong claims about the future. And whilst hope remains a central discourse in the formation of biotechnological expectations, this is increasingly linked to discourses of fear. There is a perhaps a new rationality of life being forged in the response of biotechnology companies to what Melinda Cooper has termed the 'biological turn in the war on terror' (Cooper, 2006). Security is defined in human and biological terms, and so biotechnological hopes and fears are defined in concert. It is in this context I want to argue that humour may be a political strategy in opening up the politics of contemporary biotechnology. Speculation is a central performative repertoire in the contemporary bio-economies that cannot easily be discounted, for its reality operates precisely in the realm of potential, which is the potential to materialise new markets. Thus, in engaging with affective economies of hope and fear, affect becomes a political strategy and, I want to suggest, humour, irony and ambiguity might just be productive ways to open up spaces to perform the politics of biology differently.

Keywords: biotechnology, biopolitics, speculation, affect, humour

Jonathan J Davies, University of Cambridge. Email: jjd27@cam.ac.uk; Alastair R Beresford, University of Cambridge. Email: arb33@cam.ac.uk; *Distributed, vehicular computation for map generation*

Modern vehicles have sufficient levels of computing power and communications capabilities to enable a range of new applications. These applications will involve the large-scale collection, processing and dissemination of data, in which vehicles may participate as sources, processors or sinks. We focus on one such application: the collection and processing of vehicles' location data to automatically generate up-to-date digital road maps. We propose an algorithm to begin to achieve this and discuss the issues involved with how it could be deployed across a large scale. Existing map-making techniques are costly so are often slow to cover changes to the road network: new roads being opened, old roads being closed, or existing roads changing their shape. Some mapping companies use fleets of probe vehicles to explore areas which may have changed. Instead, our application makes use of vehicles owned by members of the public to quickly discover these changes and reflect them in the map. The algorithm makes use of techniques from image processing and graph theory to convert sets of GPS traces into road maps intended to be suitable for use for in-vehicle navigation units. The deployment of the application will involve the participation of many vehicles and may require some infrastructural support: perhaps dedicated processing servers or public data caches. We draw from work in compilation and task assignment to examine the various potential architectures and discuss how the application could automatically determine the most appropriate architecture for delivering maps that are both of high spatial quality and up-to-date.

Keywords: map, gis

Brittany Davis, The University of Georgia. Email: brittany.y.davis@gmail.com; Priscilla McCutcheon, The University of Georgia. Email: pmccutch@uga.edu; *Colorism on Campus: Intra-racial attitudes among undergraduate African American students in the Atlanta Metropolitan Area*

This paper uses a geographic lens to examine the relationship between the racial makeup of a university and the ways that color attitudes are reproduced therein. While colorism is an important topic of social inquiry, there is little, if any, research on the relationship between place and colorism in African American communities. Colorism is not solely an historical artifact. Indeed many aspects of it persist within the United States. Scholars have noted the effects colorism has on the self-esteem of African American children (where generally more "European" features are associated with attractiveness) and have studied the life outcome of African Americans of different skin tones as it relates to their income and choice in marriage partners. How does the particular university setting influence (if at all) students' perceptions of the importance of color? We hypothesize that the African Americans who attend a Historically Black College or University (HBCU) may be more aware of color differences, in contrast to African American students attending predominantly white institutions. Using data gathered from surveys and focus groups at both a HBCU and a predominantly white institution in the Atlanta Metropolitan Area, this paper scrutinizes attitudes about color and analyzes the potential correlation(s) between these attitudes and the racial makeup of the university.

Keywords: colorism, racism, higher education

Diana Davis, PhD, DVM, University of Texas, Austin. Email: geovet@mail.utexas.edu; *Potential Vegetation maps of North Africa*

Drawing on nineteenth-century precedents in French botanical geography, ecologists and botanists in colonial North Africa developed potential vegetation maps based largely on questionable environmental narratives. Using a combination of relict vegetation assessment and deductions from descriptions and histories of the region dating back to the ancient classical world to bolster their preconceived notions, these men assumed a great deal that contemporary paleoecological and ecological research has shown to be inaccurate. These colonial vegetation maps continue to be used to the present day, helping to create projects that all too often fail ecologically as well as socially. This paper analyzes the way the potential vegetation maps of Algeria, Tunisia, and Morocco were constructed during the colonial period. Further, it overviews many of the projects that have used, or been based on, these vegetation maps and examines their social and ecological outcomes.

Keywords: North Africa, Potential Vegetation Maps, Colonialism, Environment and Development

Edward H. Davis, Emory & Henry College. Email: ehdavis@ehc.edu; *Christian Proselytizing in Muslim North Africa: A Geographic Analysis*

Christian evangelism has long been practiced in Muslim North Africa, through a wide range of approaches. In the twentieth century, many of the more liberal churches and individuals have refrained from such attempts. The ecumenical movement among Catholics, Methodists, Lutherans, Presbyterians and other mainline churches was never a high priority for the leadership of these

churches, yet it promulgated a kind of unspoken peace treaty with Jews and Muslims, and channeled nearly all overseas evangelical efforts toward those areas of the world where only tribal or animist religions prevailed. But in recent decades, the determination of some evangelical Christians has led to new approaches to their goal of converting Muslims. Meanwhile, the governments of many countries have become more explicit in their efforts to protect their countries from such campaigns. This paper describes the geography of the evangelical Christian campaign in Muslim North Africa since 2000. The data is a sample of reports from several global mission organizations, as well as reports from the U.S. Department of State. The results indicate the presence of at least one proselytizing campaign in every North African country. The current and future cultural and political geographic impacts of such campaigns are worthy of further research.

Keywords: Christianity, North Africa, Missions

James A. Davis, Brigham Young University. Email: james_davis@byu.edu; Richard H. Jackson, Brigham Young University. Email: richard_jackson@byu.edu; Isoepa: Polynesian Heritage Site in the Utah Desert

Heritage sites important to members of the Church of Jesus Christ of Latter-day Saints (the Mormons) are scattered across the United States. The most famous is Temple Square in Salt Lake City. A much more obscure site, Isoepa, is located in a desert valley west of Salt Lake City. Isoepa was a settlement of Hawaiian converts to the Mormon faith established in 1889 and abandoned in 1917. It was abandoned when plans for a Mormon temple in Hawaii were announced and most of the residents returned to the islands to help with its construction. Ignored until the centennial anniversary of its establishment, Isoepa is emerging as a heritage destination for Polynesians in the Utah region. The factors explaining its emergence as a heritage site are associated with a growing Polynesian population in the West and their recognition of the role early Hawaiians played in settling the region. The focal point of the site is the annual Memorial Day celebration when many people come to honor and celebrate the early Hawaiian pioneers. This paper examines the reasons Isoepa has turned into a heritage destination, its importance to the collective memory of Utah Polynesians, and how the cultural landscape of the sites has changed over time.

Keywords: heritage tourism, religion, Polynesians, collective memory

Jason Davis, Ohio State University. Email: davis.1937@osu.edu; Scientists' roles in negotiating hybrid relationships

Antarctica is home to biota which has over long periods of time evolved to survive in the icy environment of the continent. It is those unique adaptations which have drawn the interest of scientists, politicians, and capitalists interested in extracting commercial applications from the genetic and biochemical properties from these life-forms. How to go about doing this in a legitimate way is currently the subject of debate and negotiation among scientists and policy-makers. The negotiation of bioprospecting regimes therefore takes place in a world of in-betweens: a hybrid object that incorporates and mediates between science, commerce, policy, and geopolitics. There has traditionally been much critical focus on how policy-makers and capitalists negotiate these types of regimes, the role of scientists has been neglected. I will examine how scientists influence how these relationships are negotiated, as they are the primary actors who interact with the biota.

Keywords: Science Policy, Geopolitics, Bioprospecting, Antarctica, Hybrids

Jason Davis, U.C. Santa Barbara. Email: jdavis3691@hotmail.com; The Effect of Remittances on Fertility, Conspicuous Consumption, and Agricultural Change

The exponential growth of remittance flows among nations promises to expedite development in poorer nations as migra-dollars will benefit disproportionately the underprivileged. Since these flows are often directed to rural communities that exist in close proximity to biodiverse habitats, such development will have consequent - possibly severe ? effects on crucial environmental resources. The paper takes a step-down approach to the subject of worker remittances and their effects on conspicuous consumption, human fertility, and agricultural change ? three factors that have direct and indirect environmental effects. This paper comprises a review of the literature that encapsulates previous findings on the effect of worker remittances on local fertility, conspicuous consumption, and agricultural change with a special emphasis on Central America and the Caribbean. Through the analysis of a Guatemalan national human condition dataset, this section will also present basic data identifying in what economic sectors remittances are being invested in local communities, with a particular focus on amounts that are channeled to further agricultural production, and will examine data relating remittances to fertility rates. The second section of this paper will present a basic statistical analysis of antecedent factors that may predispose household members to migrate and remit money back to

their local communities.

Keywords: remittances, international migration, fertility, agricultural change, conspicuous consumption, Guatemala, Latin America

Jeffrey Sasha Davis, University of Vermont. Email: sasha.davis@uvm.edu; Nature takes over: Constructing terra nullius and scales of control

When social landscapes are destroyed, either quickly through disasters or slowly through the forced removal of the population, the resulting landscape tends to be conceptualized as becoming "natural." This powerful rhetorical label can serve to erode the legitimacy of the remaining (or former) residents as viable actors who should determine the place's future reconstruction. Effectively erased from the landscape, the voices of these local populations often go unheard. In addition, this designation of the place as a "blank slate" serves to justify planning initiatives inconceivable when the landscape was filled with the structures and activities of a vibrant populace, thus changing the scale at which reconstruction is imagined and managed. These new discursively constructed natural places then serve as important sites in the global economy as they are treated similarly to the so-called "empty frontiers" exploited in the heyday of imperial capitalism. Empirically this paper will draw on the examples of military dispossession and annihilation on Vieques, Puerto Rico and Bikini Atoll, Marshall Islands as well as destruction and capitalist-driven reconstruction caused in Central America in the wake of Hurricane Mitch.

Keywords: disaster, political economy, political ecology, dispossession, militarism

Jerry D. Davis, San Francisco State University. Email: jerry@sfsu.edu; Biogeomorphic Riparian Assessment and Salmonid Habitat Enhancement in a Suburban Landscape: San Pedro Creek Watershed

San Pedro Creek is a perennial stream in a 2070-ha basin in Pacifica, California, a suburb south of San Francisco, which provides a degraded but still viable habitat for threatened anadromous steelhead (*Oncorhynchus mykiss*). The watershed, home to approximately 17,000 Pacificans, is approximately 33% built out with low to moderate density housing and services; most of the undeveloped land is protected as county, state, or federal land. The two largest subwatersheds - that drained by the culverted North Fork (614 ha) and that of the relatively undeveloped Middle and South forks (total 624 ha) ? exhibit expected contrasts in storm-flow time of concentration and sediment yield, related to contrasts in impervious surface area. Stream channel bed and bank materials and morphology reflect a history of 200+ years of agriculture (channelization and relief water diversion structures) and 50+ years of basin and stream-side suburbanization (impervious surface expansion and armoring with concrete, riprap, and gabions), with concomitant downcutting and bank erosion. Up to 4.5 m of vertical degradation below bridge culverts has created barriers to steelhead migration. Biogeomorphic analysis of bed and bank materials, sediment systems, channel morphometry, and related salmonid habitat elements has guided ongoing restoration projects aimed at reversing degradation and enhancing habitat.

Keywords: biogeomorphology, watershed assessment, salmonid habitat, suburbanization

Kathryn Davis, San Jose State University. Email: kdavis@email.sjsu.edu; Development, Health, and Housing in the Guatemalan Highlands

Guatemala has, for a variety of reasons, failed to provide adequate housing for its citizens especially those who live in the highlands far from the capital. The difficulty of providing adequate housing in Guatemala is the result of a multiplicity of problems that include insecurity of land tenure and extreme levels of poverty. These two factors have conspired to limit access to the housing market or collateral to borrow money. The displacement of thousands as a result of Hurricane Stan in 2005 has exacerbated the problem. Substandard housing has serious negative effects on the physical, mental, and social well-being of a population. Housing is an economic resource, a space in which people conduct their lives, and often a place of productive labor. Research has demonstrated that substandard housing can result in future negative health consequences as well as immediate problems. The typical materials for self-constructed homes in Guatemala are clay and wood with earthen floors. These houses often lack sanitation facilities and access to clean water. Decent housing protects people from chronic and communicable disease, accidents, and injuries. It also promotes healthy social interaction, limits often debilitating stresses, and ensures good health. This paper looks at the relationship between these factors and decent housing in the highlands of Guatemala.

Keywords: Housing, Guatemala, Development

Lisa Davis, University of Alabama. Email: lisadavis3@mac.com; J.P. Benstead, Ph.D., University of Alabama. Email: jbenstead@bama.ua.edu; A.D. Huryn, Ph.D., University of Alabama. Email: huryn@bama.ua.edu; *Geomorphic Constraints on Mussel Habitat, Bogue Chitto Creek, AL*

Many rivers located in the state of Alabama provide habitat to freshwater mussels. Bogue Chitto Creek located in central Alabama provides habitat to an exceptional diversity of mussels, hosting at least 15 species of mussels in its bedload. The research being presented consists of ongoing research efforts aimed at identifying geomorphologic variables significant to the establishment and maintenance of the high diversity of mussel species observed in Bogue Chitto Creek.

Keywords: mussels, geomorphology

Lisa Kim Davis, MPH, PhD, UCLA, Department of Geography. Email: davis@geog.ucla.edu; *Urban Redevelopment, Cultural Policy and the 1988 Seoul Olympic Games*

This paper explores how urban neighborhood redevelopment and the national cultural policy of promoting 'sex, sports, and screen' in South Korea became twin pillars of a new military government's attempt to gain legitimacy after the assassination of the previous dictator Park in 1979. By then, Seoul was the preferred address of the rapidly industrializing country as workers continued to flood the cities, resulting in a worsening housing shortage. The '3 S' cultural policy, as it is known, was created to draw attention away from public dissatisfaction over the latest military coup, especially in the months after the Kwangju Massacre by the military in May 1980. At this time, the government began to bid in earnest for the 1988 Olympics. The method of research involves review and analysis of print media texts, government documents, and existing literature. Both the massive overhaul of urban housing and the new cultural policy of this period had lasting effects on the urban geography of Seoul well into the 21st century. While South Korea is often held up as an exemplary model of capitalist industrialization, the centrality of both urban questions in constructing the nation, as well as the national political and economic motivations which shape the city, need to be scrutinized and acknowledged.

Keywords: urban geography, housing, Korea, cultural policy

Mathew Davis, MArch, MLA, Temple University. Email: mjd@temple.edu; Michele Masucci, PhD., Temple University. Email: masucci@temple.edu; *Finding Lost Place: GIS and the Re-emergence of Community*

Urban design as a participatory and collaborative process, must embrace the evolving network information infrastructures in the context of the traditional physical planning. This paper reflects ongoing collaborative research and proposals for an inner-city neighbourhood in Philadelphia that has suffered from disinvestment, poverty and blight for decades. Working with a local community-based organization, the authors present a collaborative model for urban redevelopment in North Philadelphia using GIS technologies to respond to the myriad challenges facing post-industrial areas of our cities. We review the community efforts to implement a technology initiative that is intended to serve as an impetus for redevelopment. A university-community partnership was formed to address technology infrastructure needs to support implementation of the community technology initiative. Elements of the partnership include: (a) designation of a community fellow to coordinate shared projects, (b) development of a community geographic information system and data sharing mechanisms, (c) creation of an internship program to support neighbourhood housing assessment activities and (d) implementation of a youth education program to link community knowledge with information and community technology training. Outcomes of the partnership have included creation of a set of shared data resources, neighbourhood development plans and curricular materials.

Keywords: community planning, GIS, urban redevelopment, Information Technology,

Robert E. Davis, University of Virginia. Email: red3u@virginia.edu; Paul C. Knappenberger, New Hope Environmental Services. Email: chip@nhes.com; Oliver W. Frauenfeld, University of Colorado. Email: oliverf@colorado.edu; Patrick J. Michaels, University of Virginia. Email: pjmx8x@virginia.edu; *Observed Changes in North Atlantic Hurricane Frequency and Intensity Using a Multivariate Model*

Previously we demonstrated that sea surface temperatures (SST) and tropical cyclone intensity in the North Atlantic basin are not as closely linked as has been implied in several recent papers. Here, we broaden our investigation to examine aspects of the tropical environment beyond SST that have known impacts on tropical cyclone development, including, among others, vertical wind shear, vertical lapse rate, and layer-average specific humidity. We determine the monthly average value (upper air variables calculated from the 6-hourly data from both the NCAR-NCEP and the ERA-40 reanalysis data, SST data from NOAA NCEP ERSST) within 2.5° latitude x 2.5° longitude grid cells covering the

North Atlantic basin region. Within each hurricane season, we calculate the areal extent of critical values of these variables, both individually and in combination, to determine how conditions critical for tropical cyclone development have evolved in the Atlantic basin over the past three to five decades. When we examine the relationship between these environmental variables and tropical cyclone intensity and frequency, we find that although SSTs contribute significantly to tropical cyclone activity, their influence varies markedly over time, as does the importance of variables such as vertical wind shear and lapse rate. The variation of these influences indicates complex behavior over time, and do not suggest that human influences, acting on SST alone, can explain the recent increase in Atlantic hurricane activity. These findings highlight the complex nature of hurricane development and counter arguments of a simple cause-and-effect relationship between rising SSTs and stronger North Atlantic hurricanes.

Keywords: hurricanes, tropical cyclones, climate change

Carrie Davis Todd, Purdue University. Email: davis120@purdue.edu; Jacob Napieralski, University of Michigan - Dearborn. Email: jnapiera@umd.umich.edu; *A Tale of Two Cities: Does Geographic Setting Influence Student Learning??*

An undergraduate applied geomorphology course, designed by instructors from Purdue University and the University of Michigan-Dearborn, incorporated a variety of activities and projects in which the students apply course content to investigate and solve real-world problems. The course structure and materials used by both instructors were relatively identical. Our hypothesis was twofold: (1) an engaging approach to learning geomorphology would increase student knowledge retention and content application and (2) the geographical setting of the university (i.e. rural or urban) would influence the type of content students retain and emphasize on independent projects and activities. In this study, pre- and post-tests were used to assess and compare student knowledge at the beginning and the end of the semester. Results from the tests were quantified using a rubric to award points based on the inclusion of vocabulary words, sketches, or key phrases that indicate their level of comprehension. Pre-tests from each student were compared against their post-test results to measure learning and retention at the end of the semester. A statistical analysis was then performed to select the factors, including geographical setting, gender, and program of study, that most influenced the degree to which content and applications were retained. Results from this study illustrate the importance of understanding student background when developing a course and can assist in the integration and adaptation of course material created at other universities.

Keywords: assessment, pre/post-test, undergraduate education, geomorphology

Teresa Dawson, University of Victoria. Email: tdawson@uvic.ca; *Teaching College Geography: A Resource for New Teachers*

Being a beginning teacher at university or college can be an intimidating and sometimes overwhelming experience. In reality new instructors often have little time to prepare before the course begins. Therefore the main goal of Teaching College Geography is to provide practical and supportive assistance for new instructors and teaching assistants in a just-in-time manner that mirrors their evolving needs. Each chapter of the volume is designed to build skills from designing the syllabus and making the most of the first day of class to getting feedback that improves teaching. Other chapters support particular professional development interests as instructors move from teacher-focused to student-focused practitioners. These include teaching and learning for diversity, GIS teaching, designing field studies, and assessment of geographic learning. In each case the author outlines some key concepts for consideration, shares tips based on collected experience in various geography departments across North America and supplements this practical advice with exercises for improving skills. In this short interactive paper presentation, one chapter will be used to illustrate the conceptual approach to practical materials development used by the authors in the volume and participants will receive a preview of the associated skills development exercise for subsequent comment and feedback by the participants.

Keywords: Teachers, TAs, Instructional materials

Rosemary J. Day, Dr, University of Glasgow. Email: r.day@socsci.gla.ac.uk; *The Outdoor Practices Of Older People In Western Scotland*

This paper will present some findings from a study of older people in three neighbourhoods in the Glasgow area of Scotland. The neighbourhoods encompass varying levels of socio-economic prosperity and different types of urban landscape, but all have an above average proportion of people aged over 60. Interviews with older people and field observation in each area were carried out, allowing examination of the everyday outdoor practices of older people in these different settings. Taken as a whole, these practices reveal some common themes, for example the importance of time spent enjoying natural elements; and of opportunities for informal social interaction with acquaintances out of

doors. Differences in practices between the three neighbourhoods highlight how elements of the outdoor environment, both physical and social, may provide opportunities or constraints for the promotion of older people's well-being. Constraints include design features, upkeep, and the practices of others. These findings speak to a need for greater recognition of older people in outdoor spaces. They also challenge certain policy agendas: for example, the research found that the older people in all three neighbourhoods would often choose to segregate themselves as a group in time and space, preferring to be around other older people. Such a practice calls into question an assumption that cohesive mixed communities may be facilitated through the provision of quality outdoor space, without further interventions to achieve such mixing.

Keywords: older people, practice, environment, inequality, nature, community

Joao Francisco de Abreu, de Abreu, J.F., Catholic University of Minas Gerais-Brazil. Email: jofabreu@pucminas.br; Pasteur Ottoni Miranda Junior, Catholic University of Minas Gerais/Brazil. Email: jofabreu@pucminas.br; Mapping "Geographical Voices", with an application of Hagestrand's space-time model

Peter Gould and Forrest Pitts, in the introduction of the remarkable book *Geographical Voices* - Fourteen autobiographical essays, wrote: "For those familiar with Torsten Hagerstrand's space-time diagrams, in which people trace out graphically three - dimensional daily paths, we saw in our imaginations "life lines" starting at different places and different times, generating quite different personal experiences, yet all merging in the project we call geography". This paper aims precisely at mapping those lines. For such, software in Delphi language was developed, to trace the three-dimensional lines and map the paths. This entirely interactive program allows the import of Excel tables and basic MIF and SHAPE maps, besides the export of JPEG- and BITMAP-generated graphics. The paper maps the fifteen voices (Peter Gould's path is also mapped) as a homage to the great work of those geographers and of the book authors.

Keywords: "Geographical Voices", "Space-Time", Hagestrand

Ariane De Bremond, Ph.D., University of California. Email: ariane.debremond@gmail.com; Regenerating Conflicted Landscapes: Land, Environmental Governance, and resettlement in Post-war El Salvador

This paper traces the history, process, and outcomes of the Programa de Transferencia de Tierras (PTT) in El Salvador, the post-war land transfer initiative that brought together Government of El Salvador and the Farabundo Martí National Liberation Front and numerous international aid agencies to implement a state-market hybrid land reform in the wake of a twelve-year civil war. The PTT evidenced an approach to land transfer that has become standard practice globally, emphasizing agriculture as the chief path to reinsertion, and thus to peace, in post-conflict situations, and conducting land transactions and post-transfer assistance largely through market-mechanisms. A qualitative instrumental case study was used, focusing on the social dynamics of land transfer and parcelization, livelihood construction, and governance of ecologically sensitive resources by returned refugees and ex-combatants in El Salvador. Results suggest that the 'developmentalist' project of land reform sets parameters, material and discursive, spatial and imaginary, that limit or potentiate how people might configure livelihood strategies and shape the ecologies with which they live.

Keywords: land policy, environmental governance, latin america

Karen De Bres, Kansas State University. Email: karendb@ksu.edu; The Geographies of Power and Privilege at Plains Land-Grant Colleges 1862-1918

Karen J. De Bres, Department of Geography, Kansas State University, Manhattan, KS 66502 Internet: karendb@ksu.edu The Geographies of Power and Privilege at Plains Land-Grant Colleges 1862-1918 American "land-grant" colleges, established by the 1862 Morrill Act, lifted what were then called the "industrial classes" into higher education. Emphasizing applied subjects at the expense of traditional college courses, many of the new institutions focused upon agriculture, mechanical arts (engineering), ROTC, and soon, women's courses (home economics). In this paper I argue that land-grant colleges served to keep poorer white men and women as well as African-American students in their "place" and that the new college buildings reflect those intentions. Early buildings at land-grant colleges that were not their state's "flagship university," particularly in the Plains, conveyed the utilitarian spirit of their curriculum as well as conservative social messages. Keywords: historical geography, Plains, women and African-Americans

Keywords: : historical geography, Plains, women and African-Americans

Tim De Chant, University of California, Berkeley. Email: dechant@nature.berkeley.edu; Maggi Kelly, University of California, Berkeley. Email: mkelly@nature.berkeley.edu; Barbara Allen-Diaz, University of California, Berkeley. Email: ballen@nature.berkeley.edu; Forest Gaps Through Time: Using Object-based Image Analysis to Examine Canopy Changes in the Wake of Sudden Oak Death

Sudden oak death (SOD) is a disease of epidemic proportions, sweeping through many coastal hardwood forests in California. Since 1999, *P. ramorum* has produced overstory mortality in China Camp State Park (CCSP) and the surrounding open space, creating a number of gaps which effectively alter the structure of the forest. In the following four years, ADAR high-resolution (1 m) multispectral imagery for CCSP was acquired. We segmented and classified this existing imagery using object-based methods to identify gaps within the forest mosaic. We also tested a variety of object-based segmentation parameters on one image to determine potential error resulting from segmentation. Once the gaps were identified, they were measured for area, perimeter, and Euclidean nearest neighbor. We then compared these spatial measures of variation to temporal ones, creating a time-sequence of gap formation and the resulting gaps' closure or persistence. Between 2000 and 2001, 910 gaps within China Camp contained one or more trees dead from *P. ramorum*. Preliminary results indicate that the majority decreased in both size and perimeter while the distance between them grew. Those that increased in size, however, were smaller on average than those that decreased, a potential consequence of the spatial distribution of SOD. This research provides insight into changes in the canopy structure at China Camp following *P. ramorum* mortality. Furthermore, it also illustrates the necessity of object-based methods in tracking changes in forest gaps over time.

Keywords: object-based image analysis, forest, ecology, remote sensing

Lee De Cola, United States Geological Survey. Email: ldecola@usgs.gov; Using Graph Theory to Model the Spatial Structure of Land Cover

New data structures and algorithms are enabling the 300-year old science of graph theory to shed light on such disparate topics as the Internet, biochemical pathways, and ecological networks. This analysis can also demonstrate links between ecological processes and the landscapes on which they occur. Land cover data are tessellations of nominal-valued cells regionalized into homogeneous patches whose arrangement is an underlying landscape pattern that can explain the propagation of biological signals. Consider four levels of analysis. At the CELLULAR level the frequency distribution of the classes characterizes not only the study area and period but also the choices made by the classification protocol. The PATCHES themselves can be described by the (usually scaling) size distribution of their areas and the lengths of their perimeters, which reflect spatial complexity (e.g. fractal dimension). A GRAPH results when the patches are represented as vertices and an edge exists when two patches share a boundary. The degree of the vertices describes how connected a type of land cover is to others. Finally, the DISTANCE MATRIX (the lengths of trails linking vertices through intervening vertices) reveals such characteristics as: which land cover classes are more frequently associated, multiscale autocorrelations, and fragmentation of the pattern. These measurements can then be related to how animals migrate, plant species invade new regions, or pathogens spread from one community of hosts to another.

Keywords: graph theory, gis, land cover, spatial analysis

Maria de Jesus Diaz-Perez, Salud Family Health Centers. Email: mdejesus@saludclinic.org; Deborah Thomas, University of Colorado, Denver. Email: deborah.thomas@cudenver.edu; Tillman Farley, Salud Family Health Centers. Email: ; Assessing Gaps in Service for a Community Health Center System

Colorado's health indicators are better than the rest of the nation. However, this positive profile masks health and healthcare disparities based on socioeconomic position, race/ethnicity and geographic location of population in the state. For example, in 2003 approximately 17% of the state population was uninsured, and those Coloradans at highest risk for being uninsured included people living in poverty; young adults, Hispanics, people working for employers with fewer than 100 employees, and people with lower educational attainment. To provide health services for populations with the highest need, low-income, uninsured, and underinsured, the federal government supports the Community Health Centers (CHCs) program. Careful analysis of CHC's service areas and population is necessary to improve access to care to populations with the highest need. This study uses GIS to assess access to healthcare services provided by a CHC system in north and northeastern Colorado, Salud Family Health Centers (Salud). Specifically, this study looks to identify gaps in services using CHC's patient data along with Census information. Gaps in healthcare service are defined as Census block groups with high need but low access to services. Within the defined Salud service area, those 'high need' block groups with low actual patient population would be considered a gap. Outside of Salud's service area, gaps in health care service are identified as those high need block groups that are not

served by another CHC. The findings directly inform policy on the financing and/or organization of CHCs, which ultimately impacts health care access for vulnerable populations.

Keywords: health accessibility, health disparity, GIS

Bart de Jong, Utrecht University, Faculty of Geosciences. Email: b.dejong@geo.uu.nl; Governing Amsterdam Airport Schiphol: how to become a more decisive actor in a complex network society

Amsterdam Airport Schiphol is a dynamic node, where the space of places and space of flows meet. This makes it a complex entity. A growing number of public and private actors tries to influence the spatial situation to their advantage, making the decision-making process much more difficult and no longer solely the domain of governments. This difficulty is fed by a climate of distrust as a result of lack of communication between the concerning actors. The aim of this paper is to formulate innovative intervening strategies and create - or give initial impetus to - new forms of governance that may help to overcome these difficulties. To do so it will use the Actor Network Theory in combination with regime theory and global production networks theory to analyze existing and potential networks and regimes within the Schiphol region. By not approaching Schiphol exclusively as a physically, infrastructural, spatial-economic or environmental phenomenon, but more from the driving forces and motives of the decisive actors behind these phenomena, insight is gained in a possible more social, institutional and cultural embedded development of the airport. I will explain how Schiphol evolved from a simple airport into a many-headed monster, with lots of actors and different interests. I conclude that a more actor-oriented approach is necessary to come to new forms of governance and tame this many-headed monster.

Keywords: Amsterdam Airport Schiphol; governance; decision-making, actor network theory, global production network, regime theory, airports

Carolyn De La Pena, Associate Professor, American Studies, UC Davis, University of California - Davis. Email: ctdelapena@ucdavis.edu; "Sweeten My Life a Little": Saccharin, Politics, and Pleasure in the "Other" America

In March 1977 the FDA announced their intention to ban saccharin. Over the next six months they received 100,000 protest letters from consumers. This presentation makes two arguments about the cultural importance of this "saccharin revolt." First, saccharin enabled white working-class female consumers (many of them from rural regions or the midwest) to exercise political power denied to them in other forums. Many of these women quite literally told the FDA, the Congress, and in some cases President Carter to "go to hell." Many mention that they are tired of hearing about "everyone's else's rights" and paying high taxes. In demanding that the government "leave them alone," saccharin protesters classify themselves as the virtuous restrained pleasure seekers, counterpoising the "evils" of Washington and "freeloaders" to the hard-working locality of their families and towns. Second, support for saccharin in middle-America and de-industrialized urban areas (Allentown, PA; Detroit, MI) enabled consumers to reinvent a chemical as a health food. Consumers repeatedly question the FDA's science in their letters; many argue that sugar causes obesity and obesity is a far greater health risk. In these arguments they frequently assert that risk is impossible to avoid and this is a risk they "choose." This assertion has implications for how consumers understand "healthy" food (as perhaps a place for appropriate risk in contrast to environmental risks) as well as how those understandings are impacted by region (particularly in regions employing industrial/chemical agriculture).

Keywords: saccharin, political protest, health, pleasure, rural, midwest, whiteness, consumption

Juan David De Lara, University of California, Berkeley. Email: jdelara@berkeley.edu; Mapping Development: Leisure and Race in the Palm Springs Valley

The Coachella Valley, including Palm Springs, is one of the fastest growing regions in the country. My research focuses on how the racialized discourse of development is linked to the production of particular landscapes. It's an attempt to connect culture to the material production of space and place. The production of a place always requires a new cognitive map. One that sees beyond the landscape as it exists. It is a map of possibilities. A map of imagination that conjures up how the world could be. Part of that conjuring involves the creation of the social relations that need to exist in order for the map to come alive. Palm Springs developers have created a cognitive map that clears the way for a certain kind of development; one rooted in the needs of a leisure class. The map naturalizes the desert as a golf oasis. It makes the formation of a golf landscape all but an obvious choice for the desert geography. The expansion of a golf-based leisure economy and a middle-class housing market into the eastern Coachella Valley has gone hand-in-hand with the erasure of working class Mexicans from the landscape. This racialized discourse of development and progress is part of

creating a particular landscape; one that remakes a former agricultural, poor, Mexican space, into a place suitable for the mostly white leisure class. The discursive and material production of the Palm Springs Valley highlights how class and culture are invoked in the material production of space.

Keywords: development, urbanization, leisure, space, race, nature

Sarah de Leeuw, Queen's University. Email: 2lsnd@qmlink.queensu.ca; Needful Altruisms, Disingenuous Philanthropy: Colonial Constructions of Other and Self within the Intimate Geographies of 'Indian' Residential Schools in British Columbia, Canada

Although Canada has never been a colony of the United States of America, American boarding school policies pertaining to Aboriginal peoples nevertheless permeated Canada by forming the foundation of Canadian Indian residential schooling policy. The transference of American colonial policies into Canada, documented in Nicolas Flood Davin's 1879 Report on Industrial Schools for Indians and Half-Breeds, demonstrates the importance vested by colonial regimes in the intimate geographies of children and school rooms as sites through which to undertake the assimilation, civilizing, and acculturation of Indigenous 'others'. Consequently, a strong linkage exists between 1) American imperial conceptualizations and constructions of Indigenous peoples and 2) the manner in which Canada intervened into the lives of First Nations both through the production of small, intimate school geographies and through the subsequent confinement of First Nations children within those educational boundaries. Beginning with Davin's uptake of American boarding school policy, this paper explores colonial imaginings about Indigenous peoples, the subsequent materialization of those imaginings as school buildings and curricular mandates, and the ensuing efforts of colonial educators to inscribe their ideologies into and onto the minds and bodies of First Nations children. I conclude the paper by observing that the micro-geographies of residential schools were multifaceted places where, just as colonialism and empire grounded themselves and touched down, so too did Indigenous peoples touch and transform colonists and propagators of empire.

Keywords: Intimate geographies; First Nations and Indigenous peoples; Residential schools; Colonialism

Luc de Montigny, University of Washington. Email: ldem@u.washington.edu; How Injection Drug Users use Public Space: a Behavior Model

A significant number of injection drug users (IDUs) in the US and Canada have little or no access to private space, particularly for the acquisition and use of drugs. Because treatment options are often limited and the power of addiction very strong, such users rely heavily on public space: to raise money to buy drugs, and to buy and even inject drugs. These activities have negative effects—on the communities that host them and on IDUs themselves—that could be mitigated by public health programs. However, effective harm reduction efforts, for example the management of public injection and provision and disposal of injection equipment, require a better understanding of the spatial behavior of IDUs. Building on criminology, substance abuse, and geography literature, this paper develops a behavioral model to conceptualize the factors influencing the territories and spatial decisions of IDUs. Key factors in the model include personal characteristics and preferences, environmental knowledge and perception, territorial anchors, and actual choices sets and the characteristics of those spaces. The model has been developed for use in a larger study on the spatial and temporal distributions of discarded needles, and an assessment of safe disposal programs implemented in Montréal, Canada.

Keywords: Drugs, behavior, environmental perception and cognition

Miguel Diego de Oliver, Ph.D., University of Texas at San Antonio. Email: miguel.deoliver@utsa.edu; Democratic Imperialism: Keeping Perspective in the Era of Democracy's International Triumph

Acknowledging the historical and readily overlooked *raison d'être* of democracy is critical in the contemporary era of democratization. Despite popular fixation on its civic virtues, democracy has been historically linked to the institution of empire due to the fundamental acquisitive underpinnings that they both share. Given its elemental function as guarantor of individual possession for the common citizenry, the democratic state in the international arena serves as an acquisitive collective of private property. It is no surprise that the materially successful and, thus, stable democratic states that lead the world system are/have been favorably linked to the structure of imperialism. Any conception of an emerging era of democratic 'peace' must accommodate the coercive imperialism of old. Consequently, the growing democratization of the world system of polities of the late 20th century is the political rearticulation of autocratic imperialism within a democratic world order.

Keywords: Democracy, imperialism

Mark De Socio, The University of Akron. Email: desocio@uakron.edu; 'Creative cities' and urban regimes: An empirical inquiry

In recent years there has been renewed attention to the role of culture in the economic restructuring of cities in the United States and elsewhere. This 'cultural turn' in urban studies has taken shape most recently in the form of the 'creative cities' thesis. It is widely noted that the most successful of contemporary cities are economically anchored by cultural industries regarded as the vanguard of a "new new economy". A singularly prominent argument advanced by Richard Florida suggests that cities comprising particular mixes of economic activities deemed cultural or "creative" are today much better off economically and socially than cities with more traditional economic bases comprised mostly of manufacturing and/or services. Such 'creative' cities are regarded as having progressive political and social environments where tolerance of gay and lesbian lifestyles combine with a mix of cultural activities and a vibrant nightlife to establish creativity-inducing environments coveted by creative workers. This paper explores apparent links between Richard Florida's creative cities thesis and the middle-class progressive regime typology identified in urban regime theory (URT). Multiple cities identified as having middle-class progressive regimes are also identified as creative cities. This suggests that local economic structure plays a significant role in shaping the political character of urban regimes. Conversely, URT may inform Florida's thesis by offering a more nuanced view of urban politics. Municipal coalitions promoting supposed creativity-inducing urban spaces for purposes of economic development, for example, have nothing to do with progressivism as opportunities for low-income residents and/or neighborhoods.

Keywords: Creative cities, urban regime theory, economic development, urban politics

Christopher Anthony De Sousa, M.Sc.Pl., Ph.D., University Of Wisconsin - Milwaukee. Email: desousa@uwm.edu; Changshan Wu, Ph.D., University of Wisconsin, Milwaukee. Email: cswu@uwm.edu; *Assessing the impact of brownfields redevelopment on residential property values and real estate conditions*

Over the last decade, the redevelopment of urban brownfields has gained widespread support in the US as it is considered an important element for fostering more sustainable development. The focus of brownfields efforts has, thus far, been largely on industrial and commercial redevelopment that garners "jobs and taxes" directly, while other uses such as green space and housing are perceived as less desirable because little is known about their direct and indirect monetary implications. This research project measures and compares the impact of different forms of brownfields redevelopment (green space, industrial, office, retail, and residential) on nearby residential property values and real estate conditions in Milwaukee and Minneapolis. The research approach incorporates both quantitative and qualitative methods. That is, a hedonic method is used to quantify nearby property value effects accruing from brownfield redevelopment projects (pre- and post-redevelopment), while interviews with relevant public and private sector stakeholders are used to gather information on the perceived impacts to local real estate conditions. The impact of different features of brownfield redevelopment projects (e.g., project size, project value, public funding, location) on surrounding property values is also examined. In all, the research adds to a small, but important, body of literature in this field and will help policy makers and other stakeholders better understand the nature and scope of the aggregate benefits ensuing from alternative forms of brownfields reuse.

Keywords: brownfields, hedonic model, development, sustainability

Leith A. Deacon, University of Western Ontario. Email: leitha@uwo.ca; Jamie Baxter, Ph.D, University of Western Ontario. Email: jbaxter6@uwo.ca; *Environmental Equity Discourses in Canada*

While a substantial amount of environmental inequity research concerns American experiences (Paulido, 1996; Anderton 1994, Mohai and Bryant 1992, United Church of Christ 1987), research from a Canadian viewpoint is far less developed (Jerrett 1997, Jerrett 2001). In this paper, we conduct a content analysis that examines the environmental inequities in Canada as reported by the two national daily newspapers (The National Post and The Globe and Mail). Key words and phrases (e.g. environment, justice, equity, perception, discourse, pollution) are used to construct a thematic illustration of injustice as one method to identify 'inequity hotspots' in Canada, but more generally to build discourses of inequity that possibly crosscut regions. Both will help with larger objectives which include examining the perception, meaning, and everyday experience of pollution hazard exposure to residents in inequity hotspot communities. Recent federal policy has moved to support strong, fair and sustainable places and the implications of these findings on such federal policies will be discussed.

Keywords: environmental justice, environmental equity, perception

Richard Deal, Edinboro University of Pennsylvania. Email: rdeal@edinboro.edu; *The Effects of the 2006 Independence Referendum on Tokelau*

Tokelau, a dependency of New Zealand comprised of three atolls with a combined population of 1500, has seen numerous changes in its governance over the past 40 years, as the island's traditional political and economic systems have adopted many Western features. In February 2006, a referendum on independence in free-association with New Zealand was rejected by voters in the country. This paper briefly examines the changes in governance since the 1960's, with particular reference to the New Zealand policy of preparing Tokelau for eventual independence. Next, the proposed constitution and the potential impacts of this document will be analyzed. The results of the election will then be studied, with individual's reasons for voting for or against independence being analyzed. Finally, conclusions will then be drawn about the results of the referendum on the governance of the islands.

Keywords: political geography, Pacific Islands

Denis J. Dean, Ph.D, Colorado State University. Email: denis@cnr.colostate.edu; *A Comparison of Genetic Programming and Linear Discriminant Analysis Techniques to Recreate Expertly Identified Natural Hazard Zones*

This study compares the accuracy of two alternative techniques to recreate maps showing landslide hazard ratings. The original maps were created by experts who subjectively evaluated landslide hazards using both field observations and mapped data. We evaluated two alternative techniques to recreate this map based on digital cartographic data. The first technique used a linear discriminant analysis (LDA) approach while the second used genetic programming (GP). In three of the four cases evaluated, the GP approach did a better job of replicating the expert's hazard ratings than the LDA model. Furthermore, even in the remaining case, the LDA model only outperformed the GP model by a small amount. However, the GP model's final performance were found to be highly sensitive to a number of model development parameters. Issues regarding the development of GP-based spatial models are discussed.

Keywords: GIS, Artificial intelligence, Landslides

Brad Dearden, University of Maine Farmington. Email: brad.dearden@maine.edu; *A Test of Demographic Transformation as an Explanation for Internal Migration Trends in Western Germany, 1991-1997*

In the 1970s the United States and several European nations experienced counterurbanization, a regional deconcentration of the population. This pattern constituted a "turnaround" from traditional processes of urbanization. Many developed nations that experienced the turnaround of the 1970s then underwent a "turn-back-around" in the 1980s as population concentration tendencies resumed. During the 1990s developed countries exhibited patterns of concentration and deconcentration. Migration tendencies in West Germany in the 1970s and 1980s were similar to those experienced by other developed countries. Research on western Germany during the early-to-mid-1990s suggests a 'new turnaround' occurred, a resumption of migration trends that favored intermediate- and small-sized regions. This study examines the 'demographic transformation' hypothesis as a possible explanation for trends in western Germany's internal migration and employment for the 1991-1997 post-unification period. Demographic transformation assesses the lead-lag relationship between regional migration change and employment change, where the former leads the latter; as such, it has also been dubbed a process of 'jobs follow people'. The demographic transformation hypothesis also maintains that individuals frequently exercise preference for and migrate to low-density rural areas that are environmentally attractive. This research employs demographic shift-share analysis and a multivariate statistical model to test the demographic transformation hypothesis in western Germany for 1991-1997, a period when internal migration favored small regions over large and intermediate ones.

Keywords: migration - internal, demographic transformation, western Germany

Debjani Deb, Purdue University. Email: ddeb@purdue.edu; *Estimating Environmental Exposure to Livestock Hormones Using Spatial Data Analysis and Geographic Information Systems*

Steroid hormones are constantly being produced and excreted by animals into the environment and consist of both naturally produced ones and those which are used for growth promotion and reproductive control. Intensive livestock operations generate livestock manure containing appreciable amount of hormones which can potentially contaminate surface and groundwater resources. The presence of hormones in surface and subsurface waters is a concern because these contaminants are thought to cause significant biological responses at concentrations as low as 10-100 ng/L. These contaminants may reach the state and nation's waters through surface runoff or by sub-surface leaching. Drinking water plants downstream of such water sources may be drawing water contami-

nated with trace levels of hormones and their metabolites (by-products) which are unlikely to be removed by conventional drinking water treatment. Understanding the environmental fate and toxicological behavior of these agro contaminants is essential in order to address concerns regarding potential adverse impacts of these compounds on the environment and human health and to design appropriate abatement strategies. The NAPRA WWW system has been adapted to model and estimate hormone losses to water. Livestock hormone loss probability maps for Indiana at 5%, 10%, 25%, and 50% values were created to demonstrate potential water quality impacts when livestock manure is applied to cropland at agronomic rates. This will help in appropriate and responsible decision making that impact agricultural operations and practices.

Keywords: Spatial Data Analysis, NAPRA WWW, Water Quality, GIS

Keith Debbage, University of North Carolina - Greensboro. Email: kgedbbag@uncg.edu; Zhi-Jun Liu, UNC at Greensboro. Email: z_liu@uncg.edu; Locational determinants of major US air passenger markets by metropolitan area

An improved understanding of the geography of large air passenger markets is of critical importance for predicting growth and decline in the US airlines industry in the years ahead. In this study, we seek to reveal some of the most influential metropolitan characteristics in determining the locations of FAA-defined major air traffic markets in the United States. This study shows that in general the likelihood of a major air passenger market locating in any given metropolitan area (MA) is primarily determined by the MA's population size and overall propensity for air travel. On average, a major air passenger market has over 3 million people while minor markets have a population base of about 760,000. The propensity of a population to fly is a function of a number of social and economic indicators, including employment in certain sectors, such as information technology, professional/management, and finance, insurance and real estate. On average, major markets have a significantly higher percentage of the MA's total workforce in these three sectors than do less significant passenger markets. The employment in the professional/management sector appears to be the most significant indicator of a MA population's propensity for air travel. Secondary factors, such as weather-related events, play a role only when the primary factors reach certain critical levels.

Keywords: Air passenger markets; airlines; logistic regression analysis; metropolitan areas

Anne-Marie Debbané, Department of Geography, York University. Email: amd@yorku.ca; Fertile Fields: Power, water, and agrarian change in the Western Cape, South Africa

In 1998, the South African government passed new water legislation that fundamentally transformed and neoliberalized the regulatory architecture governing water resources. On the one hand, water resources have been nationalized, giving the state greater control over the allocation of water resources and signaling a radical departure away from riparian ownership of water. On the other, the emphasis on fiscal discipline and water use efficiency has strengthened the role of market mechanisms and the private sector in water management decisions. This paper draws on political ecology to situate South Africa's water reforms in the context of a historically racialized and uneven waterscape and of contemporary processes of agrarian change. Focusing on the Ceres valley, the heart of the country's deciduous fruit production, I examine the significance of water's geography in the unfolding waterscape. In particular, I look at how anxieties over diminishing water supplies prompted white commercial farmers to initiate land reform deals with black farmers as a means to secure state support for the development of new water resources. What emerges is a complex multiscaled political process that reconfigures state-nature-society relationships and reinforces understandings of the neoliberalization of water as a heterogeneous, transient, and deeply contested project.

Keywords: political ecology, water resources, South Africa, agrarian change

Wendy Michelle DeBoard, Indiana University Purdue University Indianapolis. Email: wdeboard@iupui.edu; Spectral and Spatial Enhancements in Urban Tree Canopy Classification

Urban tree canopies are increasingly recognized for their importance in the health and vitality of cities. Trees contribute to quality of urban life by providing improved environmental health, reduced noise, and enhanced aesthetics, among a host of additional benefits. As development continues to expand, it is important to monitor the relationship between growth and natural resource systems such as the urban tree canopy. Remote sensing technology has been an important tool in urban tree canopy evaluation and can be used to develop data on canopy extent and its changes over time. Recent improvements in spaceborne remote sensing systems offer promising advancements in the ability to measure and monitor urban tree canopies. Commercial satellite systems such as DigitalGlobe's QuickBird sensor provide multispectral spaceborne imagery with enhanced spatial and temporal resolutions. Historically, researchers have used various methods of

classification to estimate tree canopy coverage from aerial photographs and moderate resolution satellite imagery. However, further research is needed on the most appropriate methods of mapping urban tree canopy with higher resolution satellite imagery. The purpose of my research is to analyze the utility of including spectral and spatial enhancements in the urban tree classification process. The goal is to determine what contributions these enhancements can make in mapping urban tree canopy cover. This information can then be used to monitor the spatial and temporal trends of urban tree canopy which are likely to have a significant impact on resource management.

Keywords: QuickBird, classification, urban tree canopy, urban forestry

Lisa M. DeChano, Western Michigan University. Email: lisa.dechano@wmich.edu; Natural Hazards, Newspapers, and Perceptions: A Content Analysis and What Can Be Learned

Newspapers are an important source of information about natural hazard events locally and around the world. Because of easy access to newspapers, it is a basis for information regarding natural hazard events and subsequent possible effects on perceptions of hazards. The nature of newspaper articles tends towards human interest rather than scientific information. Therefore, not all of the pertinent information is presented to make the reader well informed about all aspects of a particular event, thus skewing their perception of the event. This paper investigates articles in several newspapers to analyze the human and physical geography included regarding specific natural hazard events. Other information noted are the dates of the articles, the types of articles (news, regional, news, opinion/editorial, etc.), and people quoted in the articles (local residents, meteorologist, USGS personnel, geographers, etc.) Those data are important in how people's perceptions of natural hazard events evolve based on the information presented in newspaper articles. The analysis also provides insight into whether geographers could contribute more to newspaper print media and the content which the contributions could present.

Keywords: natural hazards, newspaper, content analysis

Jody F. Decker, Associate Professor, Wilfrid Laurier University. Email: jdecker@wlu.ca; Concepts of Health, Disease and Illness and their Implications for Health Geographies

This paper will explore where our ideas come from that capture the different aspects of ill health, how they have evolved, as evidenced, in part, from a ten year empirical study of student responses to a 'disease game', and their implications for data comparability, cross-cultural studies, ethical considerations and notions of place.

Keywords: disease concepts, geographies of health

Juan Declet-Barreto, School of Geographical Sciences, Arizona State University. Email: reguerete@gmail.com; People's Vulnerability to Technological Hazards in México-United States Border Cities: the Case of Ambos Nogales

Environmental changes due to economic and urban development are rapidly impacting human-environment systems on a global scale. Industrial development, mass migration, and transnational capital flows are reshaping the economic and urban landscapes of many regions across the globe, but especially those of developing countries. Developing countries often lack the physical and institutional infrastructure necessary to successfully accommodate rapid population growth and the environmental impacts on the air, water, ground and people brought about by industrial and urban development. People and places along the México-United States border region increasingly experience social and environmental stresses associated with rapid industrialization and urban settlement. The proliferation of industrial manufacturing along the border brings with it toxic materials, chemicals and wastes that are discarded in?and transported through?dense residential corridors of the region. Increased cross-border trade and industrial activities in the border following the implementation of NAFTA create socio-environmental conditions that interact to render people and places vulnerable to technological hazards. The effects of these conditions on either side of the border, are, however, highly differentiated. The administrative boundary between the two countries effectively serves as a dividing line between people who are vulnerable to hazardous industrial activities, and those who possess the material and informational resources to minimize their vulnerability. This paper uncovers vulnerability to technological hazards in Ambos Nogales, a binational border community. It combines a GIS-based assessment of exposure, resilience, and adaptive capacity of residents with a local stakeholder-informed narrative of the role of NAFTA in increasing vulnerability along the border.

Keywords: Ambos Nogales, vulnerability, technological hazards, U.S.-Mexico border

Elias J Deeb, University of Utah. Email: elias.deeb@geog.utah.edu;
Richard R Forster, University of Utah. Email:
rck.forster@geog.utah.edu; *Time Series of Snow Water Equivalent (SWE)*
Evolution Derived Using Radar Remote Sensing

Radar remote sensing and interferometry have a unique ability to differentiate between different snowpack conditions (i.e. wetness, surface roughness, ice layers, and grain size). Previous research has shown a relationship between interferometric phase of a radar signal and changes in snow water equivalent (SWE) for dry snow. A near-daily time series of SWE evolution is constructed for an Arctic Alaskan snowpack (Kuparuk Watershed, Brooks Range, Alaska) in March of 1994. Despite having no direct SWE measurements within the study area, data from meteorological stations (e.g. temperature, wind speed/direction, and precipitation) are used to interpret the spatial variation of the change in SWE maps over 3-day periods. A significant precipitation event is recorded within the time series and compared to a time period depicting little to no snow as precipitation. Promising results within this study area have deemed the need for additional research sites in the Western United States where (1) the repeat interval of a satellite brackets a precipitation event and (2) meteorological stations (e.g. SNOTEL sites) exist directly measuring SWE.

Keywords: snow, SWE, radar remote sensing, InSAR, cryosphere

James DeFilippis, Baruch College, CUNY. Email:
James_DeFilippis@baruch.cuny.edu; Siobhan McGrath, University of
Manchester. Email: siobhannigrath@yahoo.com; *Immigration, the State,*
and Domestic Labor in the Neo-Liberal City

In this paper, we examine domestic work and child care in urban labor markets in the US, with particular emphasis on the organization of the industries of domestic work and publicly subsidized child care in New York City, and the experiences of employees in those worksites. Domestic work and child care, in our study, includes several different occupations and organizations of work processes. These include: live-in workers who provide both child care and housekeeping services; live-out full-time child care providers (who sometimes also do housekeeping); live-out part time domestic workers (who maybe regular, though not full time, child care providers, or housekeepers) and; child care providers who are paid by the government as part of the child care subsidies associated with welfare reform. In this paper we demonstrate that there continues to be a persistent and willful exclusion of this work from regulation, as well as systematic violations of the regulations which do, de jure if not de facto, govern the work. It should be noted that the workers paid by the government are not exempt from this finding, but fit very clearly into this larger pattern. This illustrates the problematic transformation of domestic space, and communities more broadly, into spaces of wage labor in American cities. It further serves as a powerful re-assertion of the denial of the value of "women's work."

Keywords: informal economy, domestic work, welfare state restructuring

Joel Ian Deichmann, Bentley College. Email: jdeichmann@bentley.edu;
A Spatial and Temporal Analysis of International Students in the USA: Compar-
ing Bentley to National Trends

This paper examines patterns in the origins of international students at Bentley, a Boston-area business-focused educational institution, and relates them to national trends through 2006 as reported by the Institute of International Education. Like other universities and colleges, Bentley has embraced internationalization as a key strategic domain, deliberately expanding its stature overseas in the face of challenging international circumstances during recent years. In examining temporal trends, special attention is paid to the impacts of international conflict and security issues, heightened visa restrictions on international students, and an eroding US image abroad.

Keywords: international education, study abroad, international students

Stephanie Deitrick, Arizona State University. Email:
stephanie.deitrick@asu.edu; *Altering Map Quality for Uncertainty Represen-*
tation

The successful application of visualization tools can facilitate access to complex data, however, there is also the chance for misunderstanding the accuracy or validity of the underlying data and the relationships represented. The techniques and technologies that are the foundation for many successful visualization environments often may give credibility to the data than is not warranted. In situations where visualization is used as a means to support decision making, this may lead to less than optimal decisions, at best. This paper summarizes the results of a human subjects experiment conducted to ascertain whether the quality of map design influences how users interpret maps and data when used for decision making. Specifically, this paper evaluates whether users view poorly designed maps as less credible and more uncertain than well-designed maps. In addition, this paper evaluates whether presenting uncertain information using poorly designed maps counter-intuitively results in users becoming more aware of the uncertainty inherent in the data, resulting in different conclusions

and decisions.

Keywords: uncertainty, cartography, map, visualization

Vincent J. Del Casino, California State University, Long Beach. Email:
vdelcasi@csulb.edu; *Sex, Drugs, and the Sexuo-Spatial Politics of HIV*
Prevention in the U.S.

Geographers have intermittently addressed the complex spatialities of the HIV/AIDS epidemic over the past 25 years. In that time, they have mapped the spatial distributions and diffusions of the epidemic, examined the complex socio-spatial politics of living with HIV and AIDS, and interrogated the discursive and material practices of HIV education and outreach programs. Despite this, geographers remain, for the most part, on the margins of the larger discussion of the historical and quotidian geographies that mark this particular disease and syndrome. The limited engagement of geographers with the HIV/AIDS epidemic is due, in part, to the discipline's myopic understandings of both sexual practices and identities. This lacuna is further complicated by the discipline's minimal interest in the practices associated with various 'legal' and 'illegal' drugs. If the discipline of geography is to become 'relevant' to the broader HIV/AIDS research and activist communities, it must continue to engage with the larger scholarly and activist debates regarding sex, sexuality, and drug use. This paper serves as both a call to take up these concerns and offers one empirical example of how geographers might better engage in these broader discussions through an investigation of HIV-related risk and drug use among self-identified gay and bisexual men in Southern California. In conclusion, this paper suggests how geography might become more 'relevant' not only to the academic community of HIV/AIDS researchers but also to the activists communities that try to mitigate against the spread of HIV transmission on a daily basis.

Keywords: HIV/AIDS, queer geographies, drug use, sex/sexuality

Kate Julia Del Vecchio, Student, Clark University HERO. Email:
kdvecchio@clarku.edu; *The effects of land development on water use, social*
integration and sense of community in Ipswich, Massachusetts.

Residential development is one of the leading causes of anthropogenic landscape transformation in the United States. There are a variety of environmental and social impacts associated with this process, particularly when the transformation assumes a low-density, or "sprawl"-like form. One such impact is the increasing frequency and duration of residential water-use restrictions ("suburban drought"). Low-density development is the likely underlying cause of these problems, as precipitation has been above average during this time period. Another impact is a homogenized human landscape, which is associated with a failure to successfully promote the development of affordable housing. In the Boston metropolitan area, both of these impacts have become evident in recent years. The purpose of this research, focused on the metropolitan Boston town of Ipswich, Massachusetts, is to identify 1) how development patterns have affected household water use, and 2) how development patterns have affected socio-economic integration and traditional neighborhood design in Ipswich. Household-level water consumption data, along with measurements of social diversity, integration, neighborhood design for high and low-density residential developments will be compared. Methods for data collection include neighborhood tours, interviews, and census data. The results of this work should therefore inform water and land-use planning in growing metropolitan areas throughout the United States, thereby hopefully leading to more efficient natural resource use and more socially sensitive residential design.

Keywords: land use, development patterns, diversity, integration, residential water use

James M Delaney, University of Toronto, Department of Geography and
Program in Planning. Email: j.delaney@utoronto.ca; *In Hock to the*
American Empire? Economic Subjectivities and the Local Politics of
Microfinance in Vietnam

Marxist studies of imperialism have long focussed on the role that global finance plays in the reproduction of capital in the West through exploitation of the global South. While recent cultural studies of imperialism have pointed towards the nuanced micro- technologies that are used to cement international systems of power, there has been relatively little thought given to the role that local financial systems play in American imperialism. Drawing on governmentality literature, I explore how microfinance programs have been employed as a technology of government, and how the various practices that constitute recent shifts in rural banking create new forms of economic subjectification within increasingly neoliberal rule. First, I examine how the discourse of the international microfinance movement, based primarily in Washington DC, has been designed with a target of forming poor, liberal subjects that are at once self-reliant and cooperative. Second, I explore how microfinance programs have played out in rural Vietnam, with a focus on how the historical shift to and from socialism has crafted and recrafted rural economic subjects through the extension and control of local financial markets. Finally, drawing on

ethnographic work in two villages, I examine how competing visions of the rural economic subject manifest within the local politics of contemporary Vietnamese microfinance programs. I close with an exploration of this contested notion of the economic subject and reflect on the naturally incomplete and fragile nature of American empire.

Keywords: Vietnam, Governmentality, Finance, Microfinance, Imperialism

Zack DeLaune, Louisiana State University. Email: jdelau1@lsu.edu; *Unwelcome New Neighbors? The Industrialization of Lake Charles, Louisiana, 1940-1960*

This paper focuses on the industrialization of Lake Charles, Louisiana during World War Two and the resulting shifts in pollution-related policy and public perceptions of pollution. A major impetus for the industrialization of the South was federal investment during the war. This is especially true for Lake Charles, a city where industrial agglomeration began with war-time financing of manufacturing plants to combat the shortages of aviation fuel and rubber. By tracing the public response to offensive pollution and the resulting shift in public policy, this paper will reveal a fundamental conflict between development-minded government institutions and a population interested in protecting natural resources.

Keywords: industry, refinery, petroleum, Louisiana, pollution, Lake Charles, industrial waste

Irene Delgado-Fernandez, University of Guelph. Email: idelgado@uoguelph.ca; Robin Davidson-Arnott, University of Guelph. Email: rdarnott@uoguelph.ca; *Vertical Distribution of Aeolian Sand Transport on Beaches*

Sand transport studies indicate that, among the three processes of wind blown sand drift, saltation is the principal mode of movement, representing three quarters of the transport. The total distribution of transport rates is a function of height. Our understanding of vertical flux profiles thanks to wind tunnel studies is improving, and we know that the sand flux over a sandy surface increases with height in the very near surface layer, but then decays exponentially. Several theoretical models of saltation have been published, in particular on the higher portion of the sand trajectory, but none of them have proven to be applicable at a wide range of sites. We do not have much data on field measurements of the distribution of transport with height above the bed. More experimental work is needed if we are to refine our predictions of total sediment transport rates. This study reports on the results of the measurement of vertical aeolian transport in the field. We analyze the temporal and spatial variability of the saltating cloud over several wind events, along the line of the main wind direction. A tower of Saffires, properly calibrated and distributed at specific heights, is located at different points on the beach. The data is combined with the measurements of total sand transport and wind characteristics. Results allow us to critically assess the measurements of saltating grains taken with Saffires, and the convenience of locating them at certain heights in order to obtain a better representation of the saltating cloud.

Keywords: saltation, field study, aeolian transport, flux profile

Tracy L. DeLiberty, University of Delaware. Email: tracyd@udel.edu; *Sea Ice Thickness and Mass Balance in the Southern Ocean*

Changes in the sea ice cover due to climate change will manifest as increases or decreases in ice extent, concentration and/or thickness affecting the mass balance of sea ice in a given area. Recent results from the Arctic indicate a substantial reduction in both sea ice thickness and extent over the past several decades, while trends in the Antarctic are ambiguous. Thickness information is only available from ship observations that do not provide large-scale spatial coverage and temporal sampling. A potential data source providing continental coverage is the US National Ice Center (NIC) weekly ice charts. An evaluation is performed of the weekly ice chart dataset with in situ sea-ice thickness observations from the ASPECT (Antarctic Sea Ice Processes and Climate) program during the 1995 to 1998 time period to ascertain the ice chart quality for use in monitoring sea-ice thickness and mass balance changes in the Southern Ocean. This evaluation will be emphasized in the presentation. A climatology dataset is developed for monitoring sea-ice thickness and mass balance changes. Using the NIC charts, the sea-ice extent, seasonal and interannual thickness distribution, and the mass balance are derived. Analysis of the NIC sea-ice extent in the Ross Sea, for example, in June 1995 and 1998 reveals differences in spatial extent with an increase northward towards the maximum extent in September. Analysis of this type is underway for the 4-year time period and for the other regional seas in the Southern Ocean.

Keywords: sea ice, Southern Ocean

Françoise Delisle, INRS. Email: francoise_delisle@hotmail.com; Shearmur Richard, INRS. Email: richard.shearmur@ucs.inrs.ca; *Human Capital Migration and Regional Income Differentials: Do Regional Income Levels in Canada Affect Internal Migration Flows?*

In this study we propose to explore whether migration flows of 'human capital' tend to respond to differences in regional income levels and in differences in the local presence of cultural industries using a gravity model. To the extent that they respond to differences in initial income levels this will corroborate the 'traditional' theory (that human capital migrates towards higher incomes) and will tend to undermine the Florida thesis (who argues that they generate income differences). To the extent that the flows respond to differences in cultural endowment, this will tend to support Florida's thesis. Studying flows across 382 Canadian spatial units covering the entire territory, we apply the gravity model to university degree holders (whom we assume to embody higher levels of 'human capital') and to non-degree holders (whom we assume to embody lower levels of human capital). We then introduce variables that measure differences in mean income between origins and destinations, and differences in 'cultural' endowment. We expect to provide answers to the following questions: - do migration flows still respond to differences in regional income levels (given that there exists a correlation between income levels and urban size)? - do migration flows respond to differences in cultural endowment? - do migration flows respond more strongly to the presence of other industries? - do the results differ depending on whether graduates or non-graduates are examined? - do migration flows respond more strongly to initial (t) or to final (t+1) income differences?

Keywords: migration; economic geography; human capital; Canada

Veronica Della Dora, UCLA. Email: veroniki@ucla.edu; *Circulating Landscapes and 3-D Maps: Towards a Phenomenology of Historical Spatial Representations*

Materiality and performance have recently attracted increasing scholarly interest. Challenging traditional 'textual' readings, some cultural geographers have started to approach physical landscape via a revisited phenomenology and everyday embodied practices. Landscape in the sense of pictorial representation, on the other hand, has remained pretty much out of such debates. Privileged 'spatial windows' on different historical periods, landscape paintings, maps, and other graphic spatial representations generally continue to be appreciated for what they 'show', rather than for what they 'are'; as 'fixed' bi-dimensional visual representations to be gazed and interpreted, rather than three-dimensional artefacts moving across space and time and interacting with the subject both physically and emotionally. Informed by ideas of performance and circulation, as well as by recent explorations of images as material objects in cultural studies, I suggest a re-conceptualization of historical maps and landscape representations as three-dimensional travelling objects that are at once visual and material. Looking at a historical image on a computer screen is profoundly different from looking at the same image as a print pasted in an album. This is equally true for 1930s yellowed postcards and foldable street maps piled on a dusty flea market table, but also for 19th-century alabaster peep-eggs embedding exotic sceneries, or chorographic maps painted on the doors of a Renaissance wooden cupboard. Medium is not a neutral support for spatial images: it is rather a constitutive property, conditioning their 'social' and 'affective lives' and circulation, and therefore the circulation of place itself in popular geographical and historical imagination.

Keywords: Landscape; Maps; Non-representational theory; materiality

Eric Delmelle, University of Idaho. Email: delmelle@uidaho.edu; Alan Murray, The Ohio State University. Email: murray.308@osu.edu; *Spatial Sampling and Location Modeling*

Spatial sampling exhibit an interesting analogy with a specific class of location problems known as dispersion models. In an initial sampling stage, measurements are generally spread out across the study area to capture the global variation of the variable of interest. Collecting measurements at two nearby locations is not helpful unless they exhibit co-variation. Dispersion models, in the context of spatial sampling, seek to maximize the minimum separation between any pair of samples. At issue is the correspondence between spatial sampling optimization and optimal dispersion of sample sites. This paper will explore the similarities and differences between these two spatial analytical approaches.

Keywords: Spatial sampling, Dispersion model, Non-linearity, Kriging, Optimization

Alan M Delmerico, MA, Center for Health and Social Research; University at Buffalo Department of Geography. Email: delmeram@buffalostate.edu; William F Wiczorek, PhD, Director, Center for Health and Social Research. Email: wiczowf@buffalostate.edu; Ten Year Differences in Alcohol Availability in Erie County, New York

The purpose of this study is to assess alcohol availability in Erie County, New York between 1995 and 2005. Alcohol availability is a primary correlate of a variety of negative health outcomes such as DWI arrests and accidents, domestic violence, and illicit drug use. Where previous studies have primarily explored spatial and cross-sectional aspects of alcohol availability, this study will examine the dynamic evolution of access to alcohol over time. Ten years of alcohol outlet data will be obtained from the New York State Liquor Authority and will be geocoded in a GIS using New York State ALIS Street layers. The data will be used as points and will then be aggregated to a variety of sub-county census units to explore the changes in alcohol availability over time. Additionally, the data will be segregated by outlet type (on and off-premise) in order to explore their differences in space and time. Patterns of spatio-temporal changes in alcohol availability over the course of the ten year study period will be examined and evaluated with particular attention paid to the influence of aggregation to the various areal units. Innovative visualization methods will then be employed to depict these changes over time.

Keywords: Alcohol-availability, health, GIS

Dydia DeLyser, Louisiana State University. Email: dydia@lsu.edu; "Flight is the essence of the spirit." Gender and mobilities among early women aviators.

Reflecting upon her career as a record-setting pilot during the 1920s and '30s, Louise Thaden observed that, "Being? a woman pilot had tremendous built-in disadvantages. Basically we were usurpers in a man's exclusive world. The penalties were severe? [But t]here were also advantages. Women pilots were oddities and therefore? more 'newsworthy' than were the male counterparts.? [Still,] over the earlier years the public seemed to have the impression that the entirety of us were tramps." Despite, or perhaps because of these obstacles, during the 1920s and '30s Thaden became one of the most famous pilots of the era: she held international records for speed, endurance, and altitude, she won the first Women's Air Derby in 1929, and in 1936 she became the first woman to win the Bendix Transcontinental Air Race. Thaden's description of her achievements points to what she accomplished, but also to the interconnected issues of gender and mobility faced by women pilots like Thaden: despite winning races, she was still called a "tramp;" and for her achievements she was seen as a usurper of something that could, or should be done by a man. This paper explores the ways pilots like Thaden used both their gender and their mobilities in complex socio-spatial situations.

Keywords: gender, mobilities, aviators

Michael N. DeMers, Ph.D., New Mexico State University. Email: mdemers@nmsu.edu; The Geomorphological Basis for Ecosystem Mapping: Lessons from the Chihuahuan Desert

A common method of ecosystem mapping involves the classification of vegetation communities directly from satellite remote sensor data. While the recent experiences of the gap analysis program (GAP) have shown the utility of this approach in many parts of the United States, a similar level of success has proven elusive in desert grassland environments. This paper outlines an alternative approach in ecosystems where vegetation is patchy, exposing large amounts of soil background to the satellite sensor. I demonstrate how visual interpretation of band ratioed Landsat TM imagery to classify landforms can indirectly derive the ecosystems with substantially more accuracy than direct satellite classification. By employing ecological niche theory in the Chihuahuan Desert of New Mexico we derived a reliable triage-level ecosystem mapping suitable for rangeland managers in arid grassland environments.

Keywords: ecosystem mapping, ecosystem management

Ali Demirci, Fatih University. Email: ademirci@fatih.edu.tr; Will Geography Education Make a Giant Leap in Turkey? Development, Implementation and Assessment of the New Secondary School Geography Curriculum

The secondary school geography curriculum in Turkey was dramatically altered in 2005 with the intent of creating a geography curriculum which would be more student centered, activity based and skill development oriented. In contrast to the previous curriculums, this new curriculum revolves around standards which detail the particular skills and knowledge that students should acquire at each grade level. The development of this new curriculum has caused concern among educators and students but has also initiated a debate on the problems in implementing and the usability of the curriculum. Some preliminary impressions among geography teachers are that the new curriculum is very difficult to understand and there is an absence of teacher resources and textbooks. Acerbating the new curriculum's problems are insufficient physical conditions of

schools and classrooms and the lack of interest of school administrators and the implementation of the new curriculum. These barriers have already forced many teachers to return to the previous geography curriculum in their classes. To ascertain the specifics of some their problems with the curriculum and the methods they are using to overcome these difficulties, the author surveyed geography teachers at different schools with the primary objective being to understand the effectiveness of this new curriculum in meeting the needs of geography education. The paper will first introduce the development and implementation of the new secondary school geography curriculum in Turkey and then present the findings of the survey with emphasis on the effectiveness of the new curriculum over the last year.

Keywords: geography education, curriculum development, secondary schools, Turkey

George J. Demko, Dartmouth College. Email: demko@dartmouth.edu; Killian P Ying, California State University, Los Angeles. Email: kying@calstatela.edu; Joan F Ying, Southern California Permanente Medical Group, Kern County. Email: joan.f.ying@kp.org; Breast Cancer: A Geographic Perspective

Breast cancer is the leading form of malignance for women around the world and, although technology for detection has improved, it has done so differentially over space. This study focuses on a number of spatial/geographic questions regarding the incidence and mortality rate of breast cancer as well as some treatment options, primarily in the United States. In the United States 40,000 women die each year from breast cancer - the leading form of cancer in women after skin cancer. The lowest incidence rate internationally is found in Asia at about 27 per 100,000 women and the highest in among U.S. women at 97 per 100,000. In the United States the highest rate is found in the northern states with significant clusters. This study will focus primarily on three issues: (1) The spatial patterns of breast cancer incidence and mortality in the United States, (2) an exploration of various theories in explaining race and ethnicity and breast cancer risk, and (3) rural vs. urban locations and treatment options (lumpectomy vs. mastectomy). Maps of breast cancer incidence and mortality in the United States will be examined for spatial patterns, and data for international comparison will be provided. In addition, the issue of women's migration to the United States, particularly Asian women, and breast cancer rates will be discussed and explained.

Keywords: medical geography, breast cancer, United States

Jessica Anne Dempsey, University of British Columbia. Email: jdempsey@interchange.ubc.ca; Tracking grizzly bears through environmental struggles in British Columbia

Traditional analyses of environmental politics in British Columbia, Canada have tended to characterize struggles as occurring between stakeholders, institutions or 'interests' like First Nations, environmentalists, industry and the state who each mobilize and draw from various kinds of information and 'facts' in their advocacy efforts. This approach leaves humans as the sole agents in environmental politics and science as a resource simply used in political struggles. Differently, in Rule of Experts Timothy Mitchell re-works agency as something not flowing from human autonomy or purpose, but something made through connections or encounters among humans and non-humans. Inspired by this approach, this paper traces the agency of the coastal grizzly bear within environmental politics as it becomes co-joined with various human and non-human entities such as field biologists, tracking devices, Geographic Information Systems, ecological models, environmental activists, and Home Depot. I focus on how the coastal grizzly bear becomes entangled in new forms of spatial calculation through mapping technologies and Conservation Areas Design, which help identify and map preferred habitat areas over a large region. The grizzly bear becomes increasingly powerful through this mapping, connecting with environmentalists and Home Depot buyers, and eventually links up with and transforms the political economy of forestry and the forest itself, opening some political avenues for social change on the coast and sharply closing others.

Keywords: British Columbia, grizzly bears, environmental politics, conservation planning, market campaigns

Kara E Dempsey, University of Wisconsin-Madison. Email: kedempsey@wisc.edu; Performance, monuments and identities: Spanish-Galician regional tensions

The purpose of this paper is to explore how enactments that take place within monuments or the spaces surrounding them may be used to examine contemporary regional identities in Europe. More specifically, the paper focuses on how landscapes are "stages" on which the efforts to manipulate or influence a community are openly performed and contested. The formal and informal performative activities that take place within these sites as well as the reactions and sentiments of those who visit and use these facilities can be useful barometers of the direction of social and cultural change. The comparison of the Cathedral

and the Cidade da Cultura monuments in Galicia, Spain offers a unique opportunity to explore and gain a better understanding of the tensions and divisions regarding identity, power and meaning that currently exist within Galicia. Since its construction, the Cathedral has been the structure on which official Galician performances and annual celebrations take place. But the new Cidade da Cultura complex proposes to create spaces for the formal and informal public performance of Galician culture and identity in an attempt to both modernize and solidify a “unified vision” for the region. The paper ultimately seeks to investigate regional identity formation and contestation by revealing the connection between the use of built environment and the larger political facets of European regionalism, culture, and identity.

Keywords: regional and cultural identities, performance, Spain, political and cultural geography

Julie Demuth, National Center for Atmospheric Research. Email: jdemuth@ucar.edu; Rebecca Morss, National Center for Atmospheric Research. Email: ; Jeff Lazo, National Center for Atmospheric Research. Email: ; Alan Stewart, University of Georgia. Email: ; *Assessing People's Understanding of, Use of, and Preferences for Weather Forecast Uncertainty Information*

In the past few years, there has been increasing attention within the meteorological community to the provision of uncertainty information in weather forecasts. This growing interest is not surprising given the inherent nonlinearity and complexity of the atmosphere, which makes uncertainty an inevitable part of weather prediction. A compelling reason for providing weather forecast uncertainty information is the potential benefit to stakeholders who could use the information to make better decisions based on their personal circumstances and thresholds for action. However, before moving toward a new paradigm of uncertainty-explicit weather forecasts, there are many unanswered questions to be addressed regarding people's understanding of, uses of, and preferences for uncertainty information. This study takes a step toward answering some of these questions via a survey of the U.S. public. Among the survey questions related to weather forecast uncertainty are those that assess people's (a) perception of uncertainty in deterministic forecasts, (b) interpretations of probabilistic forecasts, (c) preferences for receiving forecast uncertainty information, and (d) use of forecast uncertainty information to make decisions. The survey also includes questions about people's consumption of weather forecast information, how people value weather forecast information, and how weather affects people's daily lives. These questions, as well as demographic information, will be used to analyze variations in people's responses regarding weather forecast information and uncertainty information. This presentation will include some preliminary analysis of the survey results and information about the next steps of this work.

Keywords: weather, forecasts, uncertainty

Yongxin Deng, Western Illinois University. Email: Y-Deng2@wiu.edu; Xianfeng Chen, Slippery Rock University. Email: xianfeng.chen@sru.edu; Multi-scale linkages between topographic attributes and live fuel indexes in a mountainous landscape

This paper used Pearson's r and Moran's I to detect relationships between nine local/non-local topographic attributes and two remote-sensed live fuel (vegetation) indexes NDVI, NDII, and their seasonal changes (between May, July, and September). Aggregation of data resolution from 10 m for DEM derivatives and 30 m for NDVI/NDII to 20 coarser resolutions below 1500 m supported a multi-scale analysis. Elevation, slope, and “southness” were identified to have consistent correlations (e.g. $0.2 < r < 0.6$) with vegetation variables at multiple observation scales. Change of scale caused change of r and Moran's I , and scales with higher (peak) correlations exist, but at much coarser scales than the data scale. After human-controlled landscapes were masked off, Moran's I of vegetation indexes between natural mountains and the entire study area appeared to be similar in May, but increasingly different from July to September.

Keywords: Topography, NDVI, NDII, correlation, autocorrelation

John C. Dennis, Environmental Dynamics Program, University of Arkansas, Fayetteville AR. 72701. Email: jdennis@uark.edu; Stephen K. Boss, Department of Geosciences, University of Arkansas Fayetteville AR. 72701. Email: sboss@uark.edu; Dynamic Beach Environments: Comparisons of Non-engineered and Engineered Shore Segments of Yellowstone Lake, Yellowstone National Park, Wyoming

Using high precision laser surveying equipment and sediment grain size analysis, we documented and quantified geomorphic differences between engineered and non-engineered shore segments of Yellowstone Lake, Yellowstone National Park. Visual observations and surveyed shore profiles show that non-engineered shore segments display relatively wide beaches composed of sand to fine gravel with gently sloping, concave-up shore profiles. Engineered shores

typically display narrow or non-existent beaches, coarse sediment texture (gravel to coarse gravel), with steep upper (landward) profiles associated with shore protection structures and flat lower (offshore) profiles. Thus, engineered segments of the Yellowstone Lake shore exhibit morphological features similar to those associated with hard stabilization of marine and Great Lakes coastal settings and are suggestive of enhanced erosion and shore degradation at engineered shore sites when compared to adjacent non-engineered shore segments. Understanding potential differential responses of non-engineered versus engineered shores to physical processes in the lakeshore zone over short temporal scales will inform park planning and management in developing strategies for long-term conservation of the Yellowstone Lake shore. Along with an increased understanding, these strategies may prove useful in managing the shore zone of other large lakes as well as other coastal settings. At the least, it will assist national park personnel in developing a comprehensive shore management plan aimed at preserving geologic and other natural resources of the lakeshore as well as lakeshore cultural resources (i.e. archaeological sites), while also ensuring the quality of visitor experiences at a world heritage site and more importantly, the world's first national park.

Keywords: Yellowstone National Park; Shoreline Armor; Shore Erosion

Lorraine Dennis, University of Ulster - Coleraine. Email: l.dennis@ulster.ac.uk; Everyday Life in the Irish Border/lands

The constitutional status of the Irish border continues to dominate the British-Irish political agenda. Established in 1921, the border separates the contested area of Northern Ireland from the Republic of Ireland. Whilst the territorial and political partition of the island has undergone significant analysis, the impact of the border on the lives of those in its immediate vicinity has not attracted similar investigation. This imbalance will be redressed by examining the historical geography of the Irish border/lands in the years after partition. Rather than concentrate only on the border's territorial implications for the political entities it demarcates, this paper explores the impact of the Irish border on everyday lives. The ‘line on the map’ cut through a region with significant historic and cultural connections, represented through territorial units such as townlands and parishes. The paper examines how the border was experienced, both temporally and spatially. Through the use of material uncovered in ethnographic and historical archives, an empirical narrative of borderland lives will be presented. Following the delineation of the Irish border, the county of Fermanagh was almost surrounded by an international frontier. In this examination of the years between 1921 and 1945, the different ways in which the border was negotiated in the county are summarised. While the authorities sought to regulate the permeability of the border, the cultural connections of the region meant the Irish border was experienced by those along its length as both bridge and barrier.

Keywords: Ireland, Britain, borders, partition, everyday lives

Philip E. Dennison, University of Utah. Email: dennison@geog.utah.edu; Max A Moritz, University of California, Berkeley. Email: mmoritz@nature.berkeley.edu; Evaluating predictive models of chaparral live fuel moisture for wildfire season forecasting in Southern California

In Southern California, regional susceptibility to high wind conditions is determined by live fuel moisture. Seasonal drought causes a decline in live fuel moisture through the summer and fall, and once live fuel moisture passes below a critical threshold, wildfire danger increases. Recent studies have shown that remote sensing measures are strongly correlated with chaparral live fuel moisture, and that remote sensing may offer a means for monitoring live fuel moisture over time. These studies have not evaluated the ability of remote sensing measures to predict live fuel moisture levels. Historical fire and remote sensing data were used to determine a live fuel moisture critical threshold, below which large fires were more likely. Models containing early-season live fuel moisture, meteorological, and remote sensing variables were evaluated for their ability to predict the date that live fuel moisture dropped below this critical threshold. A model that accurately predicts the timing of chaparral reaching the critical threshold could improve preparation for fire season and the allocation of regional fire fighting resources.

Keywords: wildfire, wildland urban interface, chaparral, remote sensing

Micheala C. Denny, Ph.D. Candidate, Florida State University. Email: mcd012@bucknell.edu; Not So Sexy? ‘Big Girls’ and Shopping Space

This paper discusses the trend of spatial segregation of plus sized women's clothing in major department stores in the United States. Drawing on the literature of the geographies of the body and exclusion as well as a sample of three different case study sites, I argue that the division of women's shopping space into sections based on size serves as an example the physical and social isolation of the human body and that this is perpetuated by images in the media that compartmentalize certain body attributes as being desirable while and others

as unattractive. Further, I argue that these spaces of isolation contribute to the social construction of what is sexy, and in this case, what is decidedly un-sexy.

Keywords: women, media, bodies

Curtis James Denton, University of North Texas. Email: curtisdenton@hotmail.com; *A Model for Estimating Buruli Ulcer Prevalence*

Mycobacterium ulcerans is sweeping across sub-Saharan Africa, but little is known about the mode of transmission and its natural reservoirs. Since the only effective treatment is excision of the infection and surrounding tissue, early diagnosis and treatment is the only way to reduce the havoc associated with Buruli Ulcer. Using data from a national case search survey and suspected risk factors, this paper presents a model to estimate the prevalence of Buruli Ulcer in the southeastern region of Ghana. An area comprised of 53 districts. Results suggest that prevalence is directly related to the degree of environmental modification, proximity to water sources, vegetation type, and certain demographic factors of the area.

Keywords: Africa, Buruli Ulcer, Spatial Disease Mapping, Medical Geography, *Mycobacterium ulcerans*, Ghana

Ben Derudder, Ghent University. Email: ben.derudder@ugent.be; Frank Witlox, Geography Department, Ghent University. Email: frank.witlox@ugent.be; *Airline Data for World City Network Research: Refining Existing Approaches*

Information on air passenger flows is potentially a prime data source for assessing spatial patterns in the world city network, but previous analyses have been hampered by inadequate and/or partial data. The ensuing analytical deficiencies have reduced the overall value of these analyses, and this presentation examines how some of these deficiencies may be rectified. First, we review the rationale for using airline data to analyse the world city network. Second, we assess the data problems encountered in previous research. Third, we elaborate on the construction of datasets that may circumvent some of these problems. The proposed refinements include the omission of the hub function of major airports and ways to extract relevant business flows from the data.

Keywords: world cities, urban geography, transportation geography, airline data

Vandana Desai, Royal Holloway & Bedford New. Email: v.desai@rhul.ac.uk; *Cultural Change, Globalisation and the Role of NGOs in urban poor*

Ongoing processes of globalisation necessitate a reassessment of the services provided by NGOs. How is the role of NGOs changing? Are NGOs able to provide new services for the emerging needs? Liberal market solutions to poverty include more efficient use of labour markets in developing countries. Unavoidable globalizing processes expose marginalised individuals to fresh ideas and values, forcing them to re-evaluate social identities (especially the young and the old). There are sections of the population who feel left out of the developmental processes of economic changes induced by the changing labour market produced by the processes of globalisation. The key issue is how we turn the effects of globalisation into action for social change. Are religious NGOs better at catering to the needs of the poor in the context of globalisation?

Keywords: NGOs, globalisation, cultural change

Gene L. Desfor, York University. Email: desfor@yorku.ca; *Institutionalizing Industrial Nature: The Formation of the Toronto Harbour Commissioners*

During the final decades of the nineteenth century and the first of the twentieth, new relationships between nature and society emerged in Toronto, as was the case in many European and in North American cities. These new relationships simultaneously shaped and were shaped by a society and its economy that was rapidly moving toward industrialization. Among the relationships were new visions for the city's place in a Canadian urban system, major advances in health science that would alter the understanding of disease control, new forms of government, the growing availability of less expensive forms of energy, the growth of new economic production sectors, establishment of new financial and investment mechanisms, and massive construction of technological networks. The city's waterfront figured prominently in many of these changing nature-society relationships. Large infrastructure projects were planned and constructed, which were material expressions of modern technological accomplishments that made possible a wide range of transformations associated with industrialization. In this paper I focus on the formation of the Toronto Harbour Commissioners in 1911 and its waterfront plan as the resolution of years of political and economic struggles. I argue that the Commission and its plan represented an institutionalization of nature-society relationships that was a central element within a network that constructed an industrial landscape on the waterfront.

Keywords: Toronto Waterfront Nature-Society Relationships

Amos Desjardins, Virginia Tech. Email: amosd@vt.edu; Lias M Kennedy, Virginia Tech. Email: kennedy1@vt.edu; *Paleoenvironmental Reconstruction of a Coastal Lagoon in Southwestern Dominican Republic*

The study of lake sediments can provide valuable insights into lake history and climate variation throughout time. In-depth studies have been carried out at Lake Miragoane, Haiti and in high and mid-elevation sites in the Dominican Republic, but to date little has been published on prehistoric conditions in other coastal areas of Hispaniola. Laguna Alejandro (~18.31°N, 71.03°W) on the southwest coast of Dominican Republic is one of several lakes we are investigating to expand our knowledge of long-term environmental history in this region. This ~25 hectare lake is separated from the Caribbean Sea by a 100m-wide limestone ridge about 3-5m tall. We recovered two consecutive cores (0/100 cm, 100/185.5cm) close to the limestone barrier to investigate the potential for paleotempestology and other paleoenvironmental reconstructions. Three AMS ¹⁴C dates indicate that the lake is ~1000 years in age. Sediment analyses revealed three major shifts in sediment composition and particle size at 74/77.5cm, 150.5/153cm, and 183.5/185.5 cm. The two lower shifts represent deposits that are composed of sands consistent with nearby beach sands, while the upper deposit contains quartz and a precipitate that we think relate to a fluvial event and distinct changes in lake geochemistry. Sediments contained a variety of invertebrates that we think will help to document lake history. Four distinct strata containing Serpulids, and several pockets of *Anomalocardia brasiliana* and other mussels are providing insights on changes in salinity and water levels. Continuing research may help us relate these changes to climatic shifts.

Keywords: paleoenvironments, sediments, Dominican Republic

Pierre Desrochers, Department of Geography - University of Toronto at Mississauga. Email: pierre.desrochers@utoronto.ca; *Local Diversity and Interindustrial Knowledge Spillovers: Qualitative Evidence from Canadian Inventors*

Several researchers have debated the merits of local specialization and diversity of economic activities for technological change, but, according to some critics, the indicators used provide no direct evidence of knowledge flows. This paper takes a different methodological approach and illustrates how new know-how is created by individuals and passed among different industries at the local level through an interdisciplinary literature review and semi-structured interviews of 60 Canadian inventors. Interindustrial knowledge spillovers were found to be widespread, while local diversity proved valuable by providing both easier access to a wide range of supplier and by allowing creative individuals to rely on a network of knowledgeable people and to identify new collaborators.

Keywords: knowledge spillovers, Jacobs externalities, networks

Rachel Desrochers, University of Montreal. Email: rachel.desrochers@umontreal.ca; *Intermodality and land connections: Canada's evolving rail network, 1995-2005*

Canadian railways have undergone radical transformations since 1995. This has been underpinned by privatization and deregulation processes within the industry. This paper will provide an analysis of the corporate restructuring of the Canadian National Railway. First, we will examine the diversification of transported products. This will be followed by an evaluation of the modifications in geographic activities through an assessment of market share and network development. Thirdly, we will present changes in the firm's financial performance. This study should bring original insights on the transformation of CN from a domestic to a continental operator.

Keywords: Railways, intermodality, networks, Canada

Mathias Detamore, . Email: mathiasd@yahoo.com; *Finding the Appalqueer: Rural Geographies, Spaces of Sexuality, and Mapping Invisibility in the Landscape of Eastern Kentucky*

There has been little work done to understand the relationship(s) between rural identities and sexual identities and how those form geographies, even if in camouflaged ways. This paper begins to develop a theoretical framework for studying the spatial practices of sexual minorities and lays out the methodological approaches for engaging the stories and experiences of people's everyday lives as a narrative ethnography within an Appalachian context. Working through the more current literature on Appalachia as a problematic site of identity, shot through by multiple scales and influences (largely related to postindustrial consumption capital), homosexuality is (broadly speaking) a thoroughly contested site for identity. On the one hand, contemporary popular discourses circulating through the landscape have wrested loose the opportunity to identify with homosexuality and potentially create a location for resistances. On the other, staunch and often strident regionalisms of an idealized Appalachian identity buttressed by conservative religious movements have made any attempt to be "out" difficult if not dangerous. By using Michael Brown's work on the closet as a spatial, as well as, a symbolic metaphor; I seek to show how the spatial practices of the closet in Appalachia simultaneously disrupt and frame the

metaphor so that the emancipatory moment is constantly shrouded in secrecy and the subversive moment is reproduced into specific geographies that operationalize an Appalachian community. The idea is to understand that while discursive practices are inscribed in the rural landscape, transgressive identities do emerge and coalesce around those even if they enact themselves under the radar.

Keywords: Appalachia, rural geography, sexual minority, invisibility, homosexuality, closet, landscape

James E Detwiler, Penn State University. Email: detwiler@essc.psu.edu; *Adult professionals online versus undergraduates in the classroom - comparing performance in a GIS programming and customization class*

Educators and non-educators alike commonly assume that online courses cannot match the effectiveness of their traditional, face-to-face counterparts. This paper describes a comparative study of the performance and study habits of two groups of students in a course in Geographic Information Systems (GIS) software programming and customization: one delivered online to adult professionals working asynchronously; the other delivered in a blended, online/face-to-face environment to upper-level undergraduates in residence. Course grades show that the undergraduate cohort underperformed in comparison to the online cohort, in spite of the fact that their version of the course included face-to-face lecture and lab time in addition to the online course materials. To explore differences in the study habits of the two groups, all students were asked to keep a diary of the time they devoted to coursework. Information from these diaries suggest that a student's ability to meet learning objectives is less dependent on the course content delivery mechanism than it is on the student's motivation, maturity and time management skills.

Keywords: online education, GIS education, GIS programming, learning outcomes

Kate Deutsch, University of California Santa Barbara, Geography Department. Email: deutsch@geog.ucsb.edu; Kostas Goulias, PhD, University of California Santa Barbara, Geography Department. Email: Goulias@geog.ucsb.edu; *Integrated Activity-Travel Behavior Surveys*

Travel behavior analysis today is dominated by approaches that incorporate ideas from time geography and behavioral geography. The analysis requires increasingly more detailed activity diaries and household questionnaires. As these new methods evolve, other determinants of behavior including values and norms, attitudes and other social circumstances are also used to explain the behavior of individuals and households. This raises a variety of issues regarding the types of data we collect, the questions we ask, and the burden to the respondents. In this presentation we first offer a comprehensive review of surveys aiming at measuring attitudes and predispositions, personality, motivation, and ultimately time use in space. We also review measurement of location, space, and place perceptions for activity-based travel surveys. Then, we report on a small scale experiment employing different methods of combining survey components and emphasize the comparison between two methods with different degree of respondent burden to collect time use data. The presentation concludes with recommendation and a plan for future studies.

Keywords: Transportation, survey methods, travel behavior

Margaret S. Devall, US Forest Service. Email: mdevall@fs.fed.us; Leonard B. Thien, Tulane University. Email: lthien@tulane.edu; Erik Ellgaard, deceased. Email: ; George Flowers, Tulane University. Email: flowers@tulane.edu; *Lead Transport into Bayou Trepagnier Wetlands in Louisiana, USA*

Establishment of a petroleum refinery in 1916 near the headwaters of Bayou Trepagnier in Louisiana, with subsequent dredging of the bayou resulted in spoil banks containing high levels of Pb. A large cypress-tupelo swamp abuts the eastern bank of the bayou. Cores were taken from 15 baldcypress trees growing in the swamp at various distances along a 610 m transect (9 trees) and a 183 m transect (6 trees) running perpendicular from the spoil bank. The cores were crossdated, annual rings were measured, and five year segments of the cores were prepared and analyzed for heavy metals. Soil samples were collected along one transect and analyzed for metals. Levels of Pb in Bayou Trepagnier swamp trees were compared to levels in baldcypress trees growing along Stinking Bayou, a reference area 35 km north of Bayou Trepagnier. Baldcypress trees in the cypress-tupelo swamp soil with (10-425) mg/kg Pb, concentrated much more Pb than trees growing on the heavily polluted bank. The greater uptake of Pb by trees in the swamp is discussed in terms of soil dynamics and Pb sources.

Keywords: baldcypress, Taxodium distichum, pollution, metal uptake

Geoffrey DeVerteuil, University of Manitoba. Email: geoff_deverteuil@umanitoba.ca; *Struggles over Deconcentrating the Homeless: Case Study of Skid Row Los Angeles*

The geography of homelessness is very much structured by the geography of homeless services. In American cities, the geography of homeless services is inequitably patterned: the majority of services are forced to locate in marginal spaces. In the 1980s, many homeless service hubs were dismantled under pressure from downtown redevelopment and gentrification. The few that survived are now being threatened by a more systematic menace: the shift towards deconcentrating poverty as the primary policy response to inequality. Poverty deconcentration involves reconfiguring zones of extreme poverty by encouraging the inclusion of higher-income groups and housing. I illustrate some of these tendencies by examining the struggles around efforts to deconcentrate, if not dismantle entirely, the largest service hub still in existence in the United States - Skid Row in Downtown Los Angeles. Comprising 50 blocks and saturated with homeless residents and social services, Skid Row is perceived to be detrimental to the revitalization of downtown Los Angeles. Using case study material from the past five years, I trace the evolution of struggles over deconcentration of Skid Row through (1) police action and (2) housing displacement. In each of these cases, I pay particular attention to how the rights of homeless people -to low-cost housing, to being free of police harassment, to sleeping on the sidewalk- are being articulated.

Keywords: homelessness, Los Angeles, poverty, housing

Ryan Devlin, Department of City and Regional Planning, University of California, Berkeley. Email: rdevlin@berkeley.edu; *Street Vending, Informality and the Regulation of Space in New York City*

New York is often characterized as the quintessential neoliberal city, where, among other things, aggressive redevelopment efforts have led to the exclusion of undesirable actors from spaces of middle class consumption and entertainment. Given New York's characterization as such, the current street vending situation in the city seems like an anomaly. There are roughly 12,000 vendors doing business on the sidewalks of the city, with nearly half of them operating without licenses. Their presence is strongly opposed by large scale, politically connected real estate interests. Yet street vendors, most of whom are immigrants with little traditional political power, remain on the streets. The presence of vendors might be explained by bureaucratic inertia, or it may mean that New York is a more inclusive city than is often portrayed, however, I argue that neither of these explanations is appropriate. The current situation cannot be conceived of as a lack or failure of regulation, but rather, as a different form of regulation. This paper will demonstrate that through the production of informality the state finds a flexible, cost effective and politically feasible means to regulate vending and exclude certain vendors. Most of our theories of spatial regulation under neoliberalism are derived from examples of straightforward spatial exclusion. In reality, these instances are few and far between. The case of street vending in New York demonstrates that, in the intervening moments between instances of outright repression, spatial regulation and exclusion in the neoliberal city take more subtle and complex forms.

Keywords: Informality, Public Space, Urban Redevelopment

Lomme Devriendt, University of Ghent. Email: Lomme.devriendt@ugent.be; Ben Derudder, University of Ghent. Email: Ben.Derudder@ugent.be; Frank Witlox, University of Ghent. Email: Frank.Witlox@ugent.be; *The Global City Network; Highly Connected? An Empirical Analysis of the 'Hard' Network.*

The different patterns of subsea, MPLS, ATM/FR and other Internet cable networks are based on the location of its major users. These users who need high-tech communication networks are converged on specific places. Places where governmental institutions, universities, producer service firms, and other advanced service firms are merged together. The existing 'soft' (i.e. social) network at such places demands a widespread 'hard' (i.e. cable) network. The aim of this paper is to study and map one of these hard networks. Based on the cable network of a very important communication (Internet) service firm [BT], a network of important connections places comes to the fore. BT is a global service provider helping multi-site organisations communicate and collaborate, any time, any place, through any device. They are building the world's most advanced global IP network, and provide a wide range of connectivity options for voice, video, data and converged communication services. An expected outcome of this study is that the sketched cable network corresponds with the global city network. Therefore, we compare the BT connection network with findings of the Global and World City (GaWC) Network and Study Group. Some interesting results and comments on this comparison lead to a better understanding of the similarities between the hard networks and the global city network.

Keywords: digital network, global city network, BT global service firm

Deana DeWire, University of Montana. Email: deana.dewire@umontana.edu; Anna E Klene, University of Montana. Email: anna.klene@mso.umt.edu; John S Kimball, University of Montana. Email: johnk@ntsg.umt.edu; *Forecasting and hindcasting snowpack in the Rattlesnake Creek watershed, Montana using the BIOME-BGC model*

Mountain snowpack is a critically important resource for the communities and natural ecosystems throughout the western United States. The Rattlesnake Creek watershed in western Montana functions as a microcosm for the water resource issues facing the West, such as habitat maintenance, reliable drinking water, and irrigation water allocation. Typically, snowpack monitoring is done at SNOTEL point locations or at established snow courses. However, distributed, basin-wide information will become increasingly important as climate warming affects snowpack and its associated water resources. Modern technology allows for the use of spatially distributed models to monitor current snow resources and estimate past and future changes. BIOME-BGC is a full ecosystem process model that contains a simplified snow model. The snow portion of BIOME-BGC, version 4.2, was run over the Rattlesnake Creek watershed. The model was driven with basic meteorological data, available at several weather stations near or adjacent to the study area. Outputs were assessed against snow course and SNOTEL measurements for the winter 2006-07. Additionally, model outputs were used to analyze changes in snow resources since 1950 and examine the impacts of several climate change scenarios on snowpack by 2050.

Keywords: Snow, SWE, model, climate change

John-David C. Dewsbury, University Of Bristol. Email: jd.dewsbury@bris.ac.uk; *The 'Show' of Dance: the Univocity and the Refrain of Multiple Singularities.*

Pulling away from the tension between the regulated body of the dancer and the dance itself, not to dismiss such tension but in order to play it up, this paper argues that it is the dance itself that counts. Dance is more than the somatic encompassing cognitive, intuitive and felt dispositions that involve beliefs, values and feelings. However, to say that no movement is 'natural' is to miss that vital aspect of the visceral and open force that is being choreographed in the 'show' of dance. Dance is not only a scripted self-contained conversation but one which exposes humanity to its negotiation with this outside affective force that is both 'more-than-representational', anti-representational and still inherently non-representational. As such dance makes legible what other modes of discourse cannot. There is then in dance a presentation (its 'show') of the intangible sense of being-more-than-individual (univocity) - that light fantastic, affective intensity (the refrain) that sets you (the subject/self) asunder (multiple singularities). Thus, it is argued territories are materialized in dance via empathetic connections with which a new 'commune' of association and understanding is possible. Whilst it may be argued that such alliances may only be ephemeral (imminent) and imagined (immanent) moments, the inhabitation of dance, what it puts into conversation outside of discourse, educates something more permanent. The paper will exhibit its arguments through research done on the 'show' of dance in the work of The Cholmondeleys and the Featherstonehaughs.

Keywords: affect, dance, non-representational theory, performance, subjectivity

Raymond J. Dezzani, Ph.D., University Of Idaho. Email: dezzani@uidaho.edu; Salvatore Babones, Ph.D., University of Pittsburgh. Email: sbabones@pitt.edu; *Measuring the Transmissivity of Economic Inequality Using Canonical Weighting Schemes with Gaussian Markov Random Fields.*

Following Babones (2005) and Dezzani (2001,2002) we examine the geographical propagation of factors and effects of economic inequality measures such as the Gini index contingent upon spatially-related covariates. We develop spatial weights using multivariate canonical forms and extracting distance and connectivity measures for use with a hierarchical Gaussian Markov Random field model (GMRF). In this research we extend ideas of connectivity to include integrative economic and political processes as well as various forms of geographical proximity and connectivity. We examine the assumptions and benefits of using GMRFs in spatial econometric analysis and specifically, for modeling diffusion processes. Results of Bayesian inference of the GMRFs are presented.

Keywords: spatial analysis, weighting schemes, inequality convergence, Markov random fields

Adam Diamond, Ph.D, USDA. Email: adam.diamond@usda.gov; *New Opportunities for Smallholders? The Growth of Farmers' Markets Amidst Agricultural Consolidation*

While farm consolidation has continued unabated in the last 15 years, as it has for the last century, recent data points to the emergence of a divided highway

in the agricultural landscape of the United States. Data from the USDA's Economic Research Service indicates that farm size has shifted towards very small and very large farm size classes. The growth of very small farms is facilitated by the expansion of alternative marketing mechanisms that bypass traditional wholesale distribution networks. Farmers' markets, serving more than 70,000 farmers in 2005, with more than 20,000 marketing exclusively through farmers' markets, are becoming significant, albeit niche players in the United States food distribution system. Recent data from a national survey of farmers' markets conducted by the USDA and Michigan State University indicate the prevalence of small producers at markets. 62% of markets surveyed reported that at least 51% of vendors had sales of no more than \$10,000. Furthermore, markets reported that the smaller the vendor, the less distance traveled to market. And a regional breakdown suggests that farmers' markets provide unique opportunities for farmers belonging to ethnic minorities, enabling them to sell niche products with little start-up capital to specific consumer segments. Farmers' markets represent a powerful alternative marketing stream. They reduce social and physical distance between producers and consumers while simultaneously carving out economic space for small producers and providing consumers with abundant quantities of unprocessed food. The question remains, however, whether they can serve as a primary source of income for farmers.

Keywords: food systems, agriculture, alternative marketing

Rolando Enrique Diaz Caravantes, . Email: diazrol@email.arizona.edu; *Water Management, Sustainability and the Challenge of Drought: Geographies of Conservation in Northern Mexico*

Across Latin America and much of the developing world, the expansion of protected natural areas for ecosystem conservation has often been showcased as a success of global environmentalism (Zimmerer, 2006: 63). In Mexico, the 1996 formation of the national Commission for Natural Protected Areas signaled growing political and environmental support for the conservation area approach. Recently, influential Mexican ecological policymakers proposed the expansion of natural protected areas as a key tool in protecting endangered watersheds (Carabias et al 2006: 57). Despite the importance of natural protected areas in the watershed management discourse, the subject has received very limited scholarly attention. Additionally, some scholars argue that conservation areas may be the vehicles for increasing the control over natural resources (Zimmerer 2003, Robbins 2004). However, these areas may also create the conditions for developing new opportunities. Exploring this possibility, Young (2003) studies how ecotourism has been touted as a means to link development with conservation in the fishing communities of Northern Mexico. Following this, I examine how conservation and development plans interact in the local communities within the Natural Protected Area. The Sierra de Alamos-Rio Cuchujaqui watershed in the northern Mexican community of Alamos, Sonora is an area where marginalized small producers live in a severely drought-affected tropical deciduous forest area designated as a natural protected area in 1996. In this paper, I examine the claims for improved watershed management in the context of severe drought and water scarcity based on two communities within the protected Sierra de Alamos area.

Keywords: Water, Conservation, Development, Political Ecology, conflict, Protected Area, rural, Mexico

Jose R. Diaz-Garayua, Kent State University. Email: jdiazga@kent.edu; *The United States Images of Puerto Rico: A National Geographic Reading*

A colony of Spain until 1898, thereafter a colony of the United States, Puerto Rico has been perpetually (mis)represented by popular media and various US-influenced institutions. Institutional representations, as in photograph and other discourses, are often taken for granted. My presentation uncovers and explicates through various examples these (mis)representations of the island, its people, and its relationship to the United States, which excuses past egregiousness and legitimizes continued American hegemony in Puerto Rico.

Keywords: Puerto Rico, Colonialism, Post-Colonialism

David DiBiase, Penn State University. Email: dibiase@psu.edu; Khusro Kidwai, Penn State University. Email: khk122@psu.edu; *Wasted on the young? Comparing the efficacy of instructor-led online education in GIScience for post-adolescent undergraduates and adult professionals*

Online distance education is an increasingly common mode of instructional delivery in U.S. higher education in general, and in geography in particular. This paper reports a unique empirical comparison of the efficacy of distance learning for two separate student cohorts in identical introductory courses in geographic information science. The average age of 101 students in an undergraduate cohort was 21 years, while the average age of 178 students in an adult professional cohort was 35. With few exceptions, undergraduates were enrolled full-time and resided on or near campus, while older professionals studied part-time, and were dispersed around the U.S. The theory of andragogy predicts that the younger cohort was less well prepared for the independent learning required in an

asynchronous online class, despite undergraduates' presumed affinity for information technologies. Empirical evidence indicates that although younger and older students performed equally well on identical project assignments, the undergraduate cohort devoted about one-half less time to their studies overall, and participated in voluntary class discussions only half as frequently as their older counterparts. Undergraduates withdrew from the online class at a much higher rate, and those who completed the class reported significantly lower levels of satisfaction. The study confirms that differences in student engagement and satisfaction were associated with differences in student age and motivation. Findings suggest that geographers who serve as instructors of distance education classes should be proactive in stimulating younger students' participation in class discussions, and should evaluate explicitly the tacit learning that discussion fosters.

Keywords: GIScience, GIS, distance education, online, e-learning, adult education, age

Amie Dickinson, University of North Texas. Email: famousamos83@yahoo.com; Murray Rice, University of North Texas. Email: ; A spatial-temporal analysis of retail relocation and clustering: a case study of Port Huron, MI

Over the past two decades, urban populations and land areas have both expanded, leading to greater suburbanization of people and businesses. In the midst of this urban growth, some cities, such as Denver and Minneapolis, have been able to maintain their downtowns as vital retail and residential centers. In other cities, downtowns have suffered as malls and big-box retail have decentralized. The suburban location of new retail development appears to have drawn other businesses to the suburbs as well. In geographic research, gravity is often associated with the draw of people to a location because of a specific attraction, such as a store. The present study modifies this perspective slightly to study the gravitational attraction of businesses to a location, such as a new suburban mall. This poster investigates the spatial movement of retail in a small, midwestern city, focusing on the introduction of national mass merchandisers and a 100+ store mall just outside the city limits of Port Huron, MI. The purpose of this research is to track new retail locations and the gravity draw of mass merchandisers to other retail. This study monitors and assesses change in retail location over time.

Keywords: downtown, retail, business relocation, gravity model

James Dickinson, Rider University. Email: dickinson@rider.edu; Susan A Mann, University of New Orleans. Email: samann@uno.edu; A Thousand Points of Blight: Fixing Up Worn-Out Cities

In this paper I track the fate of less privileged, less glamorous spaces within Philadelphia, a city which has seen substantial redevelopment of its urban core in recent years as well as unprecedented growth of its suburbs, but whose inner-city neighborhoods still remain zones of extraordinary blight and neglect. I identify and discuss four strategies currently pursued in Philadelphia to control, manage, or otherwise domesticate degraded urban spaces, thus sustain them in the interim until future development can secure their permanent rehabilitation. These include (i) official anti-blight programs such as the recently implemented Neighborhood Transformation Initiative which aim to clear away unsafe structures and create land parcels large enough to attract private developers; (ii) urban greening initiatives such as those promoted by the Pennsylvania Horticultural Society which, in co-operation with community groups and organizations, aim to transform empty and neglected lots into community gardens, parks, and green spaces; (iii) the systematic covering of exposed walls and surfaces throughout the city with large-scale mural artworks under the auspices of the Mural Arts Program; and (iv) various projects and proposals incorporating public art into community redevelopment, urban greening, and other neighborhood enhancements. For each strategy, I discuss its relation to and origin in traditional urban planning perspectives; methods of recruiting, mobilizing, utilizing, or interacting with community groups and interests; the feasibility and likelihood of success; and viability and expected lifespan of interim spaces so created.

Keywords: industrial landscape, urban blight, urban renewal, public art, urban greening

Alexander C. Diener, Pepperdine University. Email: alexander.diener@pepperdine.edu; Projected Social and Ecological Impacts of Mongolia's Trans-State Highway

Once the heartland of Genghis Khan's vast empire, the former Soviet satellite state of Mongolia is now poised to emerge as a major trade corridor in Northeast Asia. The means by which this will be achieved is a two lane trans-state roadway deemed the "Millennium Highway." With only 11.9% of Mongolia's roads presently paved and no railroad spanning the state from east to west, this 2,400 kilometer transportation artery will catalyze a redistribution of both human and livestock populations with profound impacts on the environment. This paper explores various scenarios of ecological and socio-cultural change that

may occur as a result of this road-building project. The historical trend of Mongolian pastoralism involves a reduction in seasonal migrations and the increasing of herd densities. The impact of peri-urbanization is already evident in the capital city of Ulaan Baator. This trend is hypothesized to continue and increase with the building of the Millennium Highway and radically alter the socio-cultural paradigms within this long isolated nation-state. If this change is unaccompanied by sound foresight and best-management policies, then environmental degradation (particularly in terms of water quality) will almost certainly occur.

Keywords: Transportation, Road, Environment, Mongolia,

James T. Dietrich, Texas State University - San Marcos. Email: jtdietrich@txstate.edu; David R. Butler, Texas State University - San Marcos. Email: db25@txstate.edu; Constructing a stereo-panoramic repeat photography system for environmental change detection in Glacier National Park, Montana

Repeat photography is an important tool for change detection in geography. Faithfully reconstructing the location and conditions of historical photographs can, however, be difficult. Errors in taking precise repeat photographs can lead to incorrect perspectives, scale, and coverage that can make side-by-side comparisons or quantitative analyses complicated. This project is an attempt to revise the methods of repeat photography from fire lookouts in Glacier National Park, Montana (Butler and DeChano 2001) by constructing a platform that can more faithfully recreate the original conditions of the 1935 panoramic photographs of Lester M. Moe. The main problem in recreating Moe's photographs is that several of the fire lookouts used to take the photographs have been razed, so recreating the perspectives afforded by the lookouts is difficult. The goal is to construct a portable, yet robust, system that could reproduce the same perspectives used by Moe. The main components of the system are a lightweight surveyor's tripod, vertical extension rods, a camera platform, two Nikon Coolpix 5700 cameras and a remote shutter release. This system can be configured two separate ways for different applications; the camera platform can either be placed directly on the tripod for ground level photographs or raised on the vertical extension rods to gain the perspective of the former fire lookouts. By using stereoscopy and more accurately recreating the conditions in the original panoramic photographs we hope to produce more accurate photogrammetric measurements of various indicators of environmental change.

Keywords: repeat photography, environmental change, mountain geography, stereo photography

Susan A. Digby, PhD, Olympic College. Email: sdigby@oc.ctc.edu; Collage as a Research Method for Historical Geography

Collage is both a powerful research methodology and an effective discourse that has applications within geography. Collage is particularly suited to a discipline inextricably intertwined with the development of maps. Maps are themselves a form of collage as they combine images, symbols and descriptive text to produce a whole that is more than the sum of the parts. Collage is useful within historical geography, especially in areas such as biography where materials are diverse and fragmentary. Salvaging stories from the drifts of assorted materials, contradictions and mysterious voids that comprise biographical resources is often a daunting task, particularly for lesser-known individuals. Collage-making can be a productive approach to sorting and organizing disparate biographical materials. Through this tactile act, story lines can emerge from seemingly unrelated parts. Additionally, visual materials help to anchor contemporary analysis within past popular cultures. The resultant collages have a second set of functions; they become a means to convey information to reader-viewers. Collage is a frequently used art technique, yet it is neglected within geography, despite continued calls for alternative approaches. Although collage is unlikely to replace written discourse it provides an additional tool that has considerable potential.

Keywords: Collage, Research methodology, Historical geography, Cultural geography, biography

Gertjan Dijkink, . Email: g.j.w.dijkink@uva.nl; The Idea of a European Core: Geometry versus Vision

Since the establishment of EU the idea of a European core has frequently been put forward. The idea is based on diverse arguments: the role of cores in the history of state integration; the miracle of French-German cooperation after a century of enmity; the variable geometry of the EU in which some states have adopted a more advanced level of integration (Euro, constitution, etc.); the stimulating role of growth poles, etc. Most of these arguments could be refuted by pointing to specific contradictory events or conditions: fear among new members of a dominant centre, non-core members are not particularly lagging behind in adopting integrative measures like the Euro, the French-German economic motor stalled for some time, etc. Setbacks in the integration process like the rejection of the EU constitution in two national referendums in 2005 evoked new calls for

action by core-Europe. The latest call (by Italian and Belgian political leaders) curiously placed its hope on France as an important core country although it was one of the two culprits in the referendum crisis. This seems to demonstrate belief in an established geometry rather than a realistic appraisal of the European vision of member states. In this paper I will argue that there is one vision that naturally appeals to most countries of the traditional core and other member states as well: a critical attitude to globalisation and neoliberalism. This, however, will also produce a new fault line in future Europe.

Keywords: political geography, Europe, international conflict, ideas

Martin Dijst, Utrecht University. Email: m.dijst@geo.uu.nl; Christa Hubers, Utrecht University. Email: c.hubers@geo.uu.nl; Tim Schwanen, Utrecht University. Email: t.schwanen@geo.uu.nl; Temporal and spatial fragmentation: conceptualization, methodology and empirical evidence

In literature it is hypothesized that the use of Information and Communication Technologies (ICTs) will cause the fragmentation of daily activities across times and spaces, thereby blurring the boundaries between the previously separated life domains of work, care and leisure. Lacking in this discussion is a clear conceptualization of what fragmentation is and is not, and how it can be measured empirically. As a consequence, there is as yet little empirical support for these notions. The goal of this paper therefore is twofold: (1) to propose a methodology for measuring fragmentation, and (2) to empirically assess the extent to which ICT usage is associated with temporal and spatial fragmentation. We will analyze fragmentation for total daily activity patterns and separately for work, shopping and leisure. For the analysis, we will employ questionnaire data on e-shopping behaviour and two-day travel diary data from approximately 800 respondents in four different types of municipalities in the Utrecht region, the Netherlands.

Keywords: temporal and spatial fragmentation, ICT, the Netherlands

Julie Dillemath, University of California, Santa Barbara. Email: julie@geog.ucsb.edu; Current Approaches to Map Design in Personal Navigation Systems

Personal navigation systems for drivers and pedestrians are available and growing in popularity with consumers. But research on effective representation for small, digital maps is lacking. With no cartographic guidelines yet for these types of maps, it is of interest to know how current commercially-available systems have approached map design. What kinds of maps are actually being used, and how much variation is there among maps from different navigation systems? This research presents a cartographic assessment of six popular navigation aids for PocketPCs, with a focus on interface and design elements. Results indicate that, beyond general commonalities of interface options, there is wide variation among the six programs. Interface elements that vary include map display size, whether the map moves or the cursor moves, and the range of zoom levels and map scales. Design elements that differ among these programs include color, labeling and road symbology. The implications for users are discussed in terms of the potential impact on map interpretation and use. There are cartographic violations; for example, a scale bar in an oblique "3D" view, or an orthogonal map with no scale bar at all. Other considerations include the relation of zoom level to real-world area and travel time. As academic research in mobile cartography progresses, it is important to understand map design practices in currently available systems. Current systems are shaping user experiences and expectations with regard to mobile maps, and assessments like this can highlight areas for research priority.

Keywords: personal navigation systems, cartography, scale, map reading

Leo Dillon, U. S. Department of State. Email: dillonli@state.gov; History and Current Activities of the Office of The Geographer in the U.S. Department of State

Established in 1921, the State Department's Office of The Geographer - currently titled the Office of The Geographer and Global Issues - has been a small but influential organization in the United States Government's geographic community. It has evolved into the U.S. Government authority on geographic policy matters such as the depiction of international boundaries and foreign territorial sovereignty issues, and has held leadership roles in the development of such institutions as the U.S. Board on Geographic Names and the United Nations Convention on the Law of the Seas. This paper traces the history of the Office and describes how it has changed in size and function to meet the Government's needs for geographic information and analysis, from establishing country-specific immigration quotas in the 1920s to providing GIS-aided analysis of complex international emergencies today.

Keywords: political geography, historical geography, applied geography

Lary M. Dilsaver, University Of South Alabama. Email: ldilsaver@usouthal.edu; What Constitutes a National Park: A Case Study of California

California contains 24 of the national park system's 390 units, more than any other state. Yet more than 120 other California areas have been proposed for inclusion as natural, historical or recreational parks. These proposals have come from a variety of sources including members of congress, wealthy benefactors, special interest groups, city councils, ordinary citizens and the National Park Service itself. The reasons why they failed to become units of the system include the significance of their resources, land acquisition problems, cost, and opposition from individuals and groups. In this paper, I survey the types and spatial pattern of suggested units, who proposed and supported them, why they were not established, and what these events say about the national park system, the National Park Service, and the public's ideas about sacred space and the protection of American heritage.

Keywords: national parks, sacred space, California

Thomas E. Diltz, University of Nevada Reno, Department of Geography. Email: tdiltz@unr.edu; Reclaiming Nevada: Comparing the Ecological and Visual Function of Post-Mining Landscapes using GIS and terrain metrics

Sometimes appearances can be deceiving. Numerous examples exist where an aesthetically pleasing landscape is not the same as an ecologically functional landscape. While landscape function and visual objectives are both goals for land managers, understanding the potential conflicts that can arise between the two is important. Up front explicit identification of the differences between ecological function and visual function affords land managers the opportunity to determine the appropriate corrective action in order to achieve the goal of an aesthetically pleasing environment that is also ecologically healthy. Visual Resource Management is used by the Bureau of Land Management to assess a project's impact upon visual resources and determine the appropriate level of mitigation required. In Nevada, Visual Resource Management objectives have helped determine the design of waste rock dumps and heap leach pads resulting from large-scale gold mining operations. Traditional relief designs of waste rock dumps have employed a slope and bench pattern resulting in the creation of linear features that differ in appearance from the surrounding topography. Newer designs aim to achieve shapes that blend in with the surrounding environment. My research investigates whether differences in ecological function exist between relief designs that utilize Visual Resource Management objectives and traditional methods. I use a Geographic Information System, terrain metrics, and multivariate statistics to develop models that consider both ecological and visual function of reclaimed mine lands.

Keywords: Ecological function, Visual Resource Management, Geographic Information Systems, GIS, terrain metrics, multivariate statistics, mining, mine reclamation, revegetation

Stelian S. Dimitrov, Sofia University "St.Kliment Ohridski". Email: stelian@gea.uni-sofia.bg; GIS implementation in the Bulgarian regional planning system: problems and potential solutions

Geographic Information technologies have become increasingly important for many aspects of our life and business, especially in regional and spatial planning. In fact GIS and related technologies became popular in Eastern Europe and Bulgaria relatively late, after the fall of the communism, when those countries were enforced to conduct dramatic and painful reforms of their economies and administration. The so called "Central planning system" was terminated and the new approaches to spatial and regional planning were introduced. The new approaches needed new tools and GIS naturally became popular among the planners. But because of many factors, the process of implementation and using of GIS has been accompanied by some serious problems, which became crucial not only for the development of the GIS, but affecting the whole planning system and reducing its effectiveness. The purpose of this paper is to make an attempt to shortlist the major issues concerning the efficient and practical use of GIS solutions within the Bulgarian planning system. We would like show some of the potential and innovative solutions which could contribute for more efficient and vital planning in the context of EU integration.

Keywords: GIS, Regional and Spatial planning, GIS implementation, Bulgarian regional planning system

Joshua S Dimon, Phd Student, University of California - Berkeley. Email: jdimon@nature.berkeley.edu; Institutional Coordination and the Long-Term Construction of Petroleum Access in Mozambique

There is a more complex matrix of dynamic institutions creating, molding, reproducing and legitimating the specific structures necessary for oil exploration and production than is commonly recognized. This matrix is highly adaptive, responding to often rapidly and severely changing local, national and international environments. The International Oil Working Group (IOWG) at the University of California at Berkeley has traced the evolution of this system

through the history of oil exploration in Eastern Africa which has only recently begun to produce oil. This paper uses an analysis of these dynamic institutional processes in Mozambique (a state not yet producing oil) to reconcile the seeming disjuncture between the short-term time frame of corporate decision-making, and the often very long-term processes of the broader institutional matrix which undergirds the global oil economy and facilitates systems of access. A more sophisticated understanding of the dynamic and long-term relations between key institutions in the global oil economy can better inform strategic policies, regulations, and resistance aimed at ending the pattern of destructive oil development ubiquitous in Sub-Saharan Africa and other South States.

Keywords: Oil, Extractive Industries, political economy, access

Guoxiang Ding, Ohio State University. Email: ding.45@osu.edu; Mei-Po Kwan, Ohio State University. Email: kwan.8@osu.edu; Activity-Based Qualitative Modeling Using Spatial Choice Data

Spatial knowledge is often communicated and processed through linguistic descriptions. However, current geographic information systems (GIS) are largely designed for the analysis of quantitative data and for building analytical models, which are still limited in their capabilities in handling linguistic variables of spatial relations. Performing qualitative reasoning on spatial relations in GIS to support language-based spatial query and intelligent interpretation remains a challenging task. Recently, detailed activity-travel data at individual level become available with the aid of location-aware, wirelessly connected devices. This kind of data, as a result of human perception and spatial decision, provides opportunities for examining activity-based qualitative spatial reasoning. In this research, a fuzzy reasoning approach is employed to investigate human perception on proximity and scale based on observed spatial choices data to improve the efficiency of activity-based qualitative reasoning. Circulation data collected from 42 public libraries in Hamilton County (Ohio, USA) in 2003 are used in this study. Decision rules are constructed with two linguistic variables based on the implication of the famous gravity model: distance (impedance) and the floor space (attractiveness) of the library. Perception on proximity and scale of library are constructed for library choice activities.

Keywords: Qualitative modeling; fuzzy clustering; decision rule identification

Adam Dinham, BA(Cantab) MA(AppSocSt) PhD(Lond), Anglia Ruskin University UK. Email: a.dinham@anglia.ac.uk; A Third Way Church? - the Church of England's 'Faithful Cities' as a clarion call to what?

The landmark Church of England report, 'Faith in the City' (1984), was always going to be a hard act to follow, a fact made all the more acute by the timing and provenance of the follow up, 'Faithful Cities' (2006). That it sees itself as standing in the tradition of that great "call to church and nation" is made clear from the outset - the 1984 report is mentioned in the very first paragraph. But what is less clear is how that somewhat radical report, with the 'Marxist' undertones of which it was accused, has been inherited in this new 'commission on urban life and faith'. This paper critically examines the commission's report in terms of the key political, theological and social messages it contains, and the relationship between them and the central notion of the 'faithful city'. In doing so it argues that the report accepts a 'New Labour' logic of the synthesis of markets and social justice whilst at the same time seeking to call to 'action' people of faith in cities everywhere. It is argued that this results in a confusion of purpose and method which fails to grapple with the strong and (itself) confused policy matrix currently put forward by the UK government for faith communities, and thereby misses an opportunity for disentangling the policy strands in the direction of better practice

Keywords: faith, policy, third way, uk

Laura B Dinitz, United States Geological Survey. Email: ldinitz@usgs.gov; Challenges of Integrating Geospatial Data on Multiple Natural Hazards for the Land Use Portfolio Model: Ventura County, Calif., Case Study

U.S. Geological Survey Geography Discipline scientists developed the Land Use Portfolio Model (LUPM), an interactive, GIS-based decision-support system that uses the mathematics of financial-portfolio theory with geospatial natural-hazard, land-use, and socioeconomic data to analyze, visualize, and compare natural-disaster risk-reduction policies. Financial-portfolio theory offers a method for evaluating alternative, regional-scale investment choices on the basis of their estimated distributions of risk and return. The LUPM requires information on hazard-event probabilities, planning-time horizons, community assets at risk, dollar values and/or vulnerability of assets, spatial-damage probabilities, and costs and effectiveness of possible risk-reduction strategies. The user selects a portfolio of locations and/or measures in which to invest a limited budget for loss mitigation. The LUPM estimates total cost, number of locations selected, expected loss, and mean and standard deviation of return-on-investment and community wealth retained. The user can repeat the process, defining, comparing, and ranking multiple policies according to the user's preferences. Our

research goal in Ventura County, Calif., has been to develop the LUPM to function for multiple hazards including liquefaction, landslides, floods, and wildfires. The purpose of this paper is to report on the challenges and lessons learned trying to acquire and integrate the geospatial information necessary to use the LUPM. These include differences in how science research for different hazards is presented, such as the use of different scales of space and time; differences in community impacts of these hazards; level of community involvement; methods for assessing values at risk; spatial dependence of hazards; and spatial dependence of failure sites.

Keywords: natural hazards, risk, portfolio, LUPM, DSS, model

Peter Dirksmeier, Dipl.-Geogr., University of Bremen. Email: peterd@uni-bremen.de; Urbanization of rural areas as a perspective for the explanation of growth and shrinkage of cities

The lecture throws light on the discussion of urban growth and decline in Germany from the countries perspective. The lecture does not deny the importance of centre-periphery differentiations for any understanding of the spatial order of society. Cities are the centre of society in terms of concentration of political power, economic actions or religious activities. From this point of view, the perspective of urban geographical research seems appropriate. But nevertheless, urban geography is to often apt to look on urban growth and decline just from an urban perspective. Such kind of view does not include the inhabitants of the country, which are weaved with the city into a whole. A qualitative study in rural Bavaria forms the basis of an alternative approach. It aims to explain the dichotomy of growth and decline of cities in terms of the growing influence of urban attitudes and values in the society as a whole. This proceeding picks up on a gap in contemporary urban geography. The counterurbanization research carried out in the 1970s can be seen as the last examination of this subject. Against this background, the lecture initially develops an empirical approach based on the attitudes of the rural population towards the urban, in order to elaborate the considerations and explain processes of urban growth and shrinkage, like gentrification and geriatification, from the point of view of the country.

Keywords: urban geography, growth and decline of cities, Germany

Jason N Dittmer, Georgia Southern University. Email: jdittmer@georgiasouthern.edu; Ezekiel's Geographies: "Left Behind" and the Popular Geopolitics of the End of the World

This paper will begin by outlining the history of the American theological movement known as premillennial dispensationalism, including its basic tenets. The paper will then introduce the series of books known as the "Left Behind" series, a bestselling narrative of the Endtimes as interpreted by the authors, Tim LaHaye and Jerry Jenkins. These books enact a particular kind of geographic imaginary, which is rooted in an emphasis on the particular over the universal. This results from several places on the Earth's surface being elevated in geopolitical importance because of the prophetic value associated with them. Conversely, attempts to construct global identities are thwarted by associations with evil and the Antichrist. The paper concludes with a discussion of connections between the American Evangelical movement and policy makers, and thus the connections between popular geopolitics and practical geopolitics.

Keywords: Popular Geopolitics, Political Geography, Popular Culture, Evangelicalism

Maria Diuk-Wasser, Yale School of Medicine. Email: maria.diuk@yale.edu; Anna Milkowski, Yale School of Medicine. Email: anna.milkowski@yale.edu; Goudarz Molaei, CT Agricultural Experiment Station. Email: 019966@po.state.ct.us; Heidi Brown, Yale School of Medicine. Email: heidi.brown@yale.edu; Theodore Andreadis, CT Agricultural Experiment Station. Email: theodore.andreadis@po.state.ct.us; Durland Fish, Yale School of Medicine. Email: durland.fish@yale.edu; Effects of landscape and bird diversity on West Nile virus transmission in CT

The most important maintenance vector for West Nile virus (WNV) in the northeastern US is *Culex pipiens*, an urban/suburban mosquito that feeds predominantly on birds. The intensity of WNV transmission in urban areas is spatially heterogeneous. We examined whether differences in *Cx. pipiens* infection rates (a measure of WNV transmission) of mosquitoes collected in 21 CDC miniature light traps in southwestern CT were associated with certain landscape patterns, the abundance of reservoir-competent bird species, or an index of bird diversity. We also determined the source of *Cx. pipiens* blood meals in a subset of 4 sites and related them to bird relative abundance to determine whether feeding habits were selective. Our best model for infection rate, as determined by the lowest Akaike Information Criterion, included mosquito abundance, several landscape metrics, and the proportion of three bird species. The predicted and observed infection rates had a 95% correlation. We also found that *Cx. pipiens* fed preferentially on American robins, as has been found in

previous studies, but the degree of preference varied with the area of highly urbanized land use around the sampling site. Our study shows that landscape affects all components of the transmission cycle: mosquitoes, birds and the contact rate between them and that should be considered when estimating transmission rates among birds and, potentially, transmission to humans. Future work includes combining mosquito distribution maps generated for our study area with variables predictive of transmission intensity to help direct surveillance to high risk areas and guide control measures.

Keywords: west Nile virus, *Culex pipiens*, landscape, birds, diversity

Deborah P Dixon, IGES, University of Wales-Aberystwyth. Email: dxd@aber.ac.uk; *Frogs in Space*

As biotechnology permeates through society, so a trans-disciplinary archive has emerged that records the many transformations wrought in its wake. And yet, these knowledges and practices also lead us to consider the future and the increased capacity of these technologies to radically re-order nature/society relations, as well as the human body itself. Using in-depth fieldwork at two locations - the Johnson Space Center and the SymbioticA Art and Science studio - I examine how the projects developed within each speak to the exacerbation of existent processes and tendencies, but also work to exceed prediction, offering a new metaphysics for imagining intimacy and distance.

Keywords: Biotechnology Bioart Monsters Geopolitics

Grady Dixon, Mississippi State University. Email: grady.dixon@msstate.edu; Ashley N. McDonald, Mississippi State University. Email: ; Kelsey N. Sheitlin, Mississippi State University. Email: ; Justin E. Stapleton, Mississippi State University. Email: ; Jared S. Allen, Mississippi State University. Email: ; W. Michael Carter, Mississippi State University. Email: ; Mark R. Holley, Mississippi State University. Email: ; Daniel D. Inman, Mississippi State University. Email: ; J. Brent Roberts, Mississippi State University. Email: ; *Effects of Temperature Variation on Suicide in Five U.S. Counties, 1991-2001*

Effects of weather variables on suicide are well-documented, but there is still little consistency among the results of most studies. Nevertheless, most studies show a peak in suicides during the spring season, and this is often attributed to increased temperatures. The purpose of this study is to test the relationship between monthly temperature and monthly suicide, independent of months or seasons, for five counties located across the United States. Harmonic analysis shows that four of the five counties display some seasonal components in the suicide data. However, simple linear regression shows no correlation between suicide and temperature, and discriminant analysis shows that monthly departure from mean annual suicide rates is not a useful tool for identifying months with temperatures that are colder or warmer than the annual average. Therefore, it appears that the seasonality of suicides is due to factors other than temperature.

Keywords: suicide, bioclimate, seasonality

Megan Dixon, University of Oregon. Email: mldixon@uoregon.edu; *Paths through St. Petersburg: the function of repetition in 'place.'*

This paper will examine the processes marginalizing certain conceptions and enactments of place in St. Petersburg, Russia. Massey has recently proposed a networked vision of space (2005, 2006) that consistently discourages the idea of 'place' as stability. One way of reexamining the privileged view of flux that results from her arguments is to study repetition in daily enactments of 'place.' This repetition requires consideration of flux and stability simultaneously, since daily routes entail flexibility and multiplicity but also depend on stable points of reference. Work done by John Urry and the Russian cultural geographer Kagansky offer an opening to hypothesize that study of repeated and shifting movements between stable points of home, work, and other destinations (certain kinds of circumscribed movements) should be included in a fuller conception of 'place' before we reject the aspect of stability in our discussion of a politically acceptable 'space.' Material provided in the presentation will demonstrate how the daily routes and experiences of St. Petersburg residents are constrained as well as enabled by the decisions of the city's elite. A changed transportation landscape changes the possibilities for repeated daily routes and thus for articulation of a localized identity, prompting residents to improvise as well as resist. Daily routes described in extended interviews reveal multiple and competing notions of place, and suggest that more study of material constraints and conditions is needed before we assume the possibility of negotiated juxtaposition to which Massey looks with hope.

Keywords: Russia, place, mobility, post-socialist, network, transportation

Richard W. Dixon, Texas State University. Email: rd11@txstate.edu; *A Bestiary of Retired Hurricane Names*

Much like a Medieval Bestiary, this poster examines the lessons to be learned from a selection of hurricanes so memorable that their names have been retired.

Keywords: hurricanes, coastal, hazards

Richard Ohwofasah Djukpen, Geography Department, University of Illinois, Urbana IL. Email: djukpen@uiuc.edu; *Understanding the Pathways of HIV/AIDS Transmission in Nigeria: A Study of Benin City*

This paper is a two-stage study, first, at the macro level using results from exploratory spatial data analysis (ESDA) techniques of GIS in understanding the HIV/AIDS infections in Nigeria. The national spatial pattern of HIV/AIDS infections shows marked differential distribution in Nigeria. Second, we shall focus on the micro level of a city within Nigeria to understand the dynamics of the infections using in-depth interview, focus group discussion research methods. A number of questions are being investigated using the ESDA: Is there a significant spatial clustering of HIV/AIDS infections in Nigeria? What factors could provide a justification for the spatial distribution? Are there social, cultural practices and economic conditions and HIV/AIDS knowledge discrepancy across the geographical regions? Are there specific pathways of HIV/AIDS transmission that are peculiar to these areas of high prevalence that demand serious attention? The use of the ESDA techniques in HIV/AIDS management, in a Geographic Information Systems (GIS) environment provide public health practitioners with better insight into the spatial variations and peculiarity of the disease. The exploratory spatial data analysis approach provides a stage for proffering effective and acceptable preventive measures that are culture specific, and people or community oriented. It will assist policy makers to design HIV/AIDS management strategies focused on the regional characteristics in Nigeria.

Keywords: Pathways, Spatial Clustering

Petra L. Doan, Ph.D., Florida State University. Email: pdoan@garnet.acns.fsu.edu; *The Myth of Queer Spaces: The Changing Geography of LGBT Residential Areas in the Atlanta Metropolitan Region*

A substantial literature documents the evolution of counter-hegemonic queer urban spaces (Lauria and Knopp, 1985; Bell and Valentine, 1995; Valentine, 2000; Forsyth, 2001) which provide sites of resistance to the hetero-normative patriarchy (Ingram et al. 1997). However many of these studies describe late 20th century residential location patterns, that may be changing rapidly. In recent years the increasing visibility of queer residential zones has been accompanied by increasing commodification as well as increasing property values which have attracted young urban professionals and forced less affluent LGBT populations to explore alternative locations. Have queer residents been priced out of "queer" space? Are new queer spaces evolving at the metropolitan fringe? Following Adler and Brenner (1993) does income remain the critical influence on residential location patterns for gay men versus lesbians or are other factors at work? If the nature of the gay neighborhood has changed, what have the effects been on GLBT residential choices, perceptions of comfort and safety, and neighborhood imageability? Do GLBT people still need, desire or value the queer neighborhood? In this paper we examine the residential choices and neighborhood perceptions of LGBT people living in the Atlanta metropolitan area and present the results of qualitative interviews with GLBT and straight residents of established neighborhoods with high concentrations of gay and lesbian partners according to the 2000 census. Additional interviews with residents of less well-known yet intentionally diverse neighborhoods, that might be better termed "granola" neighborhoods, will be used to examine the location decision-making processes of LGBT people.

Keywords: LGBT, Queer space, gay, lesbian, homonormativity

G. Rebecca Dobbs, Emporia State University. Email: grdobbs@email.unc.edu; *Archival Data to Geographic Knowledge: Reconstructing the Colonial Settlement Landscape in the North Carolina Backcountry*

While the colonial South has an enduring reputation as a town-poor region, Southern backcountry regions experienced an urban revolution in the mid 18th century, when towns and settlement systems sprang up in a short space of time. This process is not well understood and has generally been approached in terms of meso- or macro-scale processes. In contrast, I have approached this problem by assembling a vast quantity of microscale archival data in the form of landgrant records and using historical GIS to transform it, first, into geographic information with the spatial attributes of shape and location; second, into geographic knowledge in the form of mesoscale pattern analysis within the GIS; and finally into a geographic understanding of the Southern backcountry urbanization process in North Carolina by means of a two-scale model that includes both town formation and settlement system development. This paper presents an overview of the Southern urbanization problem and the nature of the archival data, then examines the process of converting that data to geographic information,

geographic knowledge, and finally geographic understanding.

Keywords: historical GIS, settlement development, Southern backcountry

John F. Dobosiewicz, Ph.D., Kean University. Email: jdobosie@kean.edu; *Quantifying Water Quality Impairments and Developing Management Initiatives for a Priority Stream Segment of the West Branch of the Elizabeth River in New Jersey*

The West Branch of the Elizabeth River is an impaired stream in NJ Watershed Management Area 7, the Arthur Kill Metropolitan Watershed, and has been targeted by the NJ Department of Environmental Protection for water quality evaluation and a subsequent priority stream segment management initiative. Water quality in the West Branch of the Elizabeth River is poor, with severe impairment in most water quality indicators, primarily from non-point source pollution. The water quality parameters of concern include coliform bacteria, nutrients, dissolved solids, and dissolved oxygen. These water quality impairments and the land use characteristics of the watershed are consistent with water quality impairment and land use in urban watersheds. Local scale spatial and temporal variability in water quality was determined from samples collected at six sites under base flow and storm conditions. Sites were selected to compartmentalize the priority segment into sub-segments that represent different land use and stream corridor impacts. ArcMap GIS is used to analyze watershed characteristics for the entire priority stream segment and surrounding each site. A site-specific management initiative is developed for each site based on the results of the water quality sampling and the GIS analysis. Preliminary suggestions to reduce impairment at specific sites include the restoration of native species, buffering the stream corridor, evaluation of fertilizer use in residential areas and on nearby golf courses, geese management plans, storm drain marking, and education.

Keywords: urban watersheds, water quality, non-point source pollution

Cory Dobson, University of British Columbia. Email: ; David F. Ley, University of British Columbia. Email: dley@geog.ubc.ca; *Can Gentrification be Stopped?*

The onward march of gentrification in post-industrial cities with a large and growing white-collar work force appears relentless. Not only is there enthusiasm from the private sector but in many cities gentrification is being expedited by public regeneration policies. The consequences are clear: we are moving toward the re-creation of a pre-industrial urban form with elite concentration at the core, and displacement of the poor to less accessible sites. Can gentrification be stopped? Assuming a public will, affordable housing gains can be made but they require levels of market intervention which seem ideologically unlikely at this historic moment. A more pragmatic route is to ascertain those locations avoided by gentrifiers and try to establish policies that may slow or even block gentrification in these neighbourhoods. This research examines the pattern of gentrification in Vancouver during the 1971-2001 period and seeks to understand where the advance of gentrification has been delayed or diverted, and why.

Keywords: Gentrification, Vancouver,

Jerome E. Dobson, University of Kansas. Email: dobson@ku.edu; *The New AGS Bowman Expeditions*

It is fitting that the American Geographical Society (AGS) and the Office of the Geographer should join to honor Bill Wood. The two organizations have been linked historically since "The Inquiry" commissioned by President Woodrow Wilson in World War I. The AGS was responsible for running that crucial, multi-disciplinary study of European geography (language, ethnicity, boundaries, etc.) in preparation for the Versailles Peace Conference. Subsequently, that legacy and the massive collections of geographic information resulting from it became the foundation of the Office of the Geographer. Recently, the AGS has renewed its commitment to inform the public and the government about foreign geography in support of better policy making. Specifically, we proposed to send Bowman Expeditions to gather geographic information, conduct place-based research, and combat geographic ignorance. Our motivation is a deep concern that American foreign policy is increasingly driven by geographic ignorance among voters, analysts, journalists, and politicians of both parties. We relate this to the abandonment of geography from 1948 onward and associated lack of support for foreign fieldwork by geographers. To date, our prototype expedition to Mexico has been underway for two years, and another expedition is funded and ready to begin in the Antilles Region. We describe the design, progress, and results of the AGS Bowman expeditions and demonstrate how our research, purpose, and funding relate to foundational scholarship and sense of duty held by kindred geographers during the developmental stages of the discipline in the United States.

Keywords: foreign policy, geographic ignorance, fieldwork, GIS

Katarina Z Doctor, George Mason University, Fairfax, Virginia. Email: katarina@doctor.com; *Using GIS to determine the probability of sinkhole formations in Frederick Valley, Maryland*

Urban development is rapidly occurring in the karstic terrain of Frederick Valley, Maryland. Sinkholes are an inherent feature of the landscape; they present hazards and engineering challenges to the development of residential commercial and industrial infrastructure. In order to determine the relative likelihood of sinkhole formation, several factors that contribute the occurrence of sinkholes need to be examined: locations of nearby sinkholes, geologic structure, rock type, proximity to impervious surfaces and surface drainage patterns. A sinkhole dataset and geologic map was obtained from the Maryland Geological Survey. Nearest-neighbor analysis will be performed on the sinkhole location data to determine statistical probability of sinkholes within the study area. Using GIS and statistical methods these results will be related to the factors listed above to identify those which may be the most important controls on sinkhole formation in this region. These results may be a guide for future development activities in this region and others like it.

Keywords: karst, sinkhole development, GIS, spatial statistics, nearest-neighbor analysis

Klaus J Dodds, Professor, Royal Holloway, University of London. Email: k.dodds@rhul.ac.uk; *Popular geopolitics, Hollywood and the Visualization of the War on Terror*

This paper is concerned with the visualization of September 11th 2001 attacks and the subsequent declaration of a Global War on Terror by the George W. Bush administration. Using film productions such as Fahrenheit 9/11, United 93 and World Trade Center as a starting point, the manner in which terror is represented is critically considered alongside an analysis of how that might link to particular identity narratives and moral grammars. Finally, the reactions of trade press reviewers and online fandom sites is used to further contextualise the reception of these films alongside recent television productions such as The Path to 9/11.

Keywords: popular geopolitics, Hollywood, Global War on Terror, visualization

Richard N. Dodge, Ph.D, Cochise College. Email: richarddodge2@msn.com; *United Nations Security Council Reform: A Geographic Approach*

Numerous proposals for U.N. Security Council reform have been set forth by individual nations, by the Secretary General, and by others. None has received general acceptance. The proposals of independent nations tend to be based on power relations whereas the Secretary General's proposal would expand membership to the extent that the current permanent membership is unlikely to be in favor of it. A geographic approach that is based primarily on population and representation from major world regions and subregions is suggested here. A fifteen to eighteen member Council with no permanent membership or veto is proposed. Ten would be selected by a system of rotation with two each coming from five major world regions. There would membership guarantees from additional subregions. If democracy is a desirable value in the governing of nations, then a United Nations which is democratic will go a long way towards promoting this value in the world at large. If the world can have a Security Council which actually provides protection from acts of war, then all nations will be able to spend less time on the building of alliances, political intrigues, promoting or suppressing terror, and increasing their armaments. Consequently, nations could apply more resources to their economic, social, and environmental concerns.

Keywords: political geography, United Nations

David Dodman, University of the West Indies. Email: david.dodman@uwimona.edu.jm; *Commerce and Cruises: a comparative study of Caribbean waterfront transformations*

The economies of the small island developing states of the English-speaking Caribbean are heavily dependent on revenue generated through the tourism industry. The most important natural resource for this industry is the Caribbean Sea, and coastlines around the region have been extensively modified to take advantage of this asset. A key aspect of this modification has been the transformation of urban waterfronts into districts designed to encourage business (especially through the development of new commercial districts) and tourism (particularly in the form of cruise shipping). Drawing on case studies from Trinidad and Tobago, St Lucia, Antigua and Jamaica, this paper explores the ways in which urban waterfronts have been transformed in these islands. The creation and ongoing management of these waterfronts involves the negotiation of a complex set of power relationships between stakeholders operating at a variety of scales, including national governments, tour operators, citizens and tourists. In several cases the redevelopments have involved the creation of semi-autonomous

government agencies with far-reaching development powers, whilst in other cases they have involved the provision of incentives to private developers. The cultural meanings of these transformations are shaped by the ways in which tourists and locals alike use the redeveloped spaces, whilst the process of waterfront transformation reflects and shapes broader changes in urban management and governance in the region.

Keywords: Waterfronts, Caribbean, Governance, Tourism

Belinda Dodson, University Of Western Ontario. Email: bdodson@uwo.ca; Gender, Migration and Remittances in Southern Africa

Transnational migration to South Africa from its neighbouring countries has a long history. For over a century, remittances from migrant workers have formed an important component of national economies and household livelihoods. Since the end of apartheid, cross-border migration has undergone both expansion and diversification, including growing feminization. Recent surveys conducted by the Southern African Migration Project (SAMP) shed light on the gender dynamics of contemporary regional migration flows and related remittance behaviour, demonstrating the increasingly important role of women's migration. Comparisons between male and female migrants reveal differences in their demographics, economic activities, and migration patterns. In terms of overall numbers, migration is still male-dominated. Female migrants are engaged largely in activities such as informal trading or domestic service, while male migration is still dominated by the mining sector. These differences affect the nature and volume of their remittances. Comparisons across the different source countries surveyed, namely Botswana, Lesotho, Malawi, Mozambique, Swaziland and Zimbabwe, demonstrate how the particular forces driving migration from a source country produce strongly gendered outcomes. The Zimbabwean case is especially interesting, with the country's ongoing political and economic crisis pushing significant numbers of people - men and women, skilled and unskilled - to leave the country. Migrant remittances are shown to be not only an established source of income and assets for many households but also an important contingency strategy in times of crisis. The paper concludes by suggesting changes to national migration policies to better reflect these regional realities.

Keywords: migration, gender, remittances, Africa-Southern

William W. Doe III, Ph.D., Colorado State University. Email: bdoe@cemml.colostate.edu; Robert G. Bailey, US Forest Service. Email: rgbailey@fs.fed.us; Global Military Operating Environments: Ecoregional Mapping of U.S. Military Deployment Areas

The natural environment of a region - generally defined by its climate, weather and landforms, shapes the geographic space in which military forces operate. Every environment presents different considerations for military planning and engagement. Understanding the effects of the physical environment on soldiers and equipment, and how to adapt to their influences, is a critical factor in operational success. U.S. military forces are dispersed world-wide to meet global threats to national security. Current and anticipated operations in the Middle East, Central Asia, Africa, Indonesia and Central/South America present the military with a complex range of natural environments, including deserts, tropical jungles, high altitude plateaus and mountain ranges. U.S. forces must adapt to those environments which vary from those they have historically trained or operated in. A revised regional and geographic framework, entitled Global Military Operational Environments (GMOE), is developed to characterize the natural settings of military operational environments world-wide. The framework is used to characterize the natural environments associated with Army installations in the U.S. and to compare them globally with geographic analogs found in other parts of the world where U.S. military forces are deployed. The GMOE framework is adapted from Robert Bailey's ecoregions classification system (USDA-Forest Service). The framework integrates climatic criteria with other physical factors (e.g., vegetation, terrain and soils) to define ecosystem characteristics. Fifteen unique operational environments are mapped world-wide. Their distribution and significance to the five regional areas of responsibility assigned to U.S. combatant commanders is analyzed.

Keywords: military geography, ecoregions, geographic analogs

Marcus A. Doel, Professor, Swansea University. Email: m.a.doel@swansea.ac.uk; Dialectical materialism, value theory, and inconsistent multiplicity: From David Harvey to Alain Badiou

The paper assesses the fate of dialectical thinking in human geography in the wake of poststructuralism, with particular reference to value theory and its spatial expression. The paper begins by sketching out one of the most accomplished forms of dialectical analysis in human geography: David Harvey's account of historical-geographical materialism. It then advances a critique of this form of dialectical thinking by drawing upon the arguments of Jacques Derrida and Gilles Deleuze, each of which precipitates an affirmative and innumerable 'swerve' away from dialectical thinking. The paper ends by contrasting the rendering of the multiple in the work of Derrida, Deleuze, and Alain Badiou, and outline's how

'multiplicity' might inform a re-conceptualization of value theory and its spatial expression in contemporary human geography.

Keywords: Poststructuralism, dialectics, deconstruction, value theory, multiplicity, David Harvey, Alain Badiou

James Doerner, University of Northern Colorado. Email: james.doerner@unco.edu; Robert Brunswig, University of Northern Colorado. Email: ; A High-Resolution Paleotemperature Record from La Poudre Pass Fen, Rocky Mountain National Park, USA

Proxy data recovered from the La Poudre Pass fen provides a high-resolution record of Holocene paleotemperature change in Rocky Mountain National Park. The fen is located at 3107 m in the subalpine spruce-fir forest on a col between the Colorado River and La Poudre Pass Creek. The site was deglaciated prior to the initiation of peat formation beginning sometime before ca. 9700 yr BP. The area experienced post-glacial warming in the period from ca. 9700 to 9000 yr BP. Temperatures increased and then fluctuated during the interval between ca. 9000 and 6800 BP. The warming that occurred during this period is interrupted by a cold and/or dry period (ca. 7950 to 7450 yr BP). The climate warmed steadily from ca. 6800 to 4900 yr BP before regional climatic deterioration brought colder and drier conditions the site. Cold, dry conditions (Neoglacial cooling) persisted until ca. 2300 yr BP. After ca. 2300 yr BP warming began again and more mesic conditions returned. This late Holocene warming is disrupted by a short-term cool episode which may correspond to "Little Ice Age" cooling. These results suggest that proxy sediment records may be more sensitive and respond more quickly to environmental change than other proxy indicators such as pollen.

Keywords: paleoclimate, Rocky Mountains, Colorado

Sara Dolan, Student. Email: dola0074@umn.edu; Do Socio-Economic or Demographic Factors Correlate with the Physical Location of ARMY Recruiting Offices?

The purpose of this poster is to provide geographic insight into the existing locations of United States Army recruiting offices within the Twin Cities Metro area (Minneapolis/St. Paul, Minnesota). Specifically, it will provide a visualization of whether the physical location of Army recruiting offices correlates to socioeconomic (income levels) and/or demographic factors (age, race, gender). This poster sheds light upon the question of whether or not the Army is interested in recruiting members from specific demographics or populations. One of Michael Moore's claims in the film Fahrenheit 911 is that the military intentionally targets members of low-income populations. Upon consideration of this I wondered if this claim was in fact true and the best way I could imagine exploring the question would be analyze data within a map pertaining to socioeconomic factors. I chose to study only the placement of Army recruiting offices for this project (versus the Marines, the Navy, etc.) because the Army is the largest branch of the United States military.

Keywords: GIS, Twin Cities, ARMY

Rebecca Dolhinow, California State University Fullerton. Email: rdolhinow@fullerton.edu; Making Space and Making Home: Mexican Immigrant Community Activists

If La Gran Marcha of March 25th, 2006 and its sister marches are any kind of indicator it would appear immigrants in the US are speaking out for their rights in loud and clear ways. Yet it is not equally clear that the majority of the US population has heard their message in any meaningful way. While debates rage on over immigration policy in the US, much of the US economy continues to rely on the undervalued labor of migrant workers from Mexico and other countries. This paper examines the communities in which migrant labor, agricultural field labor in particular, lives in much of the southwest. These communities are called colonias. Colonias will be examined as they are produced as racialized neoliberal spaces. Colonias house hundreds of thousands of farm workers in settlements lacking the most basic infrastructure, such as potable water and wastewater services. These majority Mexican communities are produced as "Mexican" spaces both by residents and non-residents alike, but to very different ends. While non-migrant locals create discourses of filth and disease colonia residents are re-producing their communities as safe and healthy rural spaces. Through this seemingly anti-racist activism colonia leaders can also be taking part in state sponsored development projects that produce their communities and themselves as neoliberal political subjects. Through ethnographic examples this paper will speak to the complexity of the processes that are neoliberalism in the US today and their local manifestations.

Keywords: Activism, Immigrants

Betsy Donald, Queen's University. Email: betsy.donald@queensu.ca; From *Growth Machine to Ideas Machine: the new politics of local economic development - Boston and the Biosafety lab controversy*

In this paper, I review the literature on the political economy of place with particular attention paid to how the politics of local economic development has shifted over the years, especially within the context of an increasing knowledge-intensive urban economy and society. I argue that economic and occupational change in the new economy is having an impact on local economic development politics. Most notable has been a shift in the politics from a 'growth machine'-type of politics to what I am calling an 'ideas machine' one. In this ideas machine, the university and medical sectors are playing a more active role in the strategic direction of the economics and governance of a city. This enhanced role has implications for how we traditionally think about our theories of urban political economy and also has implications for the kinds of policies we privilege in the planning of our cities. Drawing upon insights from a research study in Boston and in particular through the controversial example of Boston Universities' 'biosafety level 4' lab, I show how the politics between the use versus exchange value of land are still relevant, but arguably more complex with more intense 'socio-spatial' and 'scalar politics'. The politics isn't only about creating skilled jobs - or about addressing equity and justice issues in the citing of the bio lab. It also becomes an intense political debate over the global war on terrorism and in particular on the public health security and preparedness of the nation and beyond.

Keywords: economic development, politics, new economy, Boston

David Donato, United States Geological Survey. Email: didonato@usgs.gov; David Donato, U.S. Geological. Email: didonato@usgs.gov; *Computational resources and techniques for modeling watershed-wide urban growth with SLEUTH*

Effective application of the SLEUTH urban-growth model to an entire major watershed requires both the availability of an up-to-date parallel-processing capability, and also modifications to the SLEUTH computational code to improve speed and reduce memory requirements. The U.S. Geological Survey (USGS) implemented SLEUTH on a Web-accessible, Linux-based computational cluster and modified SLEUTH code to reduce memory requirements by more than 40% and to improve throughput by an approximate factor of five. This parallelized and modified version of SLEUTH has been used for calibration runs for 15 sub-regions of the Chesapeake Bay Watershed. In conjunction with the migration of SLEUTH from a 32-bit operating system to a 64-bit operating system, USGS adaptations enable use of SLEUTH in modeling urbanization in relatively large geographic regions (with some caveats about the effect of scale on model predictions). The USGS provides benchmarks and technical proposals for the kind of SLEUTH modifications needed to allow SLEUTH to be integrated with finer-scale growth-allocation models.

Keywords: SLEUTH, urban, growth, impervious, surface, computation, infrastructure, technique

Mary Donegan, University of North Carolina - Chapel Hill. Email: mdonegan@email.unc.edu; *Urban Inequality in the Knowledge Economy and Institutional Policy Responses*

Scholars of economic development have long promoted the knowledge economy as a means to sustain economic competitiveness. Many urban areas? fueled in part by Richard Florida's theory of the creative class? have tried to follow this advice by recruiting and retaining key creative people, with the idea that these talented workers can in turn drive local, knowledge-based economic development. Yet these same scholars have noted that both the knowledge economy and talent recruitment efforts have created unintended economic consequences, such as rising earnings inequality. In this sense, the rise of the knowledge economy has created a paradox: it has provided a potential solution for struggling urban economies, but at the same time has intensified the problem of urban inequality. Earlier quantitative work suggests that there is indeed a strong relationship between creative workers and earnings inequality within a region. Yet it has also shown that, in some cases, progressive labor market institutions are effective at narrowing the earnings gap. Building on these results, this paper presents three regional policies aimed at mediating inequality in creative cities: local living wage campaigns (particularly as a stepping stone to higher statewide minimum wages); collaboration with businesses and labor associations to increase service industry unionization; and integrating immigrant communities into labor market institutions. Each of these regional policies is explored by using both theory and case studies from the literature. The paper concludes by suggesting that beyond reducing inequality, these policies may help improve local workforce skills, potentially improving regional long-term economic performance.

Keywords: inequality, economic development, economic geography, labor market institutions

Francisco Donez, University of California - Berkeley. Email: fjdones@alum.mit.edu; *Black Rocks and the Big Bend - Energy Production, Wilderness, and Development on the U.S.-Mexican Border*

Between the middle 1980s and the mid 90s, two large coal-fired power plants (2600 MW combined capacity) went online in the Mexican town of Piedras Negras, Coahuila, a short distance from the Texas border. From 1993 forward, these plants (nicknamed Carbón I and II) became the objects of intense criticism from governments and activists in the U.S., because of their perceived role in contributing to sulfur oxide haze at Big Bend National Park. The situation was complicated by the fact that the Mexican government was then in negotiations to sell Carbón II to a partnership of Mexican and U.S. utilities, as part of a broad drive to attract private energy investment. This paper will situate the Piedras Negras power plants within the overlapping contexts of (1) collisions between industrial development in northern Mexico, tourist development within the Big Bend, and protection of Big Bend National Park and nearby protected areas; (2) energy sector privatization within Mexico and integration across the Texas-Mexico border; and (3) the history of Mexican-U.S.-Texas relations, particularly regarding energy and environment issues.

Keywords: air, pollution, border, texas, mexico, coal, haze, wilderness, environment, national parks, tourism

Shanon Donnelly, Indiana University. Email: sdonnell@indiana.edu; *Legal Structure and Land Cover in Intentional Communities in the Eastern United States*

The type and spatial patterns of land tenure can have important effects on how individual land cover choices aggregate to landscape outcomes. From its inception, land ownership in the United States was designed to promote private ownership. The simple dichotomy of private versus public, however, ignores sources of institutional diversity that are important for the resilience of linked social-ecological systems. This research will examine the diversity of ways in which contemporary intentional communities in the United States structure land ownership and the relationship of those structures to forest patterns at the community and landscape scales. The body of research emerging from the study of linked social-ecological systems provides a useful theoretical framework for examining the ecological role of intentional communities. Broadly defined as groups of people that have chosen to live and own land together, the concept of intentional communities encompasses a wide range of institutional arrangements ranging from tenancy in common to land trusts to non-profit corporations. Emphasizing the spatial relationship between the legal structure of the communities and their potential effect on landscape fragmentation, this research employs land cover data derived from remote sensing, digital cadastral data, and interview data collected from the communities. Findings of the research include that the legal structure chosen by the community does affect land cover fragmentation primarily through the capacity of the community to subdivide its holdings and whether decisions require individual or collective approval. Especially in exurbanizing landscapes, communities that protect land from subdivision may prove important for landscape connectivity.

Keywords: landuse, landcover, land ownership, intentional communities, complexity

Christopher Donnermeyer, Northern Arizona University. Email: cd74@nau.edu; Samantha Arundel, Northern Arizona University. Email: sam.arundel@nau.edu; *Carnegiea Gigantea Population Density and Structure at Two Sonoran Desert Mountain Ranges*

Carnegiea gigantea population density and structure were examined at two mountain sites in the Arizona Sonoran Desert. Pedestrian survey was conducted to record C. gigantea location with a GPS, height, existence of a nurse, and number of arms. Data analysis was conducted using both spreadsheet and GIS software. C. gigantea density and juvenile recruitment rates were found to be highest on south-facing slopes at both sites. Also, the percentage of individuals with nurses does not necessarily decline with decreasing vegetation cover. This study also found that C. gigantea density does not always decrease linearly with increasing elevation. GIS analysis of population structure found that clustering does exist at both sites. The results of the Global Moran's I show that clustering exists when height, nurses, and number of arms are considered. Lastly, the results of Anselin Local Moran's I showed where clusters do exist based on the three input variables. Clusters of juveniles indicate clustering of nurses whereas clusters of adults suggest a similar germination period. Individuals with dissimilar heights suggest that the taller individual(s) within the cluster have outlived their contemporary neighbors and that juveniles have replaced this population. Both juveniles and adults without a nurse suggest that juveniles are not as dependent on nurses to establish and survive as indicated in the literature. Clustering based on either similar or dissimilar arm counts supports the same conclusions as does clustering based on height.

Keywords: Carnegiea gigantea, population structure, Sonoran Desert.

Anne M Donovan, Kansas State University. Email: donovan@ksu.edu; *Tentacles? Testicles! A sampling of perceptions on uneatable food items among undergraduate students.*

The literature on food preferences and psychology is rich, as is the literature on culture-based food preferences and cuisine. Little exists on food choices - specifically the disgust with certain foods? at the regional level within the US. In this initial survey, students at a major university in the Midwest were asked to identify a food item that they had been offered but refused to eat, something they deemed uneatable. They were also asked to describe the setting and the reasoning behind refusing the otherwise edible food. Since 87% of undergraduates are registered as in-state residents, survey results reflect the Midwestern attitudes for this student demographic. This paper discusses the general themes evident in the data. Among these is the rather large proportion of students that had been offered Rocky Mountain oysters (calf testicles), which relates to the cattle culture that exists in the Great Plains. Another is the disgust with calamari (fried squid) and sushi, which corresponds with a continental location and the unfamiliarity with common coastal foods, especially those linked to unfamiliar ethnic cuisines. Given that the responses to the question are open-ended, a wide variety of foods were reported. Additionally, the situations in which the foods were offered could be useful for making comparisons with other regions in future research.

Keywords: Food preferences, disgust, Midwest, qualitative research

Courtney Donovan, University of Washington. Email: cjdono@u.washington.edu; *Reproducing Postcolonial Realities in the Paris Banlieue*

At present, there is a paucity of rigorous empirically grounded geographic research in postcolonial studies. While some scholars have considered the relevance of spatial and geographic concepts within postcolonial research, a great number of these studies rely solely on spatial metaphors. Overlooked are the lived experiences of postcolonial subjects and the role of space in reproducing postcolonial realities. In lieu of this paucity, I offer an empirically based analysis of the role of space in the prenatal and maternal health experiences of North and West African women living in the Paris banlieue. Home to many immigrants from former French colonies, the banlieue serve as sites for highlighting the materiality of French postcolonial relationships. Furthermore, a consideration of prenatal and maternal health helps to identify the places that may be ignored when thinking of the boundaries of postcolonial geographies. The experiences of North and West African women in the clinics and maternity wards of the Paris banlieue materialize the postcolonial tensions in French immigration debates.

Keywords: postcolonial, space, Paris, banlieue, immigrants, prenatal and maternal health

Gregory T Donovan, City University of New York, Graduate Center. Email: gregory@gregorydonovan.org; *Campaign-casting: An Evaluation of Candidates' Online Spaces In The 2005 NYC Mayoral Election*

The aim of this paper is to evaluate the online spaces generated by mayoral candidates during the 2005 election in New York City. Beginning with the first official debate of the primary season (08/16/05) and ending on Election Day (11/08/05), the mayoral candidates' websites, emails, web advertisements, text messages, blogs and physical mailings (triggered by online activity) were monitored and archived. This study applies both content and discourse analysis to the candidates' mobilization messages and the virtual spaces in which they were shaped. The analysis indicates that, despite the noticeably absent participatory functions of the online environments, attempts were made by the mayoral campaigns to present a veneer of participation through interactive imagery - simulating a sense of presence, population and place.

Keywords: cyberspace, interactivity, campaign, place

Andy Doolen, University of Kentucky. Email: andy.doolen@uky.edu; *Writing the Geography of Empire in Martin Delany's "Blake: or the Huts of America"*

U.S. cultural history generally casts the historical novel as an auxiliary to national progress, a narrative that establishes a unique American character and advances essential elements of political ideology. The American historical novel, like the nation itself, reflected the anti-imperial ideals of republicanism. Measured against this universal standard, the African-American author Martin Delany fares poorly in American cultural history. Valued more as an autobiographer and sociologist, because of his first-hand accounts of slavery in the mid-nineteenth century, Delany is generally undervalued as novelist, labeled a black nationalist more concerned with the laws of economic than the laws of fiction. In contrast, my paper will examine the significance of international spaces in Delany's novel, *Blake; or the Huts of America* (1861-62). As I argue, Delany demonstrates in *Blake* how a dynamic between space and historical narrative was essential to the exercise of U.S. imperial power throughout the western hemisphere. Conventional Romance theory has always held that history in the

American historical novel was an act of escape; the author left both the self and the present to imagine the nation's mythical birth. Delany, on the other hand, while never heralded as pioneer of American fiction, treats history as vital to his narrative method. Travel is the dominant metaphor for history in *Blake*, which reflects and draws upon Delany's own investigative journey through the southern slave states. For Delany an alternative history was transnational, obeyed no national boundaries, and resisted imperial ideology.

Keywords: literature, imagination, fiction,

Mathew A. Dooley, Ph.D., University of Wisconsin-River Falls. Email: mathew.dooley@uwrf.edu; *A Multi-Disciplinary Approach for Mapping and Dating Alluvial Surfaces in Southwestern Arizona*

The timing and sequence of depositional events in southwestern Arizona serves as an indirect measure of climate change throughout the Quaternary. The reconstruction of depositional events, however, relies on our ability to develop and constrain relative surface chronologies. Dateable Pre-Columbian artifacts and roasting features that occur on alluvial surfaces in southwestern Arizona provide a valuable source of information that can be used to constrain relative surface chronologies at a precision that is not typically offered by conventional relative dating methods alone. This paper presents methods for developing, mapping, and temporally constraining alluvial surface chronologies using conventional relative dating methods, geospatial technologies, and surface archaeological data. Two spatial scales are considered. First, focus is placed on three portions of southwestern Arizona mapped by the Arizona Geological Survey. Next, I consider three smaller areas in and near the Crater Range Mountains, northwest of Ajo, Arizona. The results of this study suggest that surface archaeological data in southwestern Arizona, when used in combination with conventional relative dating methods, offer valuable information for temporally constraining alluvial surfaces that post-date the Pleistocene-Holocene transition. Furthermore, this study suggests that these methods are useful at a variety of spatial scales.

Keywords: surface geomorphology, Sonoran Desert, Arizona, archaeology

Sarah Dooling, University of Washington. Email: sdooling@u.washington.edu; *Ethnographies of Urban Homeless: Bare Life in Green Spaces*

Using Agamben's (1998) notion of bare life as my theoretical frame, I explore two issues: (1) the disconnection between notions of home articulated by people living in green spaces and the codified notions of homeless espoused by government and planning agencies; and (2) the tensions in green spaces between squatters who have choose to live there because all other options are not viable and the codified notions of green spaces espoused by the city parks department, who manage these spaces, and by the local, housed citizenry who participate in planning for future green spaces in the city. I present the notion of ecological gentrification, which I define as the process of organizing space that purposefully neglects the lives of the most vulnerable while espousing an environmental ethic. I conclude by asking: how can the practice of urban planning resist the production of bare life for homeless people, and present four recommendations.

Keywords: Homeless, Agamben, Green Spaces

William E. Doolittle, University of Texas. Email: dolitl@mail.utexas.edu; *Diversity Among Spanish Era Aqueducts in Mexico*

Aqueducts built in Mexico during the 16th through 18th centuries vary considerably in architecture and engineering. As similar as they may appear to be at first glance, they are actually quite different. Materials used in construction range from rock rubble to cut masonry blocks. Some were mortared, others were not. Some are quite sophisticated whereas others are rudimentary. Some were built by Spanish-trained craftsman, others were built by native craftsman using indigenous New World techniques. No clear correlation exists between any of their numerous characteristics. The locations of more than 50 extant aqueducts are mapped, and a sample of photographs illustrates the differences. Preliminary research is used to propose some hypotheses to explain variations.

Keywords: water control, historical geography, Mexico

David J Doran, Georgia State University & The University of Georgia. Email: ddoran1@student.gsu.edu; Michael T. Mitchell, Georgia State University. Email: michaeltmitchell@hotmail.com; *The Atlanta Beltline & Added Greenspace: The Emerald Necklace & New Urbanism in the South*

The Beltline and Emerald Necklace, string of city parks, will bring connectivity and recreation to central Atlanta. The metropolitan Atlanta area possesses the lowest population density in the U.S. and ranks tenth in population at 4.1 million. Compared to other major cities it has a very inefficient transit system and ranks 50th in square acreage of greenspace. Sources include multi-government and consultant reports obtained through the Atlanta Regional Commission (ARC), Atlanta City Council, Fulton County, The Trust for Public Lands, and Alex Garvin & Associates. The ARC recommends smart growth with mixed-use development, land use planning, and multi-modal transportation at

various urban transit nodes. Multiple governments of North Georgia need to collaborate in unison to achieve this success in new urbanism. The Beltline light rail service will be constructed along 22 miles of existing, untraveled CSX railroad tracks, connecting 49 in-town neighborhoods, 24 parks, and six prestigious universities. The estimated cost of this urban blueprint exceeds 20 billion dollars, which will be spent on mixed-use development including affordable housing which will occur around transit station villages similar to Lindbergh, Midtown, and Cabbagetown. Completion is projected for 2030 and will be the benchmark for new urbanism in the American South.

Keywords: Connectivity, Greenspace, Mass Transit, New Urbanism

Michael L. Dorn, Temple University. Email: mdorn@temple.edu;
Teaching Information Technology Skills to Urban Youth Through Disability Studies

Philadelphia's population is older and experiences higher rates of disability than most other American cities. The past forty years is seen the departure of manufacturing from the inner ring neighborhoods, where they have been replaced by low paying jobs in the service sector. As a result the city faces a critical shortage of housing that is accessible and affordable. According to a 2003 study, "there are at least 30,000 fewer affordable housing units in Philadelphia than needed for rental households with incomes below \$20,000." North Philadelphia high school students see disability on a regular basis. Wheelchair users, for example, are much more visible in their neighborhoods than in more affluent parts of the city. But these young people rarely have an opportunity to research the experiences of the disabled population, let alone imagine empowering solutions to the barriers they face. Faculty of the Information Technology and Society Research Group and the Urban Education Program at Temple University partnered to develop a Disability Studies curriculum tailored to interests and background of these students. This paper describes the development and implementation of this curriculum as part of a summer intensive program in information technology and geographic information science. Through lectures, laboratory exercises, guest speakers and field work students learned to examine familiar landscapes through an unfamiliar lens.

Keywords: housing accessibility, disability studies, geographic education, universal design, ableism

Ronald I. Dorn, Arizona State University. Email: ronald.dorn@asu.edu;
Integrating geographic weathering theory and cultural preservation on public lands

That prehistoric cultural sites worldwide are imperiled is well understood. Cultural resource management (CRM) has developed as a professional specialization and career path in response to this fact. Phrases such as "Saving the Past for the Future" are widely used by both CRM and academic archaeologists as soundbites to illustrate aspects of the relevance and goals of the profession. Perhaps the greatest risk to the richness of the archaeological record comes from the daily loss of rock art where anthropogenic factors and natural erosion continue to result in the destruction of countless numbers of motifs engraved or painted on rock surfaces. In recognition of this problem, federal legislation exists to develop a center for rock art research; yet no reliable methods now exist for such a future center to identify the most endangered rock art. This is where geographical weathering theory can rise up from the obscurity of Introduction to Physical Geography classes into national prominence. Rock weathering researchers internationally have dozens of strategies to measure weathering, but this paper explains that no single easily-learned approach could be used by to conduct a non-destructive "triage" of the tens of thousands of rock art panels in the western United States and in the developing world. This paper goes on to explain why geographical weathering theory is sufficiently mature in its understanding of environmental-rock interactions to develop a non-destructive method usable by the non-specialists inevitably assigned to CRM projects.

Keywords: weathering, geomorphology, rock art, sustainability

D'Arcy J. Dornan, Ph.D., Central Connecticut State University. Email: dornandaj@ccsu.edu;
Tourism Geographies: a Renaissance in the 21st Century

Geography departments are seemingly well positioned to take advantage of the growth in the popularity of tourism as a field of study. The ever-growing international reputation of the journal *Tourism Geographies* is a good case in point if we can use this journal's success as an indicator of this trend. This paper aims to evaluate and discuss the impacts of academic managerialism and capitalism and related processes to the development of programs, both academic and professional, relating to the geography of tourism, the geography of tourism and hospitality, and to the professional development of tourism. Concrete and recent examples of the aforementioned program types will be drawn from program development efforts in both California and Connecticut. These 'case studies' will be examined and used to illustrate their significant impacts on the growth of this field within geography. Additional comments and conclusions will be taken from one of last year's panel discussions on a different but related topic

entitled: 'Tourism geography: lost realities and prospective opportunities,' which sought to assess the current situation and future trends in the academic tourism geographer community in its ability to meet the needs and challenges of the tourism and hospitality industry and of academia.

Keywords: tourism, geography, impacts, California, Connecticut

Stefan Dorondel, Humboldt University Berlin, Germany. Email: s.dorondel@agrar.hu-berlin.de;
Worker Peasant and the Entrepreneurial Peasant in Postsocialist Romania

This paper aims to analyze the mechanism of agrarian differentiation in two villages in postsocialist Romania. While one of the villages has been collectivized during socialist times, the other never knew any collective farming. In this paper I argue that for both villages the mechanism of differentiation were conditioned by access to off-farm jobs in socialist times. For both villages off-farm jobs played an important role in getting access to substantial income. While the villagers from the former collectivized village worked in a car factory, the villagers of the non-collectivized village were involved in commerce during socialism. This difference created different skills and perceptions in the two villages which influenced the postsocialist process of agrarian differentiation. After 1989, in the context of land restitution, the formerly collectivized villagers continued to work within the car factory and referred to do agriculture as a "part-time job". They focused mostly on maintaining their off-farm jobs. By contrast, in the other village some of the already differentiated actors focused on the most lucrative economic activities: rural tourism and, linked to that, dairy production. In conclusion, I argue in this paper that the historical background is important in understanding the mechanisms of agrarian differentiation in postsocialist villages. Landed property may not assume the significant role attributed to it in other regions.

Keywords: worker peasant, entrepreneurial peasant, postsocialism, social differentiation

Bryan Dorsey, Weber State. Email: bdorsey@weber.edu;
Sustainable Intermediate Transport in West African Secondary Cities

This research provides a brief review of the scant previous studies of non-motorized modes of sustainable transportation in Sub-Saharan Africa urban areas. Particular attention is given to the need to encourage bicycle transit in West African secondary cities. Although the Institute for Transportation and Development Policy (ITDP) has made considerable progress in developing improved bicycle transportation, much work remains. In their outstanding effort at decentralized cooperation, ITDP has identified key countries for development of the market for quality bicycles, yet some important secondary cities have been thus far, overlooked. This study identifies the potential market for ITDP's quality, yet affordable, "California Bike" in Togo's second largest city, Sokodé. Results from a survey conducted in Togo's central region will demonstrate some of the challenges associated with bicycle transport in rural West Africa.

Keywords: West Africa, development, transportation

Petr Dostal, Charles University. Email: dostal@natur.cuni.cz;
Risks of a Stalemate of European Integration and the Public Opinion: Challenges and Conflicts of Differentiated Integration

The paper provides an analysis of the public opinion in the enlarged European Union (EU) on issues of differentiated integration. Issues of differentiated integration can be grouped in three subcategories: (i) multi-speed integration, (ii) variable geometry, and (iii) a la carte integration. Current public opinion in the EU25 indicates that there are serious risks to fail in creating a balance between widening and deepening projects of the European integration process. The EU is conceptualised in this paper in terms of an inter-state confederal consociational system that is lacking a new well-integrated supra-national European polity. Macro-geographical structure of the current EU is examined in order to derive basic explanatory assumptions that assess the current fragmentation of the EU electorate in 25 polities in terms of national socio-economic situation and pressures of globalisation. The differentiation across the enlarged EU in the public opinion supporting or opposing current stage of differentiated model (such as membership in the Euro-zone compact) is explained with the help of structural and public opinion variables. Statistical explanatory analysis (LISREL procedure) of the current articulations of the public opinion (Eurobarometers 2005 and 2006) current or future models of the differentiated integration process shows the importance of a complex opinion assessment of positive and negative opinion on widening (i.e. enlargement) and deepening (i.e. political union) of the EU. The analysis shows emerging public political opinion cleavages across the enlarged European Union of the old and new member states and indicates emerging complexities of core - periphery patterns in the continent.

Keywords: EU, public opinion, differentiated integration

Markus Dotterweich, Prof. Dr., University of Koblenz-Landau. Email: mail@markus-dotterweich.de; *Anthropogenic Impacts on Erosion and Accumulation Processes during the Holocene in Germany*

Spatial and temporal surface changes during the Holocene are strongly correlated to landuse, climate, and extreme weather. In Germany, catchments were selected which possessed well preserved geoarchives. Stratigraphic, sedimentologic, and pedologic parameters were determined and sediment & soil formations were dated by physical & archaeological methods. Historical and contemporary resources provided information about landuse, settlement, and climatic history. These, combined with archaeological investigations were used to reconstruct the ecosystem development. From Neolithic through Early Medieval, ecosystem development was driven by several phases of varying landuse intensity and duration, consisting of small woodlot clearings over a limited time span for agriculture. Forest soils dominated. In Roman Times, increasing agriculture and extreme rainfall events resulted in more than 1 meter of erosion. Through High Medieval Times, the catchments were almost completely deforested and utilized for agriculture or settlements. However, sheet erosion was low and gullies developed along pathways with confined water flow. During Late Medieval Times, extreme rainfall events and extended landuse led to intense erosion. Gullies, 100 m in length and 6 m deep developed. Single erosion events removed fertile soil, exposing underlying stones. Except for small vineyards and hops fields, the area was abandoned and naturally reforested. From the 1500-1700's landuse increased, gullies lengthened, and lower parts of gullies filled. After the 1800's, landuse intensity and soil erosion intensity decreased continuously. Gully erosion occurred only along pathways. Since the 1950's almost all the highly degraded areas are under pasture or forested.

Keywords: Soil Erosion History, Human Impact, Prehistoric, Holocene, Geoarchive, Germany

Jamie Doucette, Department of Geography, University of British Columbia; Visiting Researcher, Institute For Democracy and Social Movement Studies, SungKongHoe University, Seoul. Email: jamie.doucette@gmail.com; *Neoliberalism and the Korean Post-Developmental state.*

This study analyses the transition of the Korean state from a developmental model towards what Ong (2004) has labeled a 'post-developmental' model of East Asian state, a model with strong neo-liberal inflections. In order to get at some of the constitutive relations that underlie this transition I treat the Korean state within an extended geographic field. Previous accounts have focused more on elite relationships between the state and business groups that fashioned industrial policy and failed to anticipate the role that social movements, neoliberal-oriented bureaucrats, and industrial and financial capital would/did play in refashioning the developmental orientation of the state. Hence, this study attempts to better gauge the agency of these groups in the transition by analyzing some of the subtle sets of interactions that inform them. The state's strategic deployment of different caring and punitive practices in response to crisis and opposition, the insulation and protection of pockets neo-liberal expertise within the state, and the effects of the valorization of various worker, nationalist, migrant subjectivities on state policy (and policy-makers) are considered as key factors mediating and inflecting the neo-liberal transition of the Korean state. This set of interactions includes exchanges not simply in the economic sphere, but in a wider traffic of symbolic and political goods that have informed and set limits on the capacity of post-developmental state: especially in terms of the extent of democratic consolidation and participation in the area economic policy, where key cleavages on the basis of class, gender, and ethnicity continue to exist.

Keywords: neoliberalism, state theory, post-developmentalism, cultural political economy

Percy H. Dougherty, Kutztown University of Pennsylvania. Email: doughert@kutztown.edu; *Wine Production in Apulia, Italy? Changes in an Ancient District*

Apulia or Puglia is located in the extreme southeast of Italy extending along the east coast from the Promontorio del Gargano in the north to the Salento Peninsula, often called the Spike or heel of the boot, in the south. If Apulia were a country, it would be the sixth largest producer of wine in the world. Known for its production of Primitivo, Negroamaro, Malvasia Nera, Aglianico and many other grape varieties, not grown widely elsewhere, Apulia has had a reputation of quantity rather than quality. Many of the grapes are throwbacks to the early Greek settlements that once covered this area. The impact of zonazione, the Italian equivalent to terroir, is well illustrated. This is an area that differs from the stereotypical Italian wine district in that it is an area of low relief with very arid conditions caused by its windward location on the mountainous peninsula. Great changes have occurred in recent years that differentiate Apulia from other Italian regions including the development of extensive vineyard holdings in which agribusiness produces huge amounts of wine in large, modern, technologi-

cally advanced wineries. Changes in the viticultural practices and the type of wines produced are also explored.

Keywords: Wine, Italy, Apulia, Puglia, Salento Peninsula, zonazione

Kirstin Dow, University of South Carolina. Email: Kdow@sc.edu; Richard Murphy, Univ of South Carolina. Email: rlmurphy79@gmail.com; Greg Carbone, Univ of South Carolina. Email: greg.carbone@sc.edu; Jinyoung Rhee, Univ of South Carolina. Email: rheej@mailbox.sc.edu; *User Evaluation of Drought Mapping*

As a chronic hazard affecting large portions of the country, drought is one of the costliest threats facing the US. The slow evolution and long duration of a drought means that ongoing monitoring of conditions can inform a range of adaptation decisions as the threat emerges, worsens or lessens. Under these circumstances, real time mapping of drought conditions offers a valuable option to minimizing potential impacts. Designing such an effective risk communication strategy requires relevant, timely, credible information, but those climate information needs and the relative utility of such information have received little attention. This paper reports on one effort to evaluate the relevance of various drought mapping formats. A survey queried drought managers in South Carolina about the utility of spatial information at different scales. They evaluated maps delimited by river basin, climate divisions, county, and drought management regions to determine the value of multiple forms of spatial information. This exercise allows us to explore the notion that higher spatial resolution is consistently preferable.

Keywords: Drought, Risk Communication, water resources

Lorraine Dowler, Penn State University. Email: lxd17@psu.edu; *The Final Frontier: Gender, Militarization and the Mercury Space Program*

This paper is situated in the frontlines of The Cold War: the space race. On June 17, 1963, Soviet cosmonaut Valentina Tereshkova became the first woman in space. There were suitable American candidates two years prior to Tereshkova's flight, when thirteen female pilots, recruited by the private Woman in Space program, surpassed the men's scores in both the physical and psychological exams. At the time, two reasons prohibiting women from being sent into space were suggested: 1. Space flight is a form of militarization therefore all pilots need to have proven themselves as military pilots prior to entering the space program. Since women were restricted from flying in the U.S. Air Force they would naturally be disqualified. 2. Ideologically, the loss of an American woman, especially a mother, in space would have translated into a loss of The Cold War.

Keywords: Gender, Cold War, Space Race

Robyn Dowling, Macquarie University. Email: rdowling@els.mq.edu.au; Pauline McGuirk, . Email: Pauline.mcguirk@newcastle.edu.au; *Planned residential environments in 'the neo-liberal city'*

New residential environments, in Australia, the United States and elsewhere, have been substantially reconfigured by forces of privatisation and privatism. In the Australian case, privatisation has been most obviously manifest in master-planned estates in which a private development corporation carries out activities that have historically been the purview of the state: planning, infrastructure provision and facilitation of community development. In this paper we cast a critical eye over this presumed process of privatisation. Based on interviews with development, planning and property organisations we explore the myriad, potentially contradictory, motivations and influences producing master-planned estates. Rather than evidence of the all-encompassing grasp of neo-liberalisation on the contemporary city, we find a complex enactment of privatisation through which new geographies of sociability and sustainability are being embedded.

Keywords: urban neoliberalism, residential environments, privatisation

Victoria S. Downey, University of Kansas. Email: vdowney@gmail.com; *Representations of Waikiki: An analysis of tourism through hotel brochures*

Tourism dominates the Hawaiian economy, and the economic stronghold of the tourism industry is Waikiki. Waikiki contains more rental units than anywhere else in the state and in 2002 was responsible for 55.6 percent of hotel rental units statewide. This presentation will focus on the various representations of Waikiki through textual analysis of brochures from hotels in the area. Throughout history representations of the Pacific as a whole were romanticized in part to draw colonial settlers to the area. Waikiki continues to be depicted as both a familiar and exotic entity in mainland United States tourism advertising. Over time, the development of Hawaiian tourism has been possible through this appealing dualism. Through the investigation of this cultural construction, this presentation will explore such representations of Waikiki from a postcolonial perspective and investigate the specific ways these representations are contributing to Waikiki's tourism development. This research will contribute to a larger

body of literature which considers the ways postcolonialism and tourism might intersect.

Keywords: Hawai'i—Waikiki, tourism, representation, postcolonialism

Joni A Downs, The Florida State University. Email: jad05m@fsu.edu; Mark W Horner, The Florida State University. Email: mhorner@fsu.edu; The Flight Leg Allocation Problem (FLAP) for Modeling Pathways of Migratory Birds

Selection of individual sites in a network of nature reserves is a strategic decision that considers trade-offs between monetary costs associated with habitat acquisition and the benefits of biodiversity preservation. Conserving habitat for migratory birds presents a unique set of challenges, because birds that cannot complete migration in a single flight must stopover at intermediate sites. Therefore, multiple reserves distributed across space may be required for complete protection of a single species. We developed the Flight Leg Allocation Problem (FLAP) to identify optimal configurations of stopover habitats for migratory bird conservation. FLAP, a network flow problem, finds the optimal migratory pathway that requires use of the fewest number of stopovers in the shortest distance, given that flocks of birds are limited by maximum daily flight capabilities and constrained by carrying capacities of individual habitats. We first present the FLAP model formulation and describe results of an empirical test for a large wetland dataset. Then, we briefly discuss conservation implications for using FLAP to identify priority conservation sites for migratory birds in nature reserve networks.

Keywords: GIS, spatial modeling, optimization, ecology

Peter Downs, Stillwater Sciences. Email: downs@stillwatersci.com; Maia Singer, Stillwater Sciences. Email: maia@stillwatersci.com; Re-establishment of physical and biological integrity in fragmented rivers lacking a credible reference condition: lower Merced River, California

In many rivers regulated by large dams, changes to the river's morphology, hydrology and sediment regimes are so profound, and longitudinal and lateral disconnection so complete, that no credible reference reach exists as the basis for restoration. In these fragmented rivers, restoration must use exploratory field data along with predictive and empirical models to improve system integrity. The lower Merced River is both disconnected from its upper watershed, and further fragmented in the "dredger tailings reach" (DTR) from historic gold mining which has laterally disconnected the floodplain. The DTR is now a focal reach for restoration planning because upstream fish passage restrictions make it a primary spawning area for anadromous fall-run Chinook salmon and, potentially, the endangered Central Valley steelhead. Restoration planning has necessarily involved "naturalization": the establishment of a new ecosystem where morphological and ecological configurations are designed to be compatible with contemporary altered flow and sediment transport regimes. There are four primary restoration challenges for the DTR: 1) stimulation of an effectively "paralyzed" river channel, 2) improvement of highly sub-optimal habitat for native aquatic species, 3) re-establishment of native flora and fauna on a floodplain comprised of unconsolidated dredge tailings, and 4) protection of the ecosystem from the potential mobilization of bioavailable mercury. Baseline studies and numerical modeling were used to develop restoration proposals that acknowledge ecosystem creation and the management commitment required to sustain the improvements. A rigorous monitoring plan has been devised to evaluate the project, and also to maximize the transferability of the learning experience.

Keywords: river restoration, California, fragmentation, reference reach

Stuart Downward, Dr, Kingston University, London, UK.. Email: s.downward@kingston.ac.uk; David Livingstone, Kingston University. Email: d.livingstone@kingston.ac.uk; Kenny Lynch, Dr, University of Gloucestershire, Cheltenham, UK.. Email: klynch@glos.ac.uk; Ros Taylor, Dr, Kingston University, London, UK. Email: r.taylor@kingston.ac.uk; Podcasting to enhance geographical field-based teaching and learning

Podcasting is a rapidly developing area of e-learning. On-screen software (such as iTunes) and mobile devices (such as the iPod or a palmtop computer) provide the opportunity to communicate recorded information any-where at any-time. Podcasting has huge potential for geographical teaching and learning because it extends the students learning environment, facilitates mobile learning and encourages widening participation. In the fieldwork context, this means that students can access site-specific information to enhance and test their understanding of geographical phenomenon. We present the findings of a range of podcasting initiatives undertaken Kingston University (London, UK) 2005-present: (i) Geographical iWalks - spatially referenced podcast guides to support fieldwork. Examples are given for guides developed for fieldwork in the UK, Spain and Malta. (ii) Technique specific podcast - 'how to do' podcast guides providing mobile reference guides to fieldwork techniques. (iii) Podcasting as an

assessment tool - students create their own video-documentary podcasts of independent field research projects. An example of fieldwork in South Africa is provided. The student and staff experiences are evaluated, barriers to entry are considered and recommendations proposed: students respond to a variety of podcast experiences, welcome 'quality' production and are switched-on to the flexible learning opportunities they facilitate (e.g. occupying 'dead-time' in transit between field-sites). We observe that, in this initial experimental phase, the demand and market for geographical podcasts as an aid to teaching and learning is huge. We anticipate future developments (notably, technology convergence) and highlight the commercial implications of this research.

Keywords: Podcast, fieldwork, technology, learning

Martha Dowsley, PhD Candidate, McGill University. Email: martha.dowsley@mail.mcgill.ca; The Effects of Inuit Conceptions on Polar Bear Conservation

Inuit and polar bears have long been co-apex predators of the arctic environment. With the advent of mechanized transport and firearms, Inuit improved their position relative to bears and increased their bear harvest in response to the emerging monetary economy. After quotas and a sport hunt were developed in the Northwest Territories of the Canadian arctic during the 1960s and 1970s, the Inuit-polar bear relationship changed dramatically. Inuit communities were restricted in their harvest, but were given the opportunity to vastly increase monetary returns per bear. The change in understanding bear populations as independent from human hunting pressure to viewing them as a finite resource is ongoing in arctic communities and includes many cultural intricacies. The shift is further complicated by concerns over climate change and contaminants, and by the creation of the new Inuit-majority territory of Nunavut. This presentation explores how Inuit conceptions of polar bears influence discussions in Nunavut co-management settings.

Keywords: conservation, commons, polar bears, arctic, Inuit, co-management, subsistence economy, tradition, modern

Aaron Doyle, Carleton University. Email: adoyl2525@rogers.com; Kevin Walby, Carleton University. Email: kwalby@connect.carleton.ca; Imagining the Other Place: Examining Public Fears of Assorted Urban Spaces

Drawing from open-focused interviews with residents of differing urban neighbourhoods in Ottawa, Canada, this paper discusses the interplay of risk, fear and place in people's lives, examining how certain urban spaces, sometimes seemingly innocuous or little known by the interviewee, come to be understood and constructed as "other" places to be feared and shunned. The interviews provide the empirical context to re-examine various ways of theorizing feared places such as notions of deviance, alterity, stigma, risk, purity and dirt, and abjection.

Keywords: risk, fear, mobility, alterity, stigma, abjection

Brian J. Doyle, United States Military Academy. Email: brian.doyle@usma.edu; Wind, Tides and Current - the Key to the Defense of West Point

This paper will examine the role played by the wind, tide and currents in the defense of West Point during the Revolutionary War. Both the British and Continental Forces identified the Hudson as the key to controlling the continent. Early on the significance of West Point was recognized due to its location at a major bend in the river. The continental forces occupied and fortified this location in their attempt to maintain control of the river and thus ensure New England remained linked to the remainder of the colonies. The defense of West Point was primarily centered around a battery of cannons positioned at the critical bend in the river, and placed so as to shoot directly across the water and into the hull of any passing vessel. To assist in slowing down the vessels, and thus enable the cannons to hit their target, a chain was forged and stretched across the river. Some contend that this chain would have easily been snapped, given the force of a hull against it. This paper will argue however, the variables of wind, tide and current at this location on the Hudson would make it extremely unlikely that a sailing vessel could gain the required speed to break the chain, or even, in many cases, round the bend. A historical record will be built of wind and current speed, as well as tidal range, to establish the number of days when a vessel could even attempt to round this obstacle in the Hudson.

Keywords: Military Geography, West Point, Revolutionary War, Hudson River

Jason Doyle, Salem State College. Email: jasond14@msn.com; Analysis of Landcover Change in South Florida's Everglades

Water management has been a hot topic of debate and scrutiny in south Florida due to onset of urbanization and ever-escalating population that thrives there. The effects of water management, in order to meet societal demands, have infringed upon and critically altered the once untouched Everglades National Park. I will be analyzing these effects, which have changed the ecology and

overall characteristic in this region. This research will be done utilizing Landsat TM and ETM data, over the past twenty years, from the mid-1980's to the present. This research utilizes a variety of land change techniques to see the effects, on the land, caused by these water management practices. The Everglades has forever been an integral part of the south Florida's ecology. It has come to characterize the ecology of this region, distinguishing it from other places due to the array of wildlife that call it home. Water management practices have altered this ecology, but changes have been made and are constantly in process to reverse these effects. Florida's Everglades National Park is such an important piece of Florida's history, culture, and economy, but most importantly is home to a multitude of species of wildlife that are struggling to survive there.

Keywords: Remote Sensing, Everglades, Landcover Change

Stephanie Drabble, Manchester Metropolitan University. Email: s.drabble@mmu.ac.uk; *Exploring de-centred spaces of creativity in Manchester, UK.*

This paper critically discusses Florida's (2002) notion of the creative class, which presupposes that creativity is located within particular social groups and neighbourhoods, explicitly defined by certain class based tastes and consumption preferences. This powerful idea has certainly influenced cultural regeneration strategies which tend to favour middle-class interests and privilege the city-centre as the primary site for creative production. Such approaches however, overlook the potential for suburban forms of creative practices and the contribution they can make in terms of both social and economic benefits to local development. It is being increasingly recognised that there is genuine need within the UK to promote the development of suburban regeneration (ODPM, 2004). This paper therefore, examines how creative practices within two suburban locations in Manchester (UK) have contributed to sustained economic and social development. The research reveals the value of private and collective forms of intervention in producing networks of exchange essential to support local development. The paper concludes with the assertion that the exploration of de-centred and vernacular spaces of creativity provides a valuable insight into potential models of suburban regeneration.

Keywords: Creativity, consumption, middle class, regeneration, economic development

Christine Drake, Ph.D. University Professor of Geography, Old Dominion University. Email: cdrake@odu.edu; *Indonesia: a decade of extraordinary change*

Indonesia has experienced enormous changes over the past decade! Politically, the government has moved from Suharto's military rule to a democracy with a directly elected president and devolution of power to the regions. East Timor has become independent and the civil war in Aceh is now over. Economically, Indonesia suffered through the serious SE Asian economic crisis of 1997-98 and has spent the ensuing years recovering. Socially, the country has added more than thirty million to its population, and ethnic and religious tensions have grown and erupted into violence on a number of occasions. Indonesia's environment has experienced both severe natural calamities including the great tsunami of 12/04, earthquakes, and volcanic eruptions, and human-caused disasters such as greater deforestation, mudslides, floods, and the destruction of coral reefs. This paper analyses these changes in more detail, based on both statistical evidence and recent field research.

Keywords: Indonesia, environment, change

Dawn M Drake, University of Delaware. Email: dmdrake@udel.edu; *Examining the Issue of Maldistribution of Physicians through GIS: A Case Study of Retina Specialists in the United States*

The location decisions of physicians in the United States have significant impacts on the cost of, quality of, and access to health care for Americans. Many parts of the country remain largely underserved, while metropolitan areas have an overabundance of doctors. By studying the location of physicians and their practices within the GIS, one can detect these pockets of underserved and over served populations. This presentation looks at the distribution of physicians in one sub-specialty of ophthalmology, retinal medicine, by mapping the locations of the members of the American Board of Retina Specialists. The results find that cities like New York, New York, Los Angeles, California, and Dallas-Fort Worth, Texas are well attended by their retina specialist populations, while Buffalo, New York, Kansas City, Kansas, and Phoenix, Arizona remain largely underserved. Only by obtaining a visual image of the physician population can the United States fully appreciate the maldistribution problem and seek proper remediation.

Keywords: GIS, medical geography, retina specialists, maldistribution

Mark H. Drayse, California State University. Email: mdrayse@fullerton.edu; *Regional Dynamics of Canadian Furniture Manufacturing in an Era of Globalization.*

Economic liberalization has created opportunities and challenges for Canadian furniture manufacturers. On the one hand, a favorable exchange rate and more open American market contributed to rapid growth during the 1990s. In fact, between 1994 and 2003, the furniture industry was the fastest growing manufacturing industry in Canada, almost doubling employment. On the other hand, firms face greater competitive pressure from imports, especially since the emergence of the Chinese furniture industry. This paper addresses the following questions. How have Canada's regional furniture producing centers been integrated into continental and global economies? To what degree are firms competing by developing supply networks in China and Pacific Asia, and distribution networks based in the United States? How have regional institutions and assets influenced the industry's recent development? These questions are addressed using secondary data, the results of a survey, and interviews with managers of Canadian furniture firms.

Keywords: Canada, Furniture Manufacturing, Globalization.

Dusan Drbohlav, Charles University, Prague, Czech Republic. Email: ddrbohlav@quick.cz; *Illegal Economic Activities of Migrants in the Czech Republic*

The Czech Republic has quickly been shifting towards western migratory/integration models well-known from the developed World. The given issue of economic activities of illegal/irregular migrants has not yet been researched into too much in the Czech Republic. Nevertheless, it is one of the key migration policy goals declared by the Czech Government. The presentation is based on results of a research project sponsored by the Ministry of Labour and the Ministry of Education. A team of members of the Department of Social Geography and Regional Development, Faculty of Science, Charles University in Prague, has been involved in tackling the given issue in 2005 and 2006. The presentation introduces results of three different research activities in the given field: First, results of a questionnaire survey among 70 Post-Soviet illegal economic migrants who operate in Prague, results following from an analysis of interviews with 47 illegal economic migrants (both those who still operate in the country and those who have been caught by the Police) and results of a Delphi method with 32 migration experts. The results bring new pieces of information on this important phenomenon, inter alia, on reasons for migration, basic characteristics tied to migrants, their living style, and their probable future behaviour. One of the most important goals was to ascertain impacts of migration policy measures upon migrants and, vice versa, an impact of migrants' illegal/irregular activities upon various social substructures of Czech society.

Keywords: illegal immigration, economic activities of migrants, Czech Republic

Christine M. Drennon, Trinity University. Email: cdrennon@trinity.edu; *Redefining Political Community on the Balkan Peninsula*

Ethnic cleansing and genocide (especially as practiced on the Balkan Peninsula) remove all traces of ethnic difference or diversity from the landscape. Yet the very presence of that diversity alludes to a past that must have been organized very differently to allow such diversity to flourish and persist. In fact in some parts of the world, the 20th century formulation of the nation-state redefined group identities by the territorial limits of the sovereign state, replacing other older forms of political identity with one that is territorially defined. There is a sense that this inclusivity is highly democratic; however, this universalism can also be understood as quite exclusive since those whose private or group identities fail to align with that of the spatially-circumscribed majority frequently lack some of the rights guaranteed by the state. Iris Marion Young theorizes this tendency toward intolerance of difference as a more generalized process that produces homogeneity within any formally identified group. So what if we identify a different or alternate group identity such as a social movement to privilege as public rather than location? What would happen in the spatial domain? Would diversity once again be tolerated? In this paper I propose a theory of territoriality and group identity that may help us make sense of ethnic cleansing and genocide. Data from the multi-ethnic, pre 20th century Balkan Peninsula is used to illustrate this proposed theory.

Keywords: political identity, territoriality, Balkan Peninsula.

Wolfram Dressler, Dr., Lecturer, University of Queensland, AU. Email: wolfram_dressler@hotmail.com; Bram Buscher, Mr., PhD Researcher, Free University, Amsterdam, Netherlands. Email: ; *Market Triumphalism and the CBNRM 'crises' at the South African Section of the Great Limpopo Transfrontier Park.*

Abstract Transfrontier conservation has taken Southern Africa by storm. The modus operandi remains simple and intuitive: by dissolving boundaries, local benefits grow as peace, conservation and development spreads regionally.

However, in the case of South Africa's section of the Great Limpopo Transfrontier Park, political economic change redirects benefits to support 'modern' economies at the expense of rural livelihoods through community-based natural resource management (CBNRM). Neo-liberal agendas promoted by government derail efforts at decentralizing CBNRM initiatives beyond markets and state control. In sequence, national officials draft and implement guidelines for devolved conservation, conjure up poverty relief or 'social responsibility' projects, which the private and public sector implement as "tertiary production" for regional development. Results suggest that 'CBNRM' programs and projects related to and independent of transfrontier conservation support private sector interests rather than the resource base of rural livelihoods. The paper concludes by offering insights into how and why CBNRM often fails to support the livelihoods of resource users who reside at the western edge of the Great Limpopo Transfrontier Park.

Keywords: community-based conservation, South Africa, poverty reduction

Anita I. Drever, Ph.D., University of Tennessee. Email: adrever@utk.edu;
Sarah A. Blue, Ph.D., Northern Illinois University. Email:
sblue@niu.edu; Subcontractors and Undocumented Immigrants in La Nueva Orleans

Following hurricane Katrina, New Orleans became a 'new destination' for Latino migrants in the American South. Tens of thousands of Hispanics from across the United States and from Mexico, Central and South America came to take part in the reconstruction and clean-up or to work in the hospitality industry. In our paper we discuss two aspects of Latino migration to New Orleans in detail: the consequences of large-scale undocumented migration, and the role that subcontractors are playing in bringing Latino migrants to 'new destinations' like New Orleans. A survey we conducted of Latino workers in New Orleans reveals that undocumented migration and labor subcontracting go hand in hand. Employers wanting to avoid the legal repercussions for hiring undocumented workers rely on subcontractors for procuring false documents and social security numbers as well as bearing the legal responsibility for the hiring of the workers. In our paper we explore this important relationship. We discuss the consequences of subcontracting on Latino settlement geographies, the degree to which subcontracting relationships appear to be exploitative and the manner in which this emerging phenomenon challenges traditional theories of immigration and integration.

Keywords: Immigration, New Orleans, Latinos

Taly D Drezner, Ph.D., York University. Email: drezner@yorku.ca;
Fluctuations in the onset of reproduction of a Sonoran Desert cactus over its range and implications for lifetime reproduction

The saguaro cactus becomes reproductive at a height of about 2.2 m at Saguaro National Park (SNP), which has been assumed to be fairly consistent over their range, although growth rates are extremely variable across the range of the species. In this study, I determine if the onset of reproduction is related to age or height, and I determine whether this varies over 4 environmentally different sites over the species' range. The tallest non-reproductive saguaros and shortest reproductive individuals were sampled at each site and age was estimated on an established model. One-way ANOVA was employed to check for differences in height, and then in age, across the 4 sites. The onset of reproduction at SNP was near the earlier recognized estimate, at an age of about 52 years. By comparison, individuals at the most arid site (with the slowest growing individuals) become reproductive at an average age of about 106 years! Although individuals grow more slowly, reproduction actually begins at a taller height, at about 3.28 m. Thus, flowering and fruiting is significantly variable both by age and height. Although only four sites were sampled, the pattern coincides with the summer rain belt. In more arid areas, growth is very slow, and reproduction begins much later in an individual's life.

Keywords: Arizona, Biogeography, Saguaro Cacti

Steven L. Driever, University of Missouri. Email: driers@umkc.edu;
Seeking Shangri-La: Domestic Tourism in Yunnan, China

Thanks to rising personal incomes and paternalistic government policies, a significant number of Chinese citizens have begun to explore their country's scenic sights. As a result, domestic tourism in China has had exponential growth in recent decades. Yunnan province, in the Southwest, is one of the most sought-after destinations of Chinese tourists who can afford to travel there. Its appeal is multifaceted exoticism that is grounded in the familiar: ethnic minorities defined by their relation to the Han Chinese, foreigners as role players in controlled and safe theater, rugged topography that births major rivers and frames familiar cultural attractions, jade fashioned into typical jewelry and souvenirs, and well-known medicinal herbs and flowers of supposedly greater purity or beauty. The Chinese government has added to the exotic appeal by recently designating Zhongdian County, in extreme northwest Yunnan, as Shangri-La. There is no historic basis for this official designation, but there is the practical reason of

attracting more tourists to Yunnan and drawing them westward and upward from the main city of Kunming to the wild boundary with Tibet. This paper focuses on the Chinese tourist and discusses the nature and meaning of their encounters with the following places: Kunming, Dali, Lijiang, Tiger Leaping Gorge, Jade Dragon Snow Mountain, and Zhongdian.

Keywords: Tourism, China, Yunnan, Shangri-La, Exoticism

Kate Driscoll Derickson, Ph.D. Student, Penn State. Email:
kud126@psu.edu; E. Clark Knighton Seipt, M.S. Student, The Pennsylvania State University. Email: eck136@psu.edu; Tim G. Frazier, Ph.D. Student, The Pennsylvania State University. Email: tgfl10@psu.edu;
Michael Rios, Ph.D., The Pennsylvania State University. Email:
mrx43@psu.edu; Discourses of (re)development: imagining alternatives for East Biloxi post-Katrina

In this paper, we critically examine the dominant planning discourses informing the redevelopment of East Biloxi, Mississippi in the wake of Hurricane Katrina, and imagine alternative discourses that would create different sets of political and material possibilities. The community of East Biloxi faces a unique set of challenges to rebuilding post-Katrina, including new FEMA requirements for flood insurance, land speculation, and rapid commercial casino development due to relaxed regulations. Local government leaders have adopted community plans that privilege economic growth in the form of tourism and casinos over all other potential community values. Using a discourse analysis approach, we identify the various planning discourses, and analyze whether and how multiple alternative discourses are interacting from the perspective of collective action. Next, we identify which actors are enabled or constrained within that discourse. We ask, who has access to what resources within the dominant discourses? How have issues been framed at different scales, and how do those scalar frameworks enable or constrain some actors? Finally, we imagine alternative discourses for rebuilding East Biloxi, and look critically at how and whether these alternative discourses create new political possibilities.

Keywords: Katrina, redevelopment, discourse analysis, collective action

Sheldon Drobot, University of Colorado. Email: drobot@colorado.edu;
Eve Gruntfest, UCCS. Email: ; Charles Benight, UCCS. Email: ; Why Do People Drive Through Flooded Roads?

Motor vehicle-related deaths account for more than half of all flood fatalities, but to date, very little is known about why people deliberately drive through flooded roads. Therefore, this talk will quantify the major risk factors associated with driving into flooded water, and then used these risk factors to develop a binary logistic regression model. Data for this project are based on mail-in surveys conducted in Denver and Austin in 2005. Roughly 1000 responses were obtained and respondents were coded as those who would drive through flooded roads or those who would not based on a "driving scenario". The potential risk factors were coded either as dichotomous or continuous variables, and the analysis focused on determining whether there was evidence to conclude that there was a significant difference in a potential risk factor between those who drove through flooded roads and those who did not. Subsequently, all the constructs that showed significant differences were used in a stepwise binary logistic regression model to determine if the probability of driving through flooded roads could be determined. The presentation will discuss the findings and implications of these results.

Keywords: floods, statistics, USA

Daniel Druckenbrod, Ph.D., Longwood University. Email:
druckenbrodd@longwood.edu; Fraser Neiman, Ph.D., Thomas Jefferson Foundation. Email: fneiman@monticello.org; David Richardson, University of Virginia. Email: dlr2n@virginia.edu; Derek Wheeler, M.A., Thomas Jefferson Foundation. Email: ; Forest History of Thomas Jefferson's Monticello Plantation

The piedmont region of southeastern North America experienced intensive land use after colonial settlement in the early 1700s. Thomas Jefferson's Monticello Plantation provides a well-documented opportunity to examine the long-term response of forests to past plantation agriculture typical of this region. Using dendroecology, repeated forest surveys, and land surveys drafted by Jefferson, we reconstruct the ecological history of three forest stands at Monticello Mountain. Tree-ring data from *Pinus* and *Quercus* species provide estimates of tree establishment and successional pathways beginning in the 1700s. Subsequent canopy disturbance events within these forests are determined using time series analysis with intervention detection, which identifies outliers in the growth rates of these trees over the past two centuries. Current species composition and density are compared with field data from a 1935 Master's Thesis set at Monticello. Surveys and correspondence from Jefferson are also used to estimate forest condition during his tenure. Collectively, these data sets show the combined effects of past land use, life history attributes of tree species, and aspect on the growth, composition, structure, and extent of forests at

Monticello.

Keywords: dendrochronology, dendroecology, forest succession, time series analysis

Dorothy W. Drummond, Independent Scholar, Indiana State University. Email: dd2@indstate.edu; *Israel, Al-Qaeda, and the Koran: Geopolitical Issues*

The roots of Arab antipathy to Israel lie as much in the Koran as in territoriality. Although the Koran is ambiguous concerning Jews ("Jews are People of the Book and must be honored as such," "The Jews are enemies of Allah, the Prophet, and the Angels") Muslims everywhere grow up with a bias against Jews. Moderate Muslims strive to overcome this in-bred antipathy in the interest of cordial human relations. But fundamentalist Muslims, many of them poorly educated and led by Islamist imams, are easily guided toward activism. The stance of Hamas and Iran's president Ahmadinejad, that Israel should not exist, reflect views deeply held by their followers. Bin Laden, schooled in Wahabbi teachings, was originally committed solely to ridding sacred Arab soil of the presence of American troops. But by the mid-1990s Bin-Laden had come to adopt for his own widening cause the one issue that he saw as uniting all Arabs (and eventually all Muslims): the presence of the state of Israel, and the support of Israel by the United States. 9/11 is the direct result of this thinking. al-Zawahiri, who came out of Egypt's Muslim Brotherhood movement, and since the mid-1990s has been Al-Qaeda's intellectual leader, sees opposition to Israel and the United States as a means to an end, not as an end in itself. By opposing Israel and the United States, Islamist intellectuals will win to their cause the masses of disaffected Muslims, whose support they will need if Salafist aims are to be reached.

Keywords: Israel, Jews, Muslims, Koran, Al-Qaeda, Islamists, Salafists, Umma

Lisa B W Drummond, PhD, York University. Email: drummond@yorku.ca; Lien Thi Nguyen, MA, University of Natural Science, Hanoi, Vietnam. Email: lienhus@yahoo.com; *Uses and Understandings of Public Space among Young People in Hanoi, Vietnam*

It is almost now a cliché to assert that contemporary Vietnam, especially contemporary urban Vietnam, is experiencing rapid social change. The impact of the 1986 doi moi (economic renovation) open door policy, slow to start, had by the late 1990s allowed the formation of an urban generation of young people increasingly almost as much attuned to the external flow of ideas/culture/opportunities as to internal imperatives of Party/culture/tradition. In part this can be attributed to Vietnamese culture's long history of the assimilation of foreign ideas, but nevertheless in a society with over two-thirds of the population under thirty this generation may well represent more of a rupture than a continuity-by-assimilation. Part of a larger project to investigate the uses and meanings of public space in Hanoi, the political and cultural capital of Vietnam, the research presented here focuses on young people's understandings of the term 'public', the types of spaces they consider public spaces, and their uses of public space. A city's public spaces both construct and are constructed by social practices, state concerns, and collective memory. This paper examines the ways in which young people are taught and socialized to understand what and who constitutes 'the public' and appropriate public behaviour, how young people practice these understandings, and how these uses express, support, or transgress contemporary social norms. As such, this research offers an insight into the everyday lives of urban youth at a moment of what appears to be profound social change.

Keywords: public space, youth, urban, Asia

Mark A. Drummond, United States Geological Survey. Email: madrummond@usgs.gov; *Scenario-based Modeling and the Driving Forces of Land Change in the Central U.S., 1920-2020*

This paper examines the causes and patterns of historical, contemporary, and future land change in the central U.S. The Great Plains has experienced widespread clearance of grassland and fluctuations in land use that vary regionally. To understand change, contemporary land use and land cover was documented between 1973 and 2000 using Landsat satellite data and a statistical random sampling strategy. Three future scenarios of land cover were identified and modeled based on regional trends and the primary driving forces of change. Scenarios were used in a spatially-explicit model to provide a practical method to examine the effects of land use change in response to divergent forces. Using available land use information and an understanding of historical trends and environmental patterns, the 1920 land cover was also reconstructed. The purpose of this research is to understand the land change dynamics and vulnerabilities of the region in response to socioeconomic and environmental driving forces. Results indicate substantial regional differences in land cover dynamics that depends on the prevailing socioeconomic factors, natural resources, and

climate. The 100-year span of land cover is being used to assess the consequences of land cover change on climate variability.

Keywords: land cover, modeling, driving force, Great Plains

Alasdair D. Drysdale, University Of New Hampshire. Email: drysdale@christa.unh.edu; *Oman's fertility transition*

Oman has conducted two censuses in modern times: in 1993 and 2003. During that period there has been a sharp decline in fertility from 6.9, among the highest in the world at the time, to only 3.7. The share of the population under 15 has fallen from 52 percent to 41 percent. This paper examines some of the reasons for this dramatic transition, which coincided with the introduction and implementation of an ambitious birth spacing program that has made a wide range of modern contraceptives readily available through government health clinics. Although the birth spacing program has been modestly successful, its precise contribution to fertility decline is difficult to separate from other broad changes in Omani society, whose cumulative effect has been to reduce rates of reproduction. These include a massive expansion in female education at all levels and greater participation of women in the labor force. There has been an especially large drop in very early marriage, greatly increasing the age at which Omani women first give birth.

Keywords: Oman, population, Middle East

Jessica Dubow, University of Sheffield, U.K.. Email: j.dubow@talktalk.net; *'Minima Moralia' or The Negative Dialectics of Exile*

Orienting its argument around Theodor Adorno's collection of brief essays based on the journal he kept in his years of exile from Nazi Germany, this paper considers the relation between the body of the 'unhomely' subject and the dynamics of critical thought. In this it seeks not only to read Adorno's America as the location from which to launch his analysis of the catastrophic logics of Enlightenment Europe. More importantly, it emphasises the ways in which the making of a critical consciousness may be seen as the analogue of that sharper dilemma which is the perceptual and somatic experience of exile. I thus argue that the radical insufficiency between self and space that attends the traumatic affects of geographic displacement not only informs Adorno's injunction against the 'false ego' of all identificatory impulses but creates the conditions for conceiving the broader architecture of his negative dialectics. 'Minima Moralia: Reflections from Damaged Life', in short, is not merely the broken narrative of a writer in exile. It is about the impossibility, but critical potential, of thinking any authentic reconciliation between body and environment; it is about the necessity of the self made imperfect by the failure of all clarifying classifications. It is, in short, about the very making of the critical subject; one that might learn to carry its home on its back.

Keywords: body, affect, exile, negative dialectics

Sophie Dubuisson-Quellier, Centre de Sociologie des Organisations, Paris (CNRS/Science Po). Email: s.dubuisson@cso.cnrs.fr; *What kind of consumers' involvements in alternative food systems?*

The spread of various food systems which claim to address the issue of sustainable development and to translate it into practices (fair trade, short circuits, and organics labelling schemes) can be assessed as avenues for consumers' involvements in what can be called sustainable consumption. We will present some preliminary results of a European project which focuses on this question and involves several academics in geography, sociology and political science. Several field studies have been conducted in France, Belgium and the United Kingdom, to analyze various forms of alternative food networks, especially fair trade (based on international labelling schemes) and local food networks (linking producers and consumers around box schemes), but also different kinds of collective mobilization on alternative consumption (responsible and sustainable consumption). The contribution focuses on three different kinds of consumer involvements on which these alternative definitions of consumption are based. The first type can be defined as a delegation regime and is based on market devices such as labelling schemes (for fair trade products or organic food); the second may be called a negotiation regime and relies on specific contracts between producers and consumers; and the third kind of involvement can be described as an empowerment regime in which consumers enter some deliberative arenas around production, distribution, and consumption of food. We want to stress out that these several consumers' involvement regimes are often blended with each others within one type of alternative food network instead of being typical from one of them.

Keywords: alternative-food-network, consumer, sustainability

Emily Duda, University of Oklahoma. Email: Emily.J.Duda-1@ou.edu; Courts, Abbeys and Forests: Marie de France's Places of Belonging

An earlier presentation applied Yi-Fu Tuan's *Landscapes of Fear* to medieval literature. It examined how the medieval poetess Marie de France redefines the landscape of the forest through *lais* which, unlike the poetry of her contemporaries like Chretien de Troyes or the Gawain poet, suggest a dangerous court versus a fulfilling wild. This message comes through most prominently in poems such as "Lanval," "Guigemar" and "Bisclavret" among others. Marie transforms the forest and its denizens from dangerous to noble and civilization becomes suspect. However, Marie also uses a third setting, a religious one. Poems such as "Le Fresne" and "Eliduc" involve both abbeys and abbesses which play principal roles in defining the female characters. Although her identity is uncertain, some scholars surmise that she was an abbess. Thus her religious station might have influenced her view of a secular setting versus a religious or a pastoral one. This paper goes on to examine the sense of alienation from society and the alternative places in which those who did not fit in with society could take refuge. It not only examines this third form of place, but also considers the origins of such a reinvention in the literary tradition and how it might relate to the sense of alienation in her poetry. There was a need to a safe setting and a noble setting which was unfulfilled by the court for Marie, so it was defined elsewhere in her poems.

Keywords: literature, Marie de France, Yi-Fu Tuan, landscape, forest, abbey, court, medieval

Nicole Marie Dufour, University of Alaska - Fairbanks. Email: ftmnd@uaf.edu; Overthrowing the Humans: The Construction of Cat and Dog Identities in Web Pages Written from the Pet's Perspective

The perception of dogs as loyal companions and cats as sneaky, self-centered beings is frequently portrayed in western popular culture media. From comic strips to pet food ads, the anthropomorphism of pets has become so common that the characteristics attributed to different species in mass media affect how we as humans perceive our own pets. As with popular media, the perceived characteristics of different species play a major role in the ways that individual pet owners construct online identities for their animals. This is especially true for cats and dogs whose identities are constructed and displayed in personal web pages written from the first person-pet perspective. Using methods of discourse analysis this paper compares the ways in which people construct online identities for pet cats and dogs as displayed in the language used by pets in web pages written from the pet's perspective. Focus is placed on the comparison of terminology used by these pets in the construction of 'self' and on those terms used to describe members of the pet's own species and members of other species. In sum this paper will show that the construction of online cat and dog identities is often comparable to the identities created for cats and dogs in western popular culture with dogs identifying themselves as loyal, trustworthy pets that have concern for other animals and cats often portraying themselves as uncontrollable, self-centered creatures with superiority complexes.

Keywords: identity, power, pets

David M. Dugas, Associate Professor, Virginia Tech, College of Architecture and Urban Studies. Email: ddugas@vt.edu; Mythic Main Street: Collective Memory and the Marketing of Urban Space

One of the more distinctive characteristics of recent urban development in the United States is the mobilization of cultural myth in order to secure public acceptance and embrace of new development. Gone are the approaches to urbanism that formerly consisted of the forcing of a utopian modernist space past an unwitting public that so often resulted in the well-documented destruction of the American city eulogized by Jane Jacobs. Urban development is now far more tuned to an awareness of public desire, collective memory, and its role in the marketing and production of urban space. This paper will critically examine this trend and in particular the mobilization of the cultural myth and memory of "Main Street" as a key element in the ideology and marketing of urban space.

Keywords: urbanism, myth,

Jiunn-Der (Geoffrey) Duh, Portland State University. Email: jdudh@pdx.edu; Monte Carlo Simulation for Characterizing Computational Complexity in Geographic Optimization

Geographic optimization problems usually rely on rule-based heuristic algorithms to find optimal solutions because of the complexity associated with the combinatorial patterns and interactions between geographic locations. A heuristic algorithm good for one class of problems might be bad for another class of problems. This paper presents an approach to estimating the computational effectiveness and efficiency of optimizing a land allocation problem using different heuristic rules. I developed a Monte Carlo simulation method that generates random walks, constrained by three heuristic rules: 1) Complete Random, 2) Contiguity, and 3) Compactness, in the solution space of the land allocation problem. The problem sought the most compact landscape patterns

with a fixed proportion of two land-cover types. Two indexes: Correlation Function and Mean Walks to a Local Optimum, quantify the ruggedness of the random paths. A heuristic rule that produces rugged paths in a solution space is expected to have poor performance when used in optimization. The premise of relating ruggedness to computational performance is that a smooth solution space favors the trial-and-error local search mechanism ingrained in a heuristic algorithm. Empirical data collected from benchmark experiments based on the simulated annealing algorithm confirmed this approach. Such a spatial simulation approach could be used to design and evaluate heuristic optimization algorithms for spatial decision support systems.

Keywords: Monte Carlo simulation, spatial optimization, simulated annealing, ruggedness, compactness, spatial decision support systems

Oliver Duke-Williams, University of Leeds. Email: o.w.duke-williams@leeds.ac.uk; The geographies of student migration in the UK

This paper examines the recent migration behaviour of students in the UK. The manner in which information about students was captured in the 2001 Census of Population differed in a number of respects from the approach used in earlier Censuses; these differences are described and the implications discussed. The 1991 and 2001 Censuses are then used to illustrate the spatial patterns of student migrations, with differences that have occurred between the two Censuses being highlighted. The 2001 data are then used to examine in detail recent patterns of student migration in the UK. Where are students migrating from, and which regions are they going to? Do Census data permit us to identify places where studentification is occurring? How do patterns of student migration differ from the movement patterns of the rest of the population? Can we infer anything about movements of students after graduation? A specific focus is placed on the geographies of students in Scotland. Census data in Scotland includes information about journeys to places of study, and thus allows the relationship between migration and travel to be explored. How far do recent migrants travel to study? Does this differ from those who are not recent migrants? Finally, the role of households in the geographies of students is also considered: what sort of households do students live in, and who else do they live with?

Keywords: migration, students, united kingdom

Robert Dull, University of Texas at Austin. Email: robdull@austin.utexas.edu; Sabine Wulf, University of Texas at Austin. Email: swulf@utig.utexas.edu; Catherine Spruance, University of Utah. Email: catherine.spruance@geog.utah.edu; Kirk McIntosh, University of Texas at Austin. Email: kirk@utig.utexas.edu; Paul Mann, University of Texas at Austin. Email: paulm@utig.utexas.edu; Paleoenvironmental Change in the Lake Nicaragua Basin

Lake Nicaragua is the largest tropical lake in the Americas. The lake has a surface area of approximately 8,000 km², but is relatively shallow with water depths no deeper than ~40m. To date, little paleoenvironmental research has been done on sediments from Lake Nicaragua, and none has been published. A coring expedition was carried out on Lake Nicaragua in May-June of 2006. Thirty-five gravity cores were taken throughout the basin, as well as five long piston cores. The goal of the project is reconstruct climate variability, natural hazards events, and human land use patterns throughout the Holocene. The multi-proxy approach used by our interdisciplinary team includes: magnetic susceptibility, grain size, pollen analysis, charcoal analysis, diatom analysis, geochemistry, seismic imagery, radiocarbon dating, and tephrochronology (by ICPMS). Here we present preliminary results from our first field season.

Keywords: paleoecology, paleoclimate, Holocene, Nicaragua

Brian W. Dunbar, M.A., California State University, Northridge. Email: BrianWaldo@aol.com; Occupational and Residential Moves of Zapotec Immigrants in Los Angeles

This study looks at the growing community of indigenous Mexican migrants in Los Angeles, specifically the Zapotec-speaking people from the central valley and mountains of Oaxaca, Mexico. My objective is to examine to what extent this community is improving its position vis-à-vis mainstream society in economic and residential terms. In order to explore these trends, I conducted one-on-one interviews with immigrants in order to generate a history of employment and residence in Los Angeles County. In order to measure mobility in employment, I then coded respondents' various jobs using the Warren-Hauser Occupational Prestige scores, to demonstrate trends over length of residence in Los Angeles. Similar trends in residence were examined by locating census tracts of respondents over time. While this community has improved their occupational lot over time, with slow but steady progress, there is little proof of upward mobility in the residential context.

Keywords: Oaxaca, Mexico; immigration, Los Angeles

Danni Duncalf, University of Hull, UK. Email: d.duncalf@hull.ac.uk;
Identities: Negotiations in Contemporary Spaces

People construct their identities around a myriad of different references, from socially constructed categories, such as gender, sexuality, disability and ethnicity, to the institutions and social discourses through which these constructions are expressed and controlled. These may include social venues, subcultures, dress codes, the media, consumerism and the global world. There are, however, competing arguments over the meanings, definitions and experiences of identities. As such, identities are constantly being renegotiated and redefined, both personally and socially. Identities are based on inclusions and exclusions, borders and boundaries, both 'who we are' and 'who we are not'. It is well documented that the internet has enabled people to construct their own spaces, through which renegotiations of old identities and new ones can be forged. The relationship between gender and the internet is an important and contemporary one. Non-visual representations of gender, the use of gendered language and the negotiation of borders and boundaries which 'govern' this space are all important issues within this developing relationship. With specific reference to the relatively new concept of metrosexuality, this paper not only explores how common terms of identification have been renegotiated and redefined, but also how the trademarks of these terms are 'flux', 'fluid' 'flexible' and 'fast' as well as, 'mail' and 'femail'. Within this context, metrosexuality will be explored in relation to how space defines subjectivity, what the term includes and excludes and what the borders and boundaries of a metrosexual identity are within this negotiation of contemporary space.

Keywords: Gender, Identity, Internet

Ian Duncan, University of Washington. Email: roiadue@yahoo.com;
Soviet and Post-Soviet Spatial Strategies for Controlling the Homeless

The last Soviet-style labor rehabilitation camp for the criminally homeless and unemployed closed in 1993. However, the state continues to round-up, exile or incarcerate homeless individuals, most notably during international events such as the G8 Summit or the Goodwill Games. This paper explores the complex definition of homelessness in Soviet and Russian society and the role of space in state practices of regulating and controlling homeless populations. I argue that in the contemporary post-Soviet moment, homelessness operates at an intersection of neo-liberal and authoritarian techniques of government. While neo-liberal reforms have hollowed out Soviet socialist structures and ideologies, they have not necessarily transformed the authoritarian techniques of government.

Keywords: Russia, Soviet Union, Homelessness, authoritarianism, neo-liberalism

Elisha Jasper Dung, Dept. of Geography, Okstate, Stillwater, OK. Email: jasperdung@yahoo.com; Mahesh Rao, Department of Geography, Oklahoma State University. Email: mahesh.rao@okstate.edu; *Spatial Analysis Of Conservation Reserve Program (Crp) Tracts In The Central High Plains Of The U.S.*

Abstract: In the last two decades in the United States, public funding of agro-environmental programs has nearly tripled, with programs that retire highly erodible and other environmentally sensitive land from crop production accounting for more than 85 per cent of Federal conservation expenditure. In 1986 the Conservation Reserve Program (CRP) began converting highly erodible and other environmentally sensitive land from crop production to perennial grasses and trees. Moderate Imaging Spectrometer (MODIS) images from 2000-2006 were used to produce maps of cultivated land and grassland in the Central High Plains of the U.S. using the unsupervised classification technique in ERDAS IMAGINE. The supervised classification technique was then used to determine areas converted to CRP. This was done to evaluate structural changes in the landscape. Patch Analyst, an extension of ArcView GIS was used to determine the number of patches, patch size, patch density, and nearest neighbor distance. Area covered by grassland and cultivated land was also calculated. The results were subjected to spatial statistical software, GeoDa for exploring the data and obtaining spatial patterns of the CRP tract characteristics. Results showed a 9% increase in grassland area and a 30% decrease in number of patches, and an increase in patch size from 25 hectares to 40 hectares in CRP enrolled areas. In addition, patch density and nearest neighbor distance did not change significantly. Changes in landscape structure were analyzed and it found that the CRP can potentially improve the quality and quantity of wildlife habitat

Keywords: Key words: Conservation Reserve Program, Moderate Imaging Spectrometer, Patch

Susan Dunham, University of South Carolina-Columbia. Email: slk1998@yahoo.com; Gregory J. Carbone, Associate Professor, University of South Carolina-Columbia. Email: greg.carbone@sc.edu; *A comparison of drought stage determination methods for South Carolina*

Drought is difficult to define and no one index provides sufficient information to meet the diverse needs of multiple sectors impacted by drought. Yet,

frequently national, state, and local jurisdictions must establish standard measures of drought intensity. For example, South Carolina has established a set of criteria using a combination of indices including the Palmer Drought Severity Index (PDSI), the Crop Moisture Index (CMI), the Standard Precipitation Index (SPI) and the Keetch-Byram Drought Index (KBDI) to determine drought stages ranging from incipient to extreme. Drought stages are established for each measure using a specific range of values. However, since these measures are based on different criteria, the stage indicated by one measure could be different than others. This study compares several drought measures using a geographic information system-based approach to look at differences in drought stage during the period, 1950 to 2005. This approach will provide a graphical display that identifies the spatial and temporal patterns associated with drought intensity differences. It is hoped that this technique will yield better drought estimates that can be applied to other states to help determine drought stage and modify drought management plans.

Keywords: GIS modeling, drought, South Carolina

Andrew J. Dunlop, University of Manitoba. Email: dunlopaj@mts.net; P. Lynn Boak, University of Manitoba. Email: boakpl@cc.umanitoba.ca; *Wet Landscapes in the Dry Belt: Relics of Beer Parlours and Saloons in the Northern Great Plains and Prairies*

Decline of small rural service centers across the Northern Great Plains and Prairies is well documented. In many small towns, the want of social contact among the few remaining residents has kept the beer parlour or saloon alive while almost all other services have ceased operation. Within the context of the oft-identified rural decline issues of depopulation, population aging, and social isolation, we examine the place of the Canadian beer parlour and the American saloon in the contemporary plains landscape. Several examples of these institutions, and the surrounding areas they serve, are documented as illustrative remnants of fading community. The geographical concept of 'borderlands' enters the discussion when we question the nature of regional and national identity by revealing shared experience within a region where the existence of an international boundary has little impact on the evolving rural landscape.

Keywords: Great Plains, Prairies, rural decline, landscape, borderlands, beer

James R Dunn, University of Toronto. Email: jim.dunn@utoronto.ca; *Reflections on 'Revitalization' in Toronto's Regent Park: A Healthy Community by Design?*

Regent Park is the largest and oldest public housing development in Canada and one of Toronto's most significant concentrations of urban poverty. Although originally planned as a "garden city" - a car-free, spacious island of greenery - the neighborhood has high rates of poverty, crime and ill-health. Over the next 12-15 years, the Toronto Community Housing Corporation (TCHC), the agency responsible for public housing in Toronto, will demolish and re-build the neighborhood into a socially mixed community, in which 1/3 of residents will be subsidized tenants and 2/3 will be owners of market condominiums and townhouses. TCHC also expects the design of the social and built environments, and the institutions they create to allow for resident participation in community governance to create harmonious social relationships and mitigate the poverty of residents. According to TCHC, "the vision is one of vibrancy, diversity and sustainability? in building types, designs and heights, incomes, uses, community services, recreation spaces, learning facilities and activities. In short, a healthy community shaped by the residents of this community". Many previous efforts to engineer social environments have failed and become symbols of the naïveté of the modernist project. This raises a number of questions that will be discussed in this paper, including: "just what is the evidence that design, social mix and community governance interventions may improve health?", "what is the theoretical basis for these beliefs and are they cogent and robust?", and "what research questions will be able tell us if the new Regent Park 'works'?"

Keywords: public housing, housing and health, neighborhood, urban design, social mix

Kevin Mark Dunn, University of New South Wales. Email: k.dunn@unsw.edu.au; *Public discourses about hijab-wearing in Australia*

This paper reports on a unique empirical assessment of popular attitudes to hijab, or Islamic headscarf, in Australia. Rights to cultural expression and ideas about national identity were the major discursive terrains of public opinion on hijab in Australia. Public sentiment against the hijab was driven largely by discourses about nationalism, specifically assimilationist impulses. A mostly unstated aim of this assimilationism was a Christian-Australia or secular Australia, invoking certain narrow gendered constructions of Australian-ness. There was also a minor strain of concern that headscarf wearing was emblematic of inappropriate gender relations. Stereotypes about Islam, and other bases of western Islamophobia, had a marginal purchase within debates about hijab in Australia. However, there was an impressive level of public support for hijab wearing. Tolerance of hijab drew upon normative statements about the nature of

Australian society, including references to freedom of religion, individual liberty, and democracy. These assertions about Australian-ness are largely uncontested, they possess a political robustness, and are political resources that could be deployed more widely in contemporary debates about cultural diversity and national identity. The hijab-wearing Australian woman is a performance of nationalism that is facilitated by these political resources.

Keywords: Islam, west, geography, hijab

Lesley-Ann Dupigny-Giroux, University of Vermont. Email: ldupigny@uvm.edu; Wetland monitoring using AirMISR imagery

Surface moisture stress and vegetation condition can be assessed from spectral vegetation indices including the ratio of NIR/blue wavelengths. Multiple view angles (MVA) of this ratio were created from airborne, moderate resolution (27.5 m) AirMISR data for the Howland Forest in central Maine, a region dominated by boreal-northern hardwood transitional forest and palustrine wetlands. Results indicate that the MVA NIR/blue ratio discriminated among moisture-driven land use-land cover (LULC) variations, wetland types and moisture stress extent. Cover type separability was best captured by forward view angles and the ratio was sensitive to variations in species type and vigour, water/vegetation proportions and moisture gradients across emergent wetlands. Lowest NIR/blue ratios at all angles denoted water bodies, while water-dominated wetlands with low vegetation contents had bowl-shaped anisotropy with slightly higher ratios. Very large NIR/blue ratios were associated with dry, estuarine vegetation, open land and moisture stress in certain wetlands. Darkspots at the forward view angles were related to moisture stress in palustrine forested wetlands and an upland needle-leaf forested wetland. This presentation will summarize these findings as well as the optimum MVA ratio for wetland monitoring.

Keywords: remote sensing, multi-angle imaging, wetlands, surface moisture

Rebecca Dupont-Coutu, Salem State College. Email: rjdupont55@hotmail.com; Vegetation Change due to Human Activity

At 19,340 feet, Mt. Kilimanjaro stands as Africa's tallest peak. The Kilimanjaro Forest Reserve was established in 1921 and a National Park created in 1973. UNESCO has also declared the area a World Heritage Site. The mountain and surrounding region is in peril. Irrigation schemes have increased the availability of water for farmers and ranchers. The flow of the Great Ruaha River has already been greatly affected. Have these changes encouraged farmers and ranchers to invade the surrounding forests to increase their yields? Also, have these human activities infringed on the native vegetation? This study will analyze the change in land cover use by comparing landsat data from February of 1987 to February of 2000.

Keywords: Africa, Remote Sensing, Vegetation change

E. Melanie DuPuis, University of California, Santa Cruz. Email: emdupuis@ucsc.edu; White Food: Milk, Race and the History of Nutrition

This paper will show that nutritional advice on dietary practices in the United States has been highly racialised. The rise of US nutritional professionals and their dietary advice, in particular the promotion of a Northern European dietary practice centered around milk, was part of a "racial formation," which sought to resolve two sets of tensions: white middle class status anxiety and food producer anxieties over sufficient income. Nutrition as a profession rose in the context of these two tensions. Diet, therefore, is more than the determination of what is healthy for the body. It is a form of negotiation between bodies and between the body and the country. As a result, American nutrition advice became a mirror of whiteness, fashioned to work with the rise of professionalism and the rise of food industrialization. A look at the pioneering nutritionist and farm interest statements on milk as the food of a superior race show how this commodity functioned as an ideological mirror, not merely of racism but of the intimate ties to particular geographic relationships, namely the new city-country alliance between industrial agriculture and urban economic growth. The final sections of the paper will show how theories of racial formation — as both embodied and territorialized — parallel theories of justice. Specifically, it is possible to see the relationship between milk as a perfect food and the critique of perfectionism from both whiteness and justice perspectives, in which one commodity and one way of life is presented as "the good life."

Keywords: Whiteness, Food, Race, Nation, Nutrition, Body, History

Joshua Durkee, University of Georgia. Email: jdurkee@uga.edu; The use of Tropical Rainfall Measuring Mission to estimate South American mesoscale convective complex rainfall

Mesoscale convective complexes (MCCs) are large, long-lived, highly organized assemblages of thunderstorms capable of producing substantial rainfall over large areas. While these storms have been extensively documented in the United States, few studies have investigated their occurrence in South America. Results from those studies found that South American MCCs are often much larger with longer durations than North American systems. Despite these

findings, no studies describe the characteristics of MCC rainfall across South America. A likely reason for the lack of South American MCC precipitation studies is due to the inadequate radar and sparse rain-gauge networks across the continent. The focus of the current study is to address this problem by employing Tropical Rainfall Measuring Mission (TRMM) satellite data, particularly over the subtropical region. Advancing our knowledge of these heavy precipitation events over this region is especially important due to its social and economic ties to the La Plata Basin. This basin provides various navigable waterways for shipping industries, numerous sources of hydroelectric power along the Uruguay, Paraguay, and Paraná Rivers, and helps sustain a large portion of agriculture and farming in South America. Based on the evidence from previous work, South American MCCs possess both the hazardous and beneficial potential of producing greater rainfall amounts across larger areas. By utilizing TRMM, a first look at MCC rainfall across subtropical South America is established.

Keywords: South America, mesoscale convective complex, precipitation, TRMM

Jeffrey Olani Durrant, Brigham Young University. Email: jodurrant@byu.edu; Evolution of the BLM's National Landscape Conservation System? A Focus on Utah's San Rafael Swell

The vast public lands of the American West are undergoing a transformation both in their use and management policy. Prior to the past several decades, public lands were visited by relatively few people beyond ranchers and occasional miners. Today many areas of public land are popular sites for campers, hikers, river runners, off-road enthusiasts, climbers, and other recreationalists. Increasing uses have been paralleled by more restrictive management policies from federal land managers. In particular, areas managed by the Bureau of Land Management (BLM), the largest federal land agency, are becoming more restrictive as land managers attempt to control the burgeoning uses and as activists work to establish large-scale Wilderness areas, National Conservation Areas, and National Monuments. Perhaps no area has been as caught up in these trends as the San Rafael Swell, a million acre up-thrust of sandstone formations, narrow canyons, and sparse grasslands in southeastern Utah. While many other areas have also seen an increase and evolution of uses; are facing increasing restrictions on uses; and have been designated as Wilderness, NCAs, and National Monuments; perhaps no other area has had so many proposals and counter-proposals for these designations during the past decade? all to no avail.

Keywords: public land, western landscapes, BLM

Nichole Dusyk, University of British Columbia. Email: nichole.dusyk@gmail.com; Emergent Action Within Energy Networks

Reducing energy use has been on the public and political agenda since the 1970s. Much of the effort has focused on energy efficiency that is either regulated via technologies and utility service providers or promoted via incentives and moral suasion. Energy efficiency programs have reduced the overall growth rate of energy use in Canada and the United States, however they have not had as large an impact as hoped or expected. This may, in part, be due to a consumer-based model of participation that presupposes energy is a commodity, energy choice occurs at the individual level, and the collective impact of energy decisions is the aggregate of individual decisions. This paper critically examines the consumer-based model of energy use and argues that it is inadequate for understanding the realities of energy use or devising strategies for attaining sustainability. The rational choice model of energy efficiency programs does not account for action emerging from networks of humans and non-humans, as represented in energy systems, nor does it sufficiently describe the relationships between individual and social action. As an alternative, theories of negotiated action within sociotechnical networks offer a more robust conceptual tool for understanding both energy use and the potential for emergent, sustainable action at the level of everyday practice.

Keywords: sustainability, emergence, networks, energy, sociotechnical systems

Dominique Duval-Diop, Ph.D, Louisiana State University. Email: dddforjustice@yahoo.com; Post Hurricane Recovery and Rebuilding: The Geography of Regulation, the Geography of Success

The recovery efforts following Hurricanes Katrina and Rita have created a complex web of interdependent development needs and priorities in the Louisiana Gulf Coast. Government response to the great challenges posed by this web is complicated by the competing interests of both the private and public sectors. The complexity of recovery is increased by the fact that decisions regarding policies are made at differing geographic scales (local, regional, state, and national). Policies are defined by differing regulations and recovery goals, and fundamentally by the definition of what constitutes a successful outcome at each of these scales. These competing ideals, definitions and regulations conflict significantly, constrain recovery timeframes and determine what is possible in

terms of both the design and implementation of rebuilding policies and programs on the Louisiana Gulf Coast. Lastly, the institutions themselves that govern many of the recovery programs and that influence the policy outcomes are in a state of transformation. The fluidity of these institutions and the resistance of certain institutions to change also serve to create the potential for an uneven landscape of redevelopment. Understanding the ultimate impact of recovery and rebuilding efforts in the Louisiana Gulf Coast within this context can be greatly enhanced by the application of geographic concepts. This paper therefore harnesses the discipline of geography to examine the morphology of the interaction between the regulatory surfaces and outcome surface.

Keywords: institutions, recovery programs, regulation, rebuilding policies, geographic scales, Katrina, Rita, outcomes

Chris S. Duvall, Michigan State University. Email: csduvall@wisc.edu; *Are African baobab groves at settlement sites anthropogenic?*

Researchers have long assumed that settlement establishment and reproduction of the baobab tree (*Adansonia digitata*) are spatially and temporally dependent because baobabs are abundant in many settlement sites in semi-arid Africa. This paper tests the spatiotemporal relationship between baobab and settlement distribution. In a study area of 183 km², 1240 baobabs were located and mapped, their diameters measured, and habitat characteristics recorded for each individual. Second, all occupied (n=7) and abandoned (n=80) settlements were located and mapped, and occupation dates for each site were determined through interviews. Point-pattern analysis tested independence of observed point patterns of baobabs and settlements, including paired point sets consisting only of certain settlement age-classes and baobab size-classes. Baobabs and settlements are attracted at most distances, but this attraction is significant only at distances of less than c.500 m. Young settlements are not significantly associated with large baobabs. There are three main conclusions: 1) Settlement leads directly and indirectly to the development of baobab groves at settlement sites. 2) Baobab habitat preferences suggest that baobab abundance in settlements is not caused simply by human seed dispersal, but also by other aspects of settlement practice that ensure dry, fire-protected settlement sites. 3) The results suggest humans have introduced baobab to southwestern Mali, and possibly other parts of Africa with similar ethnobotanical and environmental conditions.

Keywords: Africa; Mali; biogeography; vegetation history; settlement geography; point-pattern analysis

Devin Dworkin, Salem State College. Email: devindworkin@hotmail.com; *An Urbanization Analysis and growth projection of greater Guangzhou City, Guangdong, China, 1990, 2000 and 2010*

The Rapid Growth of China has given ample illustrations of how fast cities can grow. Using LandSAT TM and ETM data from 1990 and 2000 this research will analyze the change in urban area in this quickly developing region of the world. As this area is undergoing rapid urbanization it presents a unique opportunity to determine the physical, geological, and social characteristics of urbanization. Using various noise reduction and transformation techniques the data sets will be normalized, as they come from two different sensor systems. Various change detection tools will be used to assess change in the region. A prediction for 2010 urbanization extent is given as well as analysis of potential consequences.

Keywords: Remote Sensing, China, Urban

Claire Dwyer, PhD, University College London. Email: cdwyer@geog.ucl.ac.uk; *Muslim state-funded schools: Contested spaces of faith and citizenship*

Within the context of renewed public and political debate about the relationship between faith communities, religious institutions and the state in the UK much attention has focused on the position of Muslims. While Muslims have gained support for the incorporation of faith-based institutions, such as state-funded schools, on the basis of parity with other religious groups, they have also been constructed as different from other faith communities and opposed by those who advocate a strong version of secularism (Modood 2005). This paper returns to earlier work on the debates surrounding the establishment of state-funded Muslim schools (Dwyer 1993, Dwyer & Meyer 1995) to re-evaluate how such schools, now funded and implicitly supported by the state/Labour government, remain contested sites for understandings of religious and political citizenship. The paper draws on preliminary work from a new research project 'National Identity, citizenship and religious difference' (<http://www.bristol.ac.uk/sociology/leverhulme>) which examines public and political discourses of national identity and religion.

Keywords: Citizenship, Muslims, education

Caitlin S Dyckman, Ph.D., J.D., Clemson University. Email: cdyckma@clemson.edu; *A Rational Disconnect and a Role for Planners: California Residential Landscape Aesthetic and (Lack of) Water Conservation*

Land use and water supply planning have been traditionally separate disciplines, despite their power to constrain one another. Water invokes traditional planning tensions; namely, technological and engineering versus demand management solutions to scarcity. This paper explores the role for planners in instituting water conservation measures through the development approval process, and explicitly assesses residents' reactions to water conservation, planners' roles in water conservation, and the landscape aesthetic that influences water consumption in California. The author developed and administered a survey instrument to assess residents' knowledge of water conservation measures in the City of Santa Rosa. Through the survey, the author obtained data on residents' landscape aesthetic, self-reported water consumption behavior, water consuming appliances, household water use, and perspectives on local government's role in water supply. The survey responses were then combined with corresponding household water consumption data to expose behavioral contradictions and opportunities for change in municipal water conservation programs. Interviews with planners, the water provider, developers, residents and homeowner associations, and the regional water wholesaler further augmented the findings from the survey. For geographic contrast, the author conducted similar interviews in the Irvine Ranch Water District service area. Both research methodologies suggest that planners have considerable opportunities to promote more rational water use in built form, using regulatory mechanisms to bridge the rational disconnect between landscape aesthetic and water conservation behavior. They are uniquely situated to bring an integrated approach to the economic, legal, engineering, and landscape design fields associated with managing water.

Keywords: water conservation, landscape aesthetic, California, residential, planning

James M. Dyer, Ohio University. Email: dyer@ohio.edu; *Incorporating Fine-Scale Topographic Variation and Soil Moisture into Climate Models: Assessing Biotic Response to Climate Change in the Appalachians*

In modeling biotic response to climate change, emphasis is increasingly focused on fine-scale processes; these processes (e.g. dispersal, competition) can modulate distributions defined by coarse-scale climate patterns. However, a corresponding reduction in scale has not been employed with biologically-meaningful climatic variables. This research will incorporate fine-scale topographic and soil variability to produce bioclimatic maps to assess biotic response to altered climate. Two main questions inform this research: 1. Can fine-scale variation in topographically-controlled radiation load (and therefore evaporative demand) and soil available water capacity be incorporated into bioclimate modeling? 2. How does soil moisture vary in complex topography, and how will this influence vegetation response to climate change? Explicitly incorporating moisture demand and supply provides more realistic change scenarios, by allowing temperature and precipitation to change while maintaining critical soil and topographic conditions at each site. The study area consists of the Appalachian Highlands, extending from Maine to Alabama. The area's topographic diversity offers significant challenges to modeling biotic response to climate change. Bioclimate models are developed for the study area at a 10-meter resolution within a GIS; input variables are obtained using the finest spatial resolution datasets available for the study area, including gridded monthly climatic normals at 800-meter resolution, and soil available water-holding capacity derived from 1:12,000 scale maps. Topographic parameters are derived using 10-meter digital elevation models (DEMs); DEMs will also be used to compute monthly radiation values. These data enable the computation of the monthly water balance for each ten-meter cell.

Keywords: Climate Change, Forests, Species Ranges, Water Balance

Jamie Dyer, Dr., Mississippi State University. Email: jamie.dyer@uga.edu; *Evaluation and Comparison of Current Precipitation Data Sources Over Northwest Mississippi*

The Mississippi River floodplain in northwestern Mississippi and eastern Arkansas (a.k.a., the Mississippi Delta) is highly agricultural, due in large part to the climate of the region. The region receives roughly 130 - 150 cm (50-60 in) of precipitation annually, which is a critical factor in local agricultural production and hydrologic stability. The region is unique in that there are currently three sources of precipitation measurements available: (1) radar-derived precipitation estimates from National Weather Service (NWS) doppler radars, surface observations from NWS recording stations, and surface observations from US Department of Agriculture (USDA) Soil Climate Analysis Network (SCAN) recording stations. In terms of meteorological and climatological precipitation research, quantitatively defining the biases associated with available precipitation data sources is critical in choosing which source to use for a given application, such as meteorological, hydrological, and agricultural studies. Results of this project show a varying bias between the surface precipitation observation

networks and the remotely sensed radar-derived precipitation data depending on season and precipitation type. The bias is caused by the superior spatial coverage of the radar precipitation estimates such that convective-based precipitation patterns, as normally occur in the summer over the Mississippi Delta, are better recognized by the radar. Conversely, in the winter where more stratiform-type (widespread) precipitation dominates, the surface networks are more precise. Understanding these biases is critical in research utilizing precipitation data in similar regions in the southeast US.

Keywords: precipitation, Mississippi

Judith Dykes-Hoffmann, Texas Lutheran University. Email: jhoffmann@tlu.edu; "Tubin and Groovin along a Texas River: Contested Spaces and Conflict over the Comal River in New Braunfels, Texas"

The Comal River, the shortest navigable river in Texas, spews forth from the largest springs in Texas. Hundreds of thousands of river enthusiasts every summer flock to the river that flows through the town of New Braunfels. Today many townspeople rely on the river for their livelihood, but this is nothing new. From 19th century grist mills to today's Schlitterbahn, the largest water park in the United States, people have used this river for economic gains. As the tourist industry grows in this small Texas town, there is growing concern over increased river use and those who use it. This paper is part of the preliminary investigation for a larger study examining the groups battling for control over the Comal River. After a brief overview of the historical geography of the river, it presents the four major groups negotiating its usage: those who live along the river, those who make a living from the river, those who govern the river and finally those who seek to enjoy the river. An examination of these differing views through interviews, surveys, blog sites, and other printed materials shows how these groups are at extreme odds with each other and that as the river's usage increases over time the New Braunfels community will continue to battle over this contested space. Left unresolved, the battle threatens to spill beyond the riverbanks further dividing and seriously disrupting a community that relies heavily upon tourism.

Keywords: Texas, contested spaces, historical geography, tourism

Gary A Dymski, University of California - Riverside. Email: gary.dymski@ucop.edu; Will Liberating the Informal Sector Save Capitalism? An Exploratory Spatial Model of Urban Growth

This paper explores the impact of the increasing expansion of the informal sector on the political economic viability of contemporary cities, especially developing-world megacities. A structural model is developed which shows how challenges of governance and legitimacy are posed by the unbridled growth of peripheral settlements outside of formal urban boundaries. In this model, a growing informal sector affects governmental expenditure-tax balances, households' tax burdens and cash-flows, and capital accumulation. This model combines elements of macro modeling with micro-market detail, and pays special attention to the relationship between the demand and supply of public services and the nature of income-generating activity. Comparisons of different scenarios suggests these preliminary findings: (1) continuing shifts of rural households to megacities in search of employment may, in the absence of sustained tradable-sector growth, lead to tax revolt and/or the exhaustion of urban governments' fiscal capacity; (2) without adequate industrial growth, the formalization of newly-settled areas may not be fiscally supportable, and the space occupied by the reproducible formal sector may shrink; (3) the informal sector can become an alternative center of accumulation, undercutting the fiscal basis of government-provided services and creating profound questions of governance and political legitimacy; (4) unbalanced structural relationships in cities with formal and informal sectors can themselves generate "urbanization without growth"; (5) Hernando De Soto's idea of revitalizing developing-world growth through informal-sector accumulation thus deserves skeptical scrutiny.

Keywords: informal sector; Hernando de Soto; urban growth; developing-world cities; infrastructure

Amir E Azar, NOAA-CREST, CUNY. Email: aeazar@ce.ccny.cuny.edu; Reza Khanbilvardi, NOAA-CREST. Email: rk@ce.ccny.cuny.edu; Hosni Ghedira, NOAA-CREST. Email: ghedira@ce.ccny.cuny.edu; narges shahrudi, NOAA-CREST. Email: ; Comparison of Physical Based with Neural Network Methods in Estimating Snow, Using Multi-source Satellite Data

This study compares capability of Neural Network (NN) and physical based method in estimating snow using SSM/I passive and QuikSCAT active microwave as well as NDVI data. NDVI data represent the landcover variation and characteristics in a quantitative way. For the neural network method, three different approaches were investigated: A) input consists of only SSM/I channels; B) input consists of SSM/I channels plus NDVI data; C) input consist of SSM/I, NDVI, and QuikSCAT-Ku. The analysis of neural network results showed that The ANN model shows satisfactory results in dependent estimation of snow cover. Also, adding NDVI data as additional input does not increase the accuracy of the

estimates significantly, but it improves accuracy in estimating SWE. In addition, the model trained by ground truth data of SNODAS had better results compared to the model trained by station data. Adding QuikSCAT-Ku increases the accuracy of the estimated SWE by neural networks. The most important limitation of NN model is the high dependency to training dataset. On the other hand, the physical based model shows more consistent results compare with NN model. The physical based model shows consistent improvement in both correlation coefficient and RMSE.

Keywords: swe, microwave, SSM/I, snow, NDVI

Stephanie Eady, Texas Christian University. Email: s.s.eady@tcu.edu; Karen L McKee, PhD, USGS-National Wetlands Research Center. Email: karen_mckee@usgs.gov; The effects of snail grazing and environmental factors on expansion of mangroves into salt marshes

Coastal wetlands are ecosystems that provide goods and services critical to our way of life. As dependent as we are upon these features, our understanding of their responses to global factors such as climate, sea-level rise, and eutrophication is limited. The transitional community where tropical mangrove meets temperate salt marsh is an ideal setting to test hypotheses about vegetative shifts caused by environmental changes. Black mangrove (*Avicennia germinans*) is at its northernmost boundary within the Gulf of Mexico where it commingles with smooth cordgrass (*Spartina alterniflora*). The purpose of this study was to examine what role grazing by the marsh periwinkle (*Littoraria irrorata*) plays in the competitive interactions between smooth cordgrass and black mangrove. This study centers on coastal Louisiana where black mangroves have been expanding for the past fifteen years. To examine effects of snail grazing and environmental factors, field and greenhouse experiments were conducted. Our results indicate that environmental stressors such as nutrient deficiency or salinity have a greater impact on mangrove-marsh competition than snail grazing in healthy cordgrass stands, but that grazing effects are important in stands already stressed by environmental factors. These findings are consistent with recent observations that mangrove expansion increased following large-scale dieback of salt marsh in Louisiana due to drought-related stress.

Keywords: estuarine systems, competition, climate change

Julie Earls, MSPH, University of South Florida St. Petersburg. Email: jearls@mail.usf.edu; Barnali Dixon, PhD, University of South Florida St. Petersburg. Email: bdixon@stpt.usf.edu; Evaluation of Drainage Basin Delineation: ArcHydro & the Soil & Water Assessment Tool (SWAT)

In hydrologic and environmental research, there is a need to accurately and inexpensively delineate drainage boundaries for study areas. The use of Geographic Information Systems (GIS) to determine such drainage areas makes the process relatively quick and simple. This research studies the differences in the delineation of drainage basins for the Alafia & Hillsborough Rivers in West Central Florida, U.S.A. The Alafia River is located within Hillsborough and Polk Counties and drains to the Upper Tampa Bay. The Hillsborough River also drains to the Upper Tampa Bay. The Alafia River has been largely impacted by phosphate mining and agriculture and some urbanization, while the Hillsborough River is largely urbanized and has some agricultural areas. Digital elevation models (DEMs) were obtained from the Environmental Protection Agency (EPA) Better Assessment Science Integrating Point & Non-point Sources (BASINS) website at 300m, 90m and 30m resolution. We use the ArcHydro model and the Soil & Water Assessment Tool (SWAT) model to draw comparisons. First, we use 3 different resolution DEMs to evaluate the differences between the two models and see how the resolution change adjusts the drainage basins and streams due to the changing input data (DEMs). Secondly, we compare the actual area within the drainage basin and stream network delineated and see how equivalent they are to each other. This study will be performed on two basins to determine if the differences are contingent upon the local environment of the individual basins or if there is a trend.

Keywords: gis, hydrology, SWAT, ArcHydro, watershed modelling

Richard Eathorne, Northern Michigan University. Email: reathorn@nmu.edu; Geographical Thinking: A Critical First Step to Teaching Geographic Writing

Good geography writers are good geography thinkers. Teaching undergraduate college geographers to write competently about geography, as well as the world around them, requires they first develop capabilities to think geographically. If students of geography can not incorporate the foundations of geographical thinking, then no amount of formal writing pedagogy will move them forward in their geography education. When used alone, the traditional, linear, tri-fold formula of prewriting, writing and revising is doomed to student frustration, and frequently failure. In order to succeed at developing creative and critical geography writers, the process of writing must be grounded within the multidimensional, holistic, nonlinear dynamics of geographical thinking. To write with competency, the student must develop the aptitude for an almost unconscious,

habitual geographical thinking process. To do this, students must engage in exercises that develop geographic thinking paradigms which help them recognize that addressing issues of war, poverty, repression, injustice, discrimination, environmental degradation, natural hazards, human rights, gender inequalities, terrorism, globalization, and new economic orders, for example, are not to be assigned to nor claimed by the sectarian domains of individual academic disciplines. Geography students need to not only decipher and research and write about traditional "geographic data," but must be challenged to critically observe and think geographically about any physical or human phenomena which constitute the thing we call Reality. Only then can we hope to improve the geography student's ability to write down their geographic thoughts about how to improve the world around them.

Keywords: writing, geographic thought, college teaching, geography education

Emily Eaton, University of Toronto. Email: emily.eaton@utoronto.ca; *From Red to Green? The Contemporary Politics of GMOs in the Historical Context of Agrarian Populisms in Saskatchewan, Canada.*

Much of the resistance to genetically modified (GM) crops in Canada has played out in Saskatchewan where grain farming dominates the rural landscape, and (perhaps not so coincidentally) where a form of radical agrarian populism has characterized the not-so-distant past. Motivated by the political organizing of the early 2000s that culminated in Monsanto discontinuing breeding and field level research of Roundup Ready Wheat, this paper investigates the processes, practices, interactions, and actors that have contributed to political contestation over GM crops in the context of contemporary and historical struggles over food and agriculture in Saskatchewan. More specifically, the paper asks whether and what sorts of connections can be drawn between the agrarian populisms of the early 1900s and the current politics around GM crops. To answer this question the paper draws on interviews with actors that have been involved in the political contestation over GM wheat including farmers (organic and conventional), farm organizations, state scientists, consumer and environmental organizations and biotechnology lobby groups.

Keywords: food and agriculture, genetically modified organisms, social movements,

Flavia Echánove, Instituto de Geografía, Universidad Nacional Autónoma de México. Email: echanovef@yahoo.com; *Agroindustries and contract farming: vegetable exports from Mexico*

This paper explores the characteristics of contract farming, under which system broccoli, a non-traditional product, is exported, in the case of the present study, for its consumption in U.S. restaurants. This labor regime, whose expansion is linked to higher food quality requirements, the expansion and strengthening of the agroindustrial firms and other distributors, and the application of structural adjustment policies, has become one of the livelihood strategies of the small-scale producers. The effects (positive and negative) that this contract farming has had on these farmers, who participate in the studied agro-food chain, is analyzed. We find that, even under this labor arrangement, they have had to diversify their sources of income, finding themselves in a vulnerable situation and subject to the variable circumstances of the global markets.

Keywords: contract farming, smallholders, livelihood strategies, Mexico.

Elsie Echeverri-Carroll, University of Texas at Austin. Email: e.carroll@mail.utexas.edu; Sofia G Ayala, University of Texas at Austin. Email: sofia_ayala@mail.utexas.edu; *High-Technology Agglomerations and Wage Inequalities*

This paper's main assertion is that the high-tech industry and its tendency to agglomerate geographically play an increasingly influential role in urban wage inequality. Previous research assumes that regional economies characterized by conditions related to rising inequality at the national level should be associated with high local levels of inequality as well. These studies, however, do not identify the local conditions that make some cities more susceptible to the national inequality trends. In this regard, we call attention to studies that suggest that geographically-bounded knowledge externalities and amenities affect workers' productivity and wages over space. Using Various statistical Models and PUMS data from the 2000 Census of Population, we measure the effect of high-tech agglomerations on the "skilled premium" after controlling for observable characteristics of workers and of metropolitan areas and after addressing problems of endogeneity in the context of multilevel models. We find that high-tech agglomerations play a key role in explaining the skill gap across cities after controlling for other possible sources of inequality. Social polarization is an increasingly important issue in the United States, and this paper sheds light on the degree to which it emanates from the spatial concentration and labor demand characteristics of high-tech firms.

Keywords: inequality, labor market, skill premium, high-technology

Ted Christopher Eckmann, Geography Department and Institute for Computational Earth System Science, University of California at Santa Barbara. Email: ted@geog.ucsb.edu; Philip E. Dennison, Center for Technological and Natural Hazards, Department of Geography, University of Utah. Email: ; Dar A. Roberts, Geography Department and Institute for Computational Earth System Science, University of California at Santa Barbara. Email: ; *The "Day" Fire at Night: Improving Subpixel Measurements of Fire Sizes and Temperatures from Nighttime MODIS Images*

The Moderate-Resolution Imaging Spectroradiometer (MODIS) sensors on NASA's Terra and Aqua satellites image most of the Earth multiple times each day, providing useful data on fires that cannot be acquired practically using other means. Unfortunately, current fire products from MODIS and other sensors leave large uncertainties in measurements of fire sizes and temperatures, which strongly influence how fires spread, the amount and chemistry of their gas and aerosol emissions, and their effects on ecosystems. This study shows how multiple endmember spectral mixture analysis (MESMA) can retrieve subpixel fire sizes and temperatures from MODIS and other sensors, and overcome many limitations of existing methods for pixel-level and subpixel fire measurements. This study also shows how sensors with high spatial resolution, such as the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), can provide data for validating subpixel retrievals of fire properties from MODIS. For example, this study compares MESMA retrievals from simultaneously acquired nighttime MODIS and ASTER images of California's "Day" fire, which burned from approximately September 4 to October 2, 2006. Prior to this work, few studies, if any, had validated subpixel retrievals of fire size from nighttime MODIS images. Results show that MESMA works for daytime and nighttime images, but is particularly useful for fires at night because endmembers need not account for reflected solar radiation. Subsequent research will explore how MESMA retrievals can improve fire spread modeling and forecasting, reduce hazards that fires pose to property and health, and enhance scientific understanding of fires and their effects.

Keywords: wildfires, remote sensing, MODIS, ASTER, global, burn severity, subpixel, spectral mixture analysis

Tim Edensor, Manchester Metropolitan University. Email: t.edensor@mmu.ac.uk; *the rhythms of commuting*

Commuting is commonly represented as a dystopian, boring and repetitive modern activity that is a necessary evil of getting to work. I want to explore how the daily commute is often filled with unexpected surprises and predictable delights and rather than tedious can often be a time alone in which to ponder, wonder and watch the world pass by. I further wish to investigate the temporality of commuting and suggest that these sensual, seasonal, mechanical and performative rhythms that occur during the journey provide an experience that has the potential to escape the more insistent rhythms of home and work

Keywords: commuting, rhythms, time, boredom

David W. Edgington, University Of British Columbia. Email: edgingtn@geog.ubc.ca; *The Kyoto Research Park and Innovation in Japanese Cities The Kyoto Research Park and Innovation in Japanese Cities*

Kyoto is well-known as a historical city in Japan associated with culture, history and craft industries, and more recently with high technology and innovation. It is also the only Japanese city to boast a privately operated research park in its downtown district. Thanks to local businesses initiatives, the Kyoto Research Park is home to a new generation of high-tech ventures, with nearly half of its 240 tenant companies coming from the new media and information technology sectors. In this paper I examine the recent programs of the Kyoto city government, local universities and commercial enterprises to build an industrial cluster associated with sophisticated design and software industries. Information was collected through field research conducted in 2005. The results are set alongside broader policy changes in Japan leading to new approaches to regional development based on the 'regional innovation systems' model. The effectiveness of the Kyoto Research Park is judged mainly by its ability to form linkages with other sources of innovation at the local, national and international levels.

Keywords: Japan, Kyoto, innovation, research parks, regional innovation systems

Robert M. Edsall, Arizona State University. Email: robesall@asu.edu; Kelli L. Larson, Arizona State University. Email: klarson3@asu.edu; *Testing the Usability of Visualization in a Semi-immersive Virtual Environment for Decision Making*

The Decision Theater (DT) at Arizona State University is a multimillion-dollar semi-immersive virtual environment facility purported to help policy makers and the larger community in making decisions about scientific issues and in visualizing output of predictive and scenario-based models. The DT has, like

other virtual environments and related technology, generated interest and excitement, and its power is strengthened with evidence of its utility for the facilitation of scientific inquiry. We conducted a series of human-subjects tests with students, educators, and policy makers in which we evaluated the influence of the DT on aiding understanding, altering mental models, and correcting misconceptions. We compared responses of subjects saw a presentation about environmental issues in the DT to those of subjects that saw the same presentation on a flat screen in a classroom. We also compared, within subjects, a pre- and post-test, the differences between which address the degree to which the presentations influenced the subjects' conceptions of the problems and the hypothetical decisions that they were asked to make. Preliminary analysis shows that some, but not all, of these dependent variables showed significant differences between groups, indicating a limited (but present) effect of the DT environment on decision making.

Keywords: virtual, visualization, usability, human-subjects, cartography, decision making

Brandon Edwards, M.S., Louisiana State University. Email: bedwar4@lsu.edu; *Small-scale variability in surface moisture on a fine grained beach*

Surface moisture content is known to strongly influence aeolian transport, but little is known of the spatial distribution of surface moisture on real world beaches. In this paper, small-scale spatial variability in surface moisture was investigated on a fine grained beach. The sampling scheme involved collecting measurements of surface moisture content on a 40x40 cm grid at 10 cm intervals (25 observations). 44 sets of measurements were collected in a variety of sub-environments (intertidal, berm crest, back beach, dune) representative of the range of moisture conditions found on the beach. Preliminary results show that within-grid variability is smallest for very dry and very moist areas, and largest for areas with intermediate moisture contents. Regression analysis indicates that the mean moisture content of a grid is the strongest predictor of within-grid variability. These findings can be used to refine beach surface moisture maps and provide improved baseline data for aeolian transport modeling.

Keywords: beach, aeolian, surface moisture

Kate Edwards, University of Wales, Aberystwyth. Email: cte@aber.ac.uk; *Seeing Like a State or Producing a Possible India: The Nation-building Conclaves of the transnational media in India Today*

Established geographical accounts of the relationship between territory and the nation emphasise the manner with which states control particular territories in the name of the nation. Yet, reproductions of the nation and the territories envisaged by nation-building projects are not always controlled solely by the state. Reproductions of nationalism then need not be tied to centralised state power, but work in diffuse and varied ways throughout society. Anthropologists have been the forerunners in arguing that in order for us to understand the socio-cultural complexity of the manner with which the nation is reproduced in transnational times we need to acknowledge that reproductions of the nation in decentred locations do not merely communicate and transmit nationalist ideas, but actively produce, rework and disseminate ideas of the state and nation to audiences far beyond the borders of national territories. This paper seeks to examine the decentred production of India in the context of the India Today® Conclave, a forum established by Living Media International, for the exchange of ideas among cosmopolitan decision makers aimed at charting a new future for India. News organisations in India such as Living Media International embody what Appadurai and Breckenridge call the "public culture of the Indian state" and Anderson terms "the unbound serialities" of the nation and offer up the means with which to contribute to, critique and contest state and nation-building projects by official institutions.

Keywords: Nation-building; India; territory

Tracy L Edwards, Frostburg State University. Email: tedwards@frostburg.edu; *Representation of the Irelands in American newsmagazines*

The paper investigates coverage of both Northern Ireland and Ireland in Time and Newsweek from 1965 to 2000. Articles were collected and evaluated to reveal the extent conflict has dominated coverage of these states, and to examine the geography of conflict as presented within these newsmagazines. Focus is on cartographic and visual representations with commentary provided regarding the importance of mass media in communicating place images, and the potential impacts these place images may have in establishing dominant geographical imaginations of particular places.

Keywords: Representation, Media Studies, Ireland

Brian Egan, Carleton University. Email: began@connect.carleton.ca; *'More English than the English': Cultivating White Society and Nature in Victoria, British Columbia*

The 'fashioning' of the colony of Vancouver Island?the result of a long period of imperial extension and accommodation?laid the groundwork for the planting of a White settlement in this remote outpost of the British realm. Fort Victoria, built on southeast Vancouver Island in 1843, was the site chosen for this settlement. Extending White settlement beyond the confines of the fort required dispossessing Native peoples of their land, and its repossession by White settlers. The eventual result of this process of appropriation was the partition of British Columbia into two vastly unequal parts, with Aboriginal peoples confined to a tiny fraction of the territory and the rest made available to White society. Drawing on ideas from postcolonial geography, social nature, and legal geography, this paper examines early stages of this colonization process, paying particular attention to the mobilization of notions of English nature and culture in the establishment and expansion of White settlement around Fort Victoria. Reproducing ideas of English nature and culture?in the garden and the country house, for example, or through the garden party?served to delineate the line between the 'civil' and 'savage', between 'wild' and 'domestic', and to legitimate the appropriation of Aboriginal lands and resources. The reproduction of an English legal regime?particularly laws related to property in land?was central to the cultivation, and delineation, of English nature and culture in this place. The paper concludes with a discussion of the persistence of notions of English nature and culture in representation of present-day Victoria.

Keywords: Nature, Colonialism, Whiteness, Aboriginal Peoples, Postcolonial Geography, Social Nature, Legal Geography, Victoria, British Columbia

Kristine Egan. Email: ke1034@txstate.edu; *Geographic Analysis Of The 'Terrorscape': The Spatial Pattern Of Risk To The Urban Terror Threat*

A difficult task for a terrorism researcher is to compare the relative potential terrorism risk of such varied sites as abortion clinics, caf  s, courthouses, military bases, etc., within a large urban area to assist in prioritizing counter-terrorism planning activities. Hazards research theoretical foundations and methods can be adapted for use in potential terrorism risk research and subsequent planning activities. This research adapts the hazards research 'hazardscape' concept and risk probability, context and consequence concepts for use in terrorism research. The 'hazardscape' concept expands hazard analysis from one specific location to a landscape susceptible to multiple hazards. Thus, the 'terrorscape' concept expands terrorism analysis from a single site to a regional landscape of the hazards of terrorist activities. A terrorism risk index is calculated as the product of the 'probability' of a terrorism event occurring at possible terrorism (context) targets and some measure of the hazard event (negative) 'consequences'. The five major categories of probable terrorism targets introduced in the research are: critical infrastructure, military installation, tourism, large population, and single issue. Following the identification of probable terrorism targets, is the identification or assignment of values to seven potential consequence categories (population presence, property value, symbolism, service area dependency, restoration time, revenue loss, and security level) for each site. Using GIS, a surface is generated for each potential consequence category, which is then combined with the other surfaces to produce a 'terrorscape' risk index. The risk index is then available for further 'terrorscape' analyses designed to assist in prioritizing counter-terrorism activities.

Keywords: Terrorism, Hazard, Risk, GIS

Stephanie Egan, NUI, Galway. Email: stephanie.egan13@gmail.com; *(Bio)Politics and Power: Resistance with Palestine and the IPSC*

This paper traces Israeli processes of control in the West Bank in their legal, administrative and military aspects. A combination of checkpoints, physical obstacles and the continued building of the security wall, all form a series of restrictions generally known as the 'closure system', which controls and restricts the movement of more than 2.3 million Palestinians living in the West Bank. Israeli aspects of territorial and population control are advocated by the IDF as necessary mechanisms employed for the continued security of the state of Israel. These bio-political controls are negligible concerns in a wider debate concerned with focal issues of peace talks, final borders and the status of refugees. The Ireland Palestine Solidarity Campaign (IPSC) are a solidarity movement based in Ireland which draw awareness to the relations of power embedded within the geopolitical discourses of the Israel/Palestine conflict as well as their potentially contestable nature. They introduce the possibility of alternative dialogue drawn up in opposition to the dominant political discourses of the conflict. The IPSC are weaving a discourse of resistance through their discussion of Israeli bio-political controls by using popular articles from a variety of sources to address their concerns of poor reporting of the conflict. In short, they are attempting to transform the debates surrounding the Israel-Palestine conflict by

highlighting 'academic' issues such as bio-politics and examine them in a non-academic manner thereby accessing a wider public audience.

Keywords: biopolitics, resistance, palestine

Siri Eggebraten, University of Southern California. Email: seggebra@usc.edu; Clara Irazábal, University of Southern California. Email: ; *A bridge over troubled water: Crossing the schismatic nature of stakeholder participation in the Los Angeles River Revitalization Process*

Los Angeles turned its back on the Los Angeles River over several decades from the late 1800s through the 1960s, ultimately encasing the river in concrete. In recent years, environmental and political leaders have ignited interest in restoring the river as the city's "front door." Using the Los Angeles River Revitalization Master Plan case study, we examine the planning process, identifying obstacles to cross-sectoral collaboration and public participation in complex governance problems. Through critical analysis based on participant observation, professional involvement, interviews, and focus group discussions, we illustrate that the process is a covert reassertion of deceptively non-participatory, hierarchical planning methods. Insufficient levels of participation are attributed to participatory methods that are ill suited to engaging diverse stakeholders with interdependent, but disparate physical, economic, and social concerns. Addressing the causes of such problems, we propose the institutionalization of "meta-collaboration" to design, monitor, and evaluate participation. "Meta-collaboration" is conceived as a system of technologies that capacitate and mobilize autonomous stakeholders and frame and coordinate their interdependence in complicated governance problems. The aim is to attain participatory processes that bridge difference and lead to more equitable, legitimate, and efficient outcomes.

Keywords: collaboration, planning theory, river redevelopment

Meleia Egger, M.A. Student, Michigan State. Email: Eggermel@msu.edu; *Cultivating Social Capital: Community Gardens in Lansing Michigan*

On October 17th 2006, the U.S. population hit the 300 million people mark and 87% of Americans are urban dwellers. The United Nations predicts that 50% of the world's population will live in cities by 2007. As urban centers become larger, the environmental challenges they present will accelerate. The urban, now more than ever, deserves the attention of researchers and policy makers. Within growing cities, green spaces can offer an environmental and social reprieve. City green spaces can be profound areas of active civic and social engagement, serving multiple functions for communities. Community gardens are one form of green space transforming urban neighborhoods. These gardens are a creative and exciting example of how green space can offer many valuable benefits and uses within urban ecosystems. One such potential benefit is that community gardens can increase and maintain social capital for the neighborhoods in which they are located. The link between community gardens and social capital needs to be explored and better understood. This paper investigates the community gardens of Lansing, Michigan, and their role in enhancing and maintaining social capital.

Keywords: Political Ecology, Community Gardens, Social Capital, Urban Geography, Green Space, Urban Agriculture

Istvan Egresi, University of Oklahoma. Email: iegresi@ou.edu; *The Determinants of FDI Location Patterns: The Case of Romania*

Until 2003, FDI flows to Romania had been limited, especially when compared to other countries in Central Europe. In 2004 annual inward investment increased by 228% compared over 2003 and in 2005 increased by an additional 46.5% to reach over US \$7.5 billion, a level comparable to the annual FDI inflows of the leading Central European countries. This was partly the result of the privatization of several strategic companies and also the realization of a score of greenfield projects especially in the automotive and telecommunication sectors. There are now more than 120,000 foreign-owned companies in Romania, although these companies are unevenly distributed within the country's eight development regions. The purpose of this paper is to explore the factors influencing the geographies of foreign direct investment in Romania. Both economic and non-economic factors are considered.

Keywords: FDI, Eastern Europe, Romania

Susanna Ehlers, BS in Physical Geography in May 2007, UW-Madison Department of Geography and the Center for Sustainability and the Global Environment (SAGE). Email: smehlers@wisc.edu; Tracey Holloway, Assistant Professor, UW-Madison Center for Sustainability and the Global Environment (SAGE). Email: taholloway@wisc.edu; Arlene Fiore, Physical Scientist, NOAA/Geophysical Fluid Dynamics Laboratory (GFDL). Email: Arlene.Fiore@noaa.gov; Larry W. Horowitz, Physical Scientist, NOAA/Geophysical Fluid Dynamics Laboratory (GFDL). Email: Larry.Horowitz@noaa.gov; *Transport Pathways Contributing to North American CO Concentrations*

Carbon monoxide, CO, is produced by natural and anthropogenic processes including biomass burning and fossil fuel usage and affects atmospheric chemistry through its roles as a sink for the hydroxyl radical (OH) and as a precursor to ozone. As the primary atmospheric sink for OH, which is responsible for chemically destroying numerous air pollutants, CO concentrations impact the concentrations of other pollutants. Here we use CO as a tracer for polluted air masses by examining the transport of CO to and from North America. CO is an ideal tracer for atmospheric and climate modeling because it is well-understood and well captured due to its simple chemistry and long lifespan. By employing MOZART, a numerical global tropospheric chemistry model, we seek to address the nature of air pollutant transport and establish the role of episodic versus mean transport on CO concentrations. We define three main transport pathways of CO over North America and identify episodic flux events by comparing model results to INTEX-NA flight observations taken the summer of 2004 in cooperation with NASA, NOAA, and the ICARTT campaign. The main pathways of CO transport over North America are eastward, aloft import from Asia; northward, surface import from Africa, attributed to heavy biomass burning in summer; and eastward export from North America, at the surface and aloft. Understanding these pathways for CO transport is a key step towards understanding how polluted air masses evolve and can provide insight into the extent to which local air quality is influenced by intercontinental transport.

Keywords: climate, air pollution, intercontinental transport of air pollution, CO

Patricia Ehrkamp, University of Kentucky. Email: p.ehrkamp@uky.edu; *Compromised Asylum*

Keywords: Asylum law, violence, Germany

Victoria Ingrid Einagel, Dept. of Sociology and Human Geography, University Of Oslo. Email: v.i.einagel@sgeo.uio.no; *Reconfiguring belonging in the aftermath of war*

The experience of surviving war is responsible for dramatic shifts within individual and group perceptions of 'self', 'other' and 'belonging', the memories of which are embodied, inscribed into readings of past, present and future, and passed on from one generation to the next. Individuals make sense of such dramatic events and the emotions attached to them, whilst enacting everyday lives, especially through the narratives/stories they tell one another and the friendships they engage in (Ochs and Capps 2001). In doing so they perform and rework memories, identities and belonging largely shaped by dominant political ideologies and their commensurate narratives of group and place belonging. Navigating and negotiating belonging is a common aspect of the restoration of everyday lives in the aftermath of war. Which belongings are enacted-sustained, contested or reconfigured-is largely dependent on which 'politics of belonging' continue to give shape to the post-war social and political landscape. Importantly, as Yuval-Davis (2006) points out, various 'politics of belonging' articulate with various scales of 'belonging' and 'not belonging', and impact differently on various individuals, groups and communities within (but also across) nation-state boundaries. In this paper, the author explores which memories, notions and scales of 'belonging' are important for Sarajevans in the aftermath of the Bosnian War (1992/1995) (which killed and displaced people on the basis of ethnolnational and religious belonging), the contemporary 'politics of belonging' steering the country, and how contested notions of belonging are navigated and negotiated or resisted in the restoration of lives after war.

Keywords: belonging, identities, memories, narratives, Sarajevans, post-war landscapes, Bosnia-Herzegovina

Karen S. Eisenhart, Edinboro University of Pennsylvania. Email: keisenhart@edinboro.edu; *Structural changes to woodlands in western Colorado as a result of widespread mortality of pinyon pine trees in response to drought*

Extensive tree mortality in southwestern Colorado since 2002 has diminished the cover of two-needle pinyon pine on some sites, with greatest impact appearing toward the lower-elevation limit of the species. In contrast, co-dominant tree and shrub species were less impacted by drought. Plots were established in 2003 to monitor tree mortality over time. All live and dead trees were mapped by species, and inventoried again in 2005 and 2006. Results indicate that where significant pine mortality occurred, cover-dominance has shifted from pine to the co-dominant tree, or else to the shrub layer. In contrast to mature pine trees, the census showed pine saplings to be less impacted by drought and to maintain dominance in terms of stem numbers. Consequently, a site may visually be dominated by juniper trees today, but advance regeneration of pinyon pine may facilitate recovery such that in future decades cover may shift back to pine dominance as saplings grow larger. In addition to survival of saplings, recovery may be enhanced by new regeneration resulting from a mast of cones that reached maturity on surviving pinyon pine trees during the 2005 growing season. Pine production was recorded in plots during 2005, and new establishment was

sampled in 2006. Both newly established and existing seedlings (< 20 cm tall) were marked in order to monitor future survival.

Keywords: Colorado-southwest, *Pinus edulis*, pine-pinyon, mortality - drought related

Wendy R. Eisner, Department of Geography, University of Cincinnati. Email: wendy.eisner@uc.edu; Kenneth M. Hinkel, Department of Geography, University of Cincinnati. Email: kenneth.hinkel@uc.edu; Benjamin M. Jones, SAIC/USGS, Alaska Science Center. Email: bjones@usgs.gov; Chris J. Cuomo, Institute for Women's Studies and Department of Philosophy, University of Georgia. Email: cuomo@uga.edu; An Environmental Indigenous Knowledge (IK) GIS for the Western Arctic Coastal Plain

Arctic indigenous communities hold unique expertise and historical knowledge on the local effects of environmental change on the landscape and ecological communities. Although climate change is potentially of concern to every community on the planet, Arctic communities have a particularly urgent interest in understanding and addressing potential changes. The Iñupiat have observed gradual, rapid, and catastrophic natural changes in the landscape during their lifetimes. We present a Barrow/Atkasut GIS showing environmental changes that are based on interviews with Iñupiat elders and other local experts. Their knowledge and expertise has been indispensable in developing GIS layers that address community concerns and interests, as well as scientific research. Our interviewees offered invaluable observations on landscape and climate change, as well as fascinating accounts of their cultural traditions and personal history. Many of the elders indicated that landscape changes are occurring at a rapid rate. They have identified thaw lakes that have drained, areas where the permafrost thaw has been extreme, and places where sea and river bluffs are eroding. Areas have been identified where anthropogenic activity related to oil development has resulted in severe thermokarst. We have been able to corroborate a number of their observations using site visits, aerial photography, and satellite imagery. We visited traditional dwelling and hunting areas with several elders, and videotaped their explanations of past landscape processes. The material obtained greatly exceeded the scope of our science project, moving into wider realms: life stories, cultural history, human impacts on the land, and environmental ethics.

Keywords: GIS, Indigenous Knowledge, Climate Change, Permafrost

Hamid R Ekbia, Ph.D., Indiana University. Email: hekbia@indiana.edu; Changing GIS to Accommodate Change: A Technical-Critical Approach

Current GIS have limited capabilities in modeling and visualizing time-varying phenomena such as moving objects, changing shapes, and dynamic processes. These limitations can be explored at three different levels: conceptual, methodological, and technical. Conceptually, the limitations derive from a naïve realism that considers representations as passive and mirror-like reflections of a given reality. Methodologically, they originate in the cartographical view of change as the difference between snapshots (as captured in the notion of "layer" in current GIS), rather than the continual accrual of change from state to state. Technically, they are the consequence of the utilization of tools and technologies that deal with static collections of data manipulated according to the rules and constraints of geometric, topological, or relational data models. These limitations enable practices that tend to be totalizing, deterministic, and fixative in character, and should therefore be of concern to critical GIS. One of the ways to overcome them, I argue, is to move toward frameworks that link micro- and macro-levels of analysis (e.g., agent-based modeling). In addressing these issues, I adopt a technical-critical approach - a kind of approach that examines the taken-for-granted categories, hidden assumptions, and governing metaphors in a discipline in order to discover their limits (Agre 1997, Ekbia 2007). This approach, which is in resonance with the growing trend in critical GIS toward constructive criticism (Harris and Harrower 2006), discourages the binary utopian and dystopian views of technology that prevailed in the 1990's (Schoorman 2000).

Keywords: gis, change, critical-technical

Michael Ekers, Student. Email: michael.ekers@ouce.ox.ac.uk; Reconstructing Hegemony in the Forestscape: Deviant Working Class Masculinities and Workfare

This paper explores the reconstruction of patriarchal-bourgeois hegemony in British Columbia, Canada, during the Great Depression. The 'hungry thirties' as they were popularly described and experienced, entailed a series of economic, social, moral and ecological crisis that rippled across the B.C. sociocultural fabric - in short, what Gramsci would have referred to as an 'organic crisis'. In 1936, after six years of relief camps that failed in the eyes of both the government and militant and reformist trade unions, the government initiated a series of workfare and training programs that were intended to modernize the forestry industry and remake unemployed men in body and soul. In this respect, forestry projects were part of project of reconstructing hegemony, which on the one hand, aimed at

removing deviant and degenerate men from urban centers and putting them to work in rural environments on the presumption that the men would rediscover their 'true' masculine identities as independent and hard working men. On the other hand, the labour-power of the young men served to modernize the resource base of the economy in an attempt to the rescue B.C. from economic ruins and renew the basis for expanded capital accumulation. Thus the delicate construction of hegemony out of the tumultuous Depression was both a class and gender project that had a particular sociocultural form. However, the forestry projects continued to be ripe with contradictions and strikes and dissent continued unabated and ultimately the onset of WWII provided the most malicious solution to the 'hungry thirties'.

Keywords: nature, hegemony, men, masculinity

Stuart Elden, University of Durham. Email: stuart.elden@durham.ac.uk; Soja Territory

In 1971, Edward Soja published a paper on the "The Political Organization of Space" for the Association of American Geographers. While some elements have not aged well, such as the behaviourist assumptions in the linkage between human and animal territoriality, other suggestions remain fundamental to a study of the notion of territory. Soja proposes a tripartite analysis of resource, power and social organisation, which repays careful thought. One of the things that is notable in Soja's analysis is his claim that while all societies have spatial dimensions, few operate in territorial ways, thus implying that territory is more historically and geographically limited than is often assumed to be the case. Revisiting Soja's paper after three and a half decades and comparing it to studies by Jean Gottman (The Significance of Territory) and Robert Sack (Human Territoriality), this paper demonstrates the continued relevance of Soja's analysis. Drawing on my own ongoing research into the history of the concept of territory, the paper concludes by suggesting ways forward in thinking both the past and contemporary meanings of this contested concept.

Keywords: Edward Soja, Territory, Space, State

Glen Elder, Dr, University of Vermont. Email: Glen.Elder@uvm.edu; Race, Gender, and Queer Geography

Queer geographies have tended not to theorize sexuality, gender and race as mutually constituted processes. While "putting queers on the map" and theorizing queers in space and place rendered some queer lives visible, aspects of this body of literature have also silenced and marginalized other kinds of queered space and practice. It would be an overstatement, however, to assert that concerns about race and gender have been absent altogether in queer geographies. We draw from limited but potentially rich veins of "queered" contemporary Anglo geography in order to seek points of overlap and engagement with so called "new queer studies". Our review will be threefold: Geographies that examine race, gender, and sexuality as mutually constituted spatial processes, Geographies of race that highlight the intersections of sex and gender, and finally an emergent literature about lives that people whose spatial practices challenge gender/ sex binaries.

Keywords: Queer geography, the body, gender, race

Paul Ell, Queen's University. Email: paul.ell@qub.ac.uk; A unifying technology: Multimedia GIS in the Humanities and Arts

Geographical Information System technology is still predominately deployed in the physical sciences. While there are outstanding examples of the use of GIS in the Humanities and Arts, these are relatively few with the balance of work based around resource development rather than the use of GIS in research. Moreover, following from the historical background of GIS, Humanities and Arts applications have tended to concentrate on quantitative data, often drawn from censuses of one type or another, linked to polygon based geographies. These approaches have limited the development of Humanities GIS in a number of ways. Recent developments suggest that GIS may enter a new phase of utilisation in the Humanities. First, GIS software is increasingly easy to use. Second, the software can now cope well with multimedia materials. Third, there has been an exponential increase in e-resources in the Humanities and Arts and resources in a variety of multimedia formats. Finally, there are concerns that humanists are beginning to suffer from 'information overload' and are not able to access and use existing e-resources. This is reflected in concerns on the level of usage that e-resources are receiving, and the need to develop a practical humanities e-Science approach to allow the Data Grid to link fragmented and disparate resources. Virtually all Humanities and Arts research sources can be related both spatially and chronologically. There is the potential to develop Humanities spatio-temporal e-Science based around GIS technology that will result in interlinked e-resources, and new scholarship. This paper discussed the potential.

Keywords: GIS Multimedia Humanities

Evan A Ellicott, University of Maryland - College Park. Email: eaelupus@umd.edu; Eric Vermote, University of Maryland - College Park. Email: eric@ltdri.org; *Global Estimates Of Biomass Burning Particulate Matter Using Fire Radiative Power*

Characterization of fire intensity, frequency, and biomass burning emissions from satellite observations has been demonstrated in numerous studies. Recent investigations of the radiative energy liberated during combustion have offered an approach to directly estimate the rate and total biomass consumption, as well as the associated emissions of aerosols and trace gases. To provide the most effective product for climate modeling, emission estimates and any corresponding algorithmic coefficients should have broad applicability; from regional to global scale. We present the results of our analysis using the MODIS fire climate modeling grid (CMG) product and a MODIS derived aerosol estimate of organic and black carbon (OC and BC, respectively) emissions from biomass burning. The relationship was examined for a single year of data (2001) using 14 discrete regions to stratify the Earth's terrestrial surface. Analysis was performed at the CMG resolution of $0.5^\circ \times 0.5^\circ$ and monthly intervals. Correlation between fire intensity and OC-BC particulate emissions varied between regions with the strongest agreement in the Southern Hemisphere of Africa (SHFA) ($R^2 = 0.94$). Regions with primary or abundant fire activity occurring in savanna/shrubland landcover demonstrated a strong relationship between emission factors and the mean ratio of Aqua-Terra FRP ($R^2 = 0.80$). The results offer promising insight to explain regional variability of emissions based on landcover and the temporal pattern of fire energy. Future efforts will focus on investigating the relationship between the Aqua-Terra ratio and total time integrated fire energy (FRE); for which the ratio may serve as a proxy.

Keywords: Fire, FRP, FRE, Energy, Biomass Burning, Emissions, Particulate Matter

Grant Elliott, Department of Geography, University of Minnesota. Email: ellio176@umn.edu; Evan Larson, Department of Geography, University of Minnesota. Email: lars2859@umn.edu; *Stand structure and dynamics of an old-growth pine-hardwood forest in northeastern Minnesota*

Currently, eastern white pine (*Pinus strobus*) forests occupy a small fraction of their pre-European settlement habitat in northeastern Minnesota. As a result, scattered old-growth white pines typically exist within a matrix of second-growth, mixed-hardwood forest. We studied stand structure and dynamics of a relatively undisturbed 15 ha pine-hardwood forest in northeastern Minnesota, approximately 70 km southwest of Duluth. The forest canopy consists of isolated white pine within a nearly continuous tract of northern red oak (*Quercus rubra*), sugar maple (*Acer saccharinum*), and basswood (*Tilia americana*). The understory is composed of balsam fir (*Abies balsamea*), sugar maple, ironwood (*Ostrya virginiana*), and red maple (*Acer rubrum*). We reconstructed the stand history of this area, including age structure, forest composition, and disturbance history. Our data indicate that over the past 150 years the forest canopy has transitioned from dominance of pine-oak to dominance by northern hardwood species. If stand conditions remain relatively stable, pine will likely be excluded from this forest. The current stand structure and composition also suggest that the stand has not experienced widespread disturbance, such as fire, since the early- to mid-1800s. Reintroducing fire as a disturbance agent would favor white pine regeneration, but with the accumulation of understory ladder fuels, such as balsam fir, the survival of existing white pines would be unlikely during a fire event without some form of mechanical thinning. Overall, this forest provides a unique opportunity to study the complex relationships between stand structure and dynamics of a pine-hardwood forest in northeastern Minnesota.

Keywords: white pine, pine-hardwood forest, old-growth, stand structure, stand dynamics, Minnesota

Harold M. Elliott, Weber State University. Email: helliott@weber.edu; *Cardinal Neighbor Analysis Of The 1840 United States Census.*

A state and territory map of the United States, with points marked at the site of each county's center, largest town, or county seat, shows the spatial structure of the United States as it existed in the year 1840. Using cardinal neighbor analysis, where each population unit (a county, town, or city if one existed) is linked by a line to its cardinal (or nearest larger) neighbor, the map shows the expansion of settlement into and throughout newly acquired territories in Missouri, Michigan, Illinois, Wisconsin, and Arkansas, as well as the early settlement of the newly independent Texas. Cardinal neighbor maps of the U.S. for 1800 and 1820 are shown for comparison.

Keywords: cardinal neighbors, United States, census-1840.

Deborah L. Elliott-Fisk, University Of California - Davis. Email: dlelliottfisk@ucdavis.edu; *Appellations Within Appellations: Designating Viticultural Areas in California*

Since the establishment of the American Viticultural Areas (AVA) program of the U. S. Department of Treasury in 1978, almost 200 viticultural areas have been approved, with half of these in California. How does one go about subdividing an approved AVA into smaller appellations that meet federal requirements and may stand as approved AVAs? What geographic criteria are best used? How are boundary lines drawn? Examples are given from my research and work with the Bureau of Alcohol, Tobacco and Firearms and Alcohol and Tobacco Tax and Trade Bureau for designating smaller viticultural areas within the Napa Valley, Lodi, and Paso Robles American Viticultural Areas.

Keywords: wine, viticultural geography, AVA, appellation, terroir, agriculture, terroir, California

Andrew W Ellis, Arizona State. Email: dellis@asu.edu; Robert C Balling, Arizona State University. Email: robert.balling@asu.edu; Timothy W Hawkins, Shippensburg University. Email: TWHawk@ship.edu; Patricia Gober, Arizona State University. Email: gober@asu.edu; *Impacts of Potential Climate Change on the Phoenix, Arizona Water Supply*

The combination of rapid population growth, recent climate change, and future climate uncertainty has yielded important questions concerning water resources and sustainability in metropolitan Phoenix, Arizona. To assess the impacts of potential climate change on the water supply of Phoenix, we adapted a climatic water budget model to simulate monthly runoff on the two watersheds that are the sources of a significant proportion of the water supply. After simulating runoff over much of the past century, we tested the sensitivity of the watersheds to annual and seasonal changes in temperature and precipitation. To assess the possible impacts of future changes in climate, we input extrapolations of current climate trends and predictions by popular climate change models into the model. We applied predicted changes in temperature and precipitation by the years 2020 and 2050 to the measured historical data to re-simulate the record of runoff for comparison with historical values. The results indicate that runoff from the watersheds decreases by 6 percent for every 1 degree Celsius air temperature increase, and runoff decreases by 20 percent for every 10 percent decline in precipitation. On average, increases in air temperature and decreases in precipitation are predicted for the region within which the watersheds lie, and this translates to an 8 to 13 percent decrease in runoff under 2020 conditions and a 16 to 36 percent decrease under 2050 conditions. This could have dire consequences for a rapidly growing metropolitan area with few if any new supplies of water.

Keywords: water, climate change, Arizona

Erle C Ellis, Associate Professor, University of Maryland - Baltimore County. Email: ece@umbc.edu; *Assessing the Regional and Global Impacts of Local Land Use Changes across Rural China*

China's densely populated rural landscapes have been transformed over the past fifty years by population growth, social restructuring and technological change. The global environmental impacts of these changes are undoubtedly significant, yet investigation of their causes and consequences remains a challenge because they are mediated by hundreds of millions of rural households acting locally across an area of more than 2 million square kilometers. Using a regional sampling and upscaling design, we integrated high-resolution landscape change measurements, soil and vegetation sampling, household surveys and elder interviews at five field sites across rural China to estimate long-term ecological changes, circa 1945 to 2002, across China's densely populated agricultural regions. These methods revealed net increases in impervious surface area caused by housing construction that are similar in magnitude to the total current extent of China's cities. More surprisingly, these changes were associated with net increases in woody vegetation and tree cover caused by tree planting and regrowth around new buildings, the introduction of perennial agriculture and improved forestry, and the abandonment of annual crop cultivation. These observations demonstrate that fine-scale changes within anthropogenic landscapes can contribute substantially and in unforeseen ways to global changes in biogeochemistry, biodiversity and climate. Sampling and upscaling methodologies that facilitate the coupling of local observations with regional data and models therefore play a critical role in efforts to assess and mediate the regional and global impacts of land use changes in densely populated landscapes.

Keywords: regional analysis; statistical methods; long-term ecological change; anthropogenic landscapes; Asia

Jean Taylor Ellis, Texas A&M University. Email: jean@geog.tamu.edu; Characterizing Saltation Events

This research investigates unsteadiness in a turbulent wind field and pulses in a sand transport field on a beach near Shoalhaven Heads, New South Wales, Australia. Microphone-based saltation sensors, "miniphones," and thermal anemometers were co-located (0.02 m separation on center) and deployed between 0.01 and 0.0225 m above the bed, and sampled at 6000 Hz. Five runs totaling 2050 seconds of wind and saltation data were analyzed. The first goal of this research was to identify wind and saltation events. The continuous wavelet transform, using the Morlet wavelet base, was used to analyze the wind and saltation records. Wind and saltation events were discerned by selecting wavelet power coefficients between wavelet scales of 0.4 and 3.0 seconds and with coefficients exceeding the 95% confidence interval. The wavelet method allow for wind and saltation event duration and event spacing to be determined. The second goal of this research was to characterize the coherent structures in the wind field. The average event spacing measured in this research was compared to the empirical-based model presented by Rao, Narashimha, and Narayanan (1971). The correspondence between the model and this research strongly suggests that bursting-type coherent structures were present. Integral time scales, calculated using normalized auto correlation and power spectral density analysis, were approximately two seconds for the wind and saltation systems. The temporal coincidence of the integral time scale estimations and the event durations for the wind and saltation system strongly suggests that wind events are driving sand transport events.

Keywords: aeolian geomorphology, beaches, coastal

Rowan Ellis, University of Washington. Email: rowansue@u.washington.edu; Of Broadband and Cheap Rice: IT development and youth politics in Tamil Nadu, South India.

This paper is about the changing nature of youth politics in South India. Specifically, I focus on how youth have responded to the contradictory and uneven results of development in the Information Technology sectors in Chennai, Tamil Nadu, South India. Although there has been much recent scholarship on geographies of youth, especially in relation to economic change and globalization, there has been little attention paid to the political party as a site for the formation of post colonial youth identities. Further, other works on contemporary geographies of youth have failed to treat youth as intentional and effective political actors. This piece will address these holes in the literature while reflecting on what youths' formalized political activity can tell us about post colonial politics and economic relationships at the scale of the city.

Keywords: India, Youth, Globalization, Post Colonial Studies

Greg Elmer, Ryerson University. Email: gelmer@ryerson.ca; Greg Elmer, Dr., Ryerson University. Email: gelmer@ryerson.ca; Disaggregating the Web: The Space of Tags

This paper offers a disaggregated geography of the web. As the web continues to undergo a process of information centralized and aggregation where a select number of info-providers, (typically portals and search engines, but also consumer related sites such as Amazon, Ebay and social networking sites such as MySpace) accumulate and categorize content and users profiles, new possibilities for web research emerge at the level of web code. Disaggregating code from information powerhouses such as Google typically requires the development of research software, know as 'code scrapers' or 'rippers'. Researchers at the Govcom.org Foundation or the Infoscape Research Lab (Ryerson University) have developed a number of such 'scrapers' for the academic community. Such small scale experimental software programs, in short, scrape or parse all the 'tagged' information categories found on a site, sorting them into spreadsheet formats for subsequent analysis. For this paper, we are particularly interesting in disaggregating geographic tags from the top tier of information aggregators. What can such tags tell us about the dissemination or the origin of aggregated web content? Do geographic tags mask or otherwise obscure web users knowledge of the geographic information economy?

Keywords: Web code, Geographic Tags, Internet Research

Gregory A. Elmes, Ph.D., West Virginia University. Email: greg.elmes@mail.wvu.edu; Application of Potential Accessibility Surface Concepts to Criminal Investigation.

The potential accessibility surface concept is applied to explore spatial relationships between suspected offenders, incidents and victims by extending Hagerstrand's (1970) time geography to three-dimensional representation (Kwan 2002, Kwan et al. 2003, Harvey 2005a, 2005b, Shaw and Yu, 2004.) A road and trial network is encoded with time-distance is combined with route finding and service area algorithms to calculate the potential accessibility area from known coordinates in time-space. Elapsed time is encoded on each network segment, which is initially displayed in two dimensions as isochrones. Using elapsed time as the third dimension, the suspect's behavior is displayed as a potential accessibility

volume. Time-space volumes may be displayed for suspect's unknown behavior before an incident or for possible subsequent behavior after an incident. Intersection of known incidents and the potential accessibility areas of suspects may be used to exclude certain individuals from further investigation. Furthermore, the technique may be used to intersect victim's known trajectories for coincidence with suspect's potential movements. Data obtained from WVU Police Department were masked for confidentiality. Temporal and spatial uncertainty in the data is found to be a severely limiting constraint for use in small area studies.

Keywords: Space-time, Potential Accessibility Surface, Crime

Rebecca Elmhirst, University of Brighton, UK. Email: R.J.Elmhirst@brighton.ac.uk; Multi-local Livelihoods and Agrarian Transformation: Reflections From a Longitudinal Study in Indonesia.

Contributions to the literature on rural livelihoods in Asia over the past couple of decades have noted their increasing diversification away from agriculture and away from income generated within the immediate locality. It has been suggested by some that a radical rethink of 'pro-poor' rural policy is required to account for shifts in the association between land, agriculture and poverty. The aim of this paper is to further examine this prospect, by focusing on a case study that reveals disjunctures and reversals in the trajectory towards non-farm employment and remittance livelihoods in rural spaces. Evidence is drawn from a longitudinal multi-method study of livelihoods in a transmigration resettlement area in Lampung province, Indonesia, an area marked by both land redistribution policies and substantial government and external support for smallholder farming. During the course of the study period (1994 - 2005), conflict, insecurity and a collapse of governance led to the withdrawal of institutions purportedly delivering agriculture-oriented pro-poor development. The paper discusses the impact of this withdrawal, and the emergence of informal institutions that have effectively recast both rural power relations and gendered livelihoods in the area in unexpected ways.

Keywords: rural livelihoods, Southeast Asia, migration, power relations, governance

Joseph Elms, Miami University. Email: elmsja@muohio.edu; Battlefield Itaewon: American Soldiers, Army Regulations, Public Space and Tactics of Resistance

The United States Army is an institution that regulates every aspect of its soldier's time, space and identities. This is especially apparent in the Itaewon district of Seoul, South Korea where the Army restricts the movement and identities of the soldiers by imposing time and space regulations through the use of a curfew and by placing many of the entertainment establishments off-limits to American soldiers. Interviews conducted over three weeks in June and July of 2006 with twenty soldiers and civilians in Itaewon illuminate how soldiers negotiate the time and place restrictions and how the mechanisms of compliance and resistance are manifested by the soldiers in the spaces of Itaewon. Research shows that the soldiers interpret the Army's regulations in a variety of ways and through their personal interpretations justify compliance or dissent. Through the simple act of graffiti or consciously disobeying the Army's regulations by staying out past curfew or entering off-limits establishments, soldiers in Itaewon use space to construct or maintain their identities of self while at the same time maintaining their identities as soldiers.

Keywords: Political Geography, Military Geography, Cultural Geography, South Korea, Public Space, Identity, Resistance

Sarah Elwood, University of Washington. Email: selwood@u.washington.edu; Mobile meanings or moving target? Community organization responses to shifting resources, priorities, and partners in urban governance

Hallmarks of urban governance include a dizzying expansion in the institutions, organizations, and actors involved in revitalization, policy making, and service delivery; and constant change in potential partners, funding priorities, and validated strategies for urban revitalization. For community organizations and other institutions of civil society, recent research in urban geography has demonstrated how this shifting political and institutional landscape of urban governance produces a multitude of constraints: Revitalization priorities defined by state or market 'partners', prescription of acceptable activities by funding agencies, and dwindling diversity in understandings of what community or economic development might entail. In this paper, I will consider the role and engagement of community organizations in urban governance from a slightly different vantage point: What are the forms of agency that community organizations cultivate to try to navigate this shifting environment, and who are the key agents producing mechanisms that enable these organizations to continue to play an active and influential role? I will show how some community organizations develop a strategy of producing highly mobile and flexible meanings and priorities around people, place, and community that may be

adapted to try to mobilize resources and influence in very different state, market, or civic contexts. The success of this strategy rests heavily upon the activities of individual actors who produce and perform these mobile discourses of local needs, priorities, and urban revitalization practices. I also consider some of the limits to such an approach.

Keywords: urban geography, collaborative governance, local knowledge

Michael Emch, University of North Carolina at Chapel Hill. Email: emch@email.unc.edu; *Developing a Cholera Early Warning System Using Environmental Information*

While past cholera research has enhanced our understanding of the disease, prevalence remains high and it has recently spread to many new areas of the world. Furthermore, no predictive model has yet been developed that government health departments can use as a tool for prevention. The goal of this project is to develop cost-effective cholera epidemic control strategies implemented in areas with pre-defined epidemic risk indicators at regional and local levels. This paper first describes the global seasonality patterns of cholera using World Health Organization Morbidity and Mortality Weekly Report data collected during the past 30 years. It then describes the spatio-temporal fluctuations of cholera incidence during the past 20 years in three local study areas in Hue and Nha Trang, Vietnam and Matlab, Bangladesh using detailed health and population surveillance data. Recent studies have suggested that cholera is influenced by environmental variables that can be indirectly measured using satellite imagery. This study investigates relationships between cholera incidence and satellite-derived sea surface temperature, sea surface height, and chlorophyll concentration and in-situ temperature, rainfall, and river discharge. Associations between these environmental variables and cholera incidence are measured and the results are being used to develop predictive tools for predicting future epidemics. Initial findings show that the seasonality of cholera varies in different areas of the world; it is highly seasonal at higher latitudes, especially in the northern hemisphere. Ocean chlorophyll concentration peaks are related to cholera epidemics but the process is mediated by sea surface temperature and river discharge.

Keywords: environment, remote sensing, medical geography, infectious disease, cholera

Charles W. Emerson, Western Michigan University. Email: charles.emerson@wmich.edu; *An Object Oriented Remote Sensing Analysis of Agricultural Land Use Changes in Inner Mongolia*

Da'erhanmaomingan Banner in China's Inner Mongolia Autonomous Region is economically depressed and has a heavy dependence on animal husbandry. Despite governmental efforts to protect the environment since the 1978 economic and political reform, the local solution to poverty has been to intensify agricultural and husbandry activities. This investigation coupled GPS-based ground truth surveys, multi-date Landsat imagery, agricultural statistics, and surveys of farmers, herders, and local officials to characterize the biophysical and socioeconomic implications of alternate land management strategies. Supervised land cover classification of Landsat imagery was performed using both traditional per-pixel maximum likelihood classification and an object oriented approach that incorporates expert knowledge, texture, shape and topological relationships. Analysis of the changes in land use using both classification techniques show a strong short-term dependence on seasonal rainfall patterns and a steady increase in areas devoted to irrigated silage crops. A general trend of increased levels of overgrazing in areas not designated as ecological set asides was particularly evident in the analysis of imagery classified using object oriented methods. Although some loss of local land cover details was noted, the object oriented ability to incorporate texture and shape characteristics of imaged objects led to smoother classified images and easier post classification change detection with fewer "salt and pepper" anomalies.

Keywords: object oriented, change detection, remote sensing, grasslands

Marla R. Emery, US Forest Service. Email: marla.emery@uvm.edu; *Nontimber Forest Products: A Project for Postindustrial Political Ecologies*

Despite assumptions of its demise, gathering is decidedly alive in the postindustrial world. Approximately one quarter of the northern New England population gathered one or more wild edibles, medicinals, etc. (collectively referred to as nontimber forest products, or NTFPs) between 1999 and 2004. Across the Atlantic, roughly the same proportion of the Scottish population collected NTFPs in a similar time period, while nearly 60% of the Finnish population picked berries in the final decade of the 20th century. Much ink and energy has been expended by the small group of researchers who study NTFPs in postindustrial contexts as to the meaning of these activities. Are they predominantly recreational, economic, or something in between? Do they represent a retreat from the modernist world or evidence of the continuity of spaces outside capitalism? Might they more usefully be understood within deCerteau's construct of practice? Meanwhile, policy makers and land managers in the postindustrial

world have seized upon tropes that originated in international development discourse about social and ecological virtues of NTFPs, largely without benefit of critical insights. The paper discusses scholarship on NTFP use in postindustrial nations within Robbins' political ecology framework and calls for a political ecology of home advanced by McCarthy, St. Martin, and Schroeder. Study of NTFPs in the United States, Canada, and Europe offers fertile theoretical and empirical ground. A research agenda, illustrated by examples from a decade of work on the subject, is proposed as a means to advance political ecology theory and inform forest management practice.

Keywords: political ecology, forest management, nontimber forest products, diverse economies, First World

Chad F. Emmett, Brigham Young University. Email: chad_emmett@byu.edu; *Bribes and Aid as Agents of Missionization: The Case of Indonesia*

Methods of religious dissemination vary across time and space. Historically religions have spread via missionaries as well as via trade routes and routes of conquest. Other more subtle methods are also used, particularly in areas where traditional proselytizing is restricted. Two of these missionizing methods include the use of bribery and humanitarian aid. Bribery may be used to procure hard to obtain missionary visas or to circumvent restrictive laws and legal punishments that impede missionary work. Humanitarian aid can build bridges and soften hearts. It can also be used to disseminate religious tracts and to bring in additional missionary helpers. These are delicate topics that are seldom openly discussed for fear of exposing some or finding ulterior motives in others. As a case study, this paper will look at the use of bribery and humanitarian aid as agents of missionary work in the country of Indonesia.

Keywords: missions, Indonesia, religion

Vanessa Empinotti, University of Colorado - Boulder. Email: empinott@colorado.edu; *Rain and River: is that "just" about water?*

What would be the impact of managing water at different moments of the hydrological cycle? Rain and river, how differently do these two biophysical forms of water influence civil society organizations' participation in watershed management? The hydrological cycle is one of the classical approaches of observing the dynamic of water in the planet. In that, water is observed in different forms: rain, rivers, aquifers and others. Usually, human geographers do not recognize how water management approaches prioritize some models of development depending on the specific moment of the hydrological cycle. By considering water management from water harvesting to river management, different civil society organizations created their own models of development and water management. At the same time, these different views of development models are re-shaping government initiatives in promoting decentralized water management in developing countries. This paper aims to understand how civil society organizations' perspectives on how water should be managed are influencing their participation (or not) on watershed committees. To this end, it presents and discusses an empirical study of the São Francisco River Watershed Committee, more specifically looking at the discourses of civil society organizations' members and non-members of this institution and how their models of water management are influencing the construction of ideas to manage water in this area.

Keywords: Political Ecology, water management, river, water harvesting, development, participation

Georgina Endfield, University of Nottingham. Email: georgina.endfield@nottingham.ac.uk; *"Where Africa's swamps and mountains meet at every hand": British perspectives of Uganda in the late nineteenth century*

The letters, personal papers and journals written by British missionaries, medical missionaries and explorers to Central East Africa in the nineteenth century are used to investigate how British knowledge of African environments, climates and their perceived salubrity, was applied, tested and developed. In keeping with nineteenth century European conceptualisations of those parts of the world assumed to be tropical and sub-tropical, continental Africa was imagined and represented in popular and scientific discourses both positively, as luxuriant and exotic, and negatively, as a pathologically dangerous space for Europeans. This paper explores the degree to which this paradox can be recognised in the correspondence and diaries of individuals working for the Church Missionary Society in Eastern and Central Africa, and some of the reports produced by members of British led expeditions to and through the region in the second half of the century. The accounts reveal the development of a perceived spatially-varied pathological geography of the region, and also highlight the changing attitudes towards the healthiness of place in this part of Africa around the turn of the twentieth century.

Keywords: historical geography, nineteenth century, Africa, missionaries, environment

Matthew Engel, University of Nebraska. Email: geogmatt3@yahoo.com; *Perceptions of Prison Siting and Impacts in the Midwest*

To cope with agricultural decline and manufacturing losses, the leaders of some small towns in the Midwest have turned to the corrections sector to offset economic downturn. In the past, many people would consider prisons noxious facilities, and while this is still true in economically healthy urban areas, a shift in this line of thinking has occurred in small towns over the previous three decades. Surveys and interviews from communities in the central and western Midwest demonstrate an overall acceptance by residents with a prison in their midst, and the elites of these communities express a greater degree of comfort with the facility. However, some individuals from each town are less than enthusiastic about hosting a prison, and their concerns are usually expressed in locally rooted grievances, rather than broader concerns with the growth of prisons nationwide.

Keywords: cultural geography, small towns, prisons

Ruth Engel, River Hill High School. Email: ru416@yahoo.com; *Historical Vulnerability to Droughts and Floods in Baltimore, MD*

In the coming years, climate change will change Baltimore's weather patterns significantly. The city will be subjected to extended periods of drought interspersed with heavy rains. Parts of the city are unprepared for the effects of climate change. Currently, weak parts of Baltimore's infrastructure cause flooded homes, blocked streets, and a lack of useable water, depending on the weather. Residents need to prepare for the future, and must be aware of Baltimore's vulnerability to climate change in order to do so. This study examines Baltimore's sensitivity to extreme weather hazards and its ability to cope with its new climate. To determine sensitivity, past reactions to flooding and drought were determined through archival research. The city's ability to handle extreme natural hazards was detailed through descriptions of flooding of homes, weakening of dams and bridges, and inability to provide residents with water. This historical analysis was used in combination with information about the city's current plans for repairing its infrastructure to form indicators of Baltimore's vulnerability. The indicators helped to identify parts of Baltimore's infrastructure that require repair in the face of climate change. The data was used to form an online archive as well as recommendations for the city government and residents as to what should be done to prepare for extreme weather hazards. The study helped Baltimore anticipate the extent of the damage that could arise from climate change and the amount of work needed to prepare for the future.

Keywords: Baltimore, Vulnerability, Drought, Floods

Salvatore Engel-DiMauro, SUNY New Paltz. Email: engeldis@newpaltz.edu; *Protecting diminishing forested area through long-term anti-colonial struggle: the case of Menominee forestry*

Academic and policy-making circles concerned with environmental degradation often portray sustainable resource extraction among indigenous communities as a successful example of community-based conservation and of reconciliation of indigenous peoples' interests with sustainable development projects, including in the establishment of protected areas. Depictions of this sort overlook historical processes of colonial expropriation and self-determination struggles and remain blind to the multiple-scale processes that enable or constrain context-specific environmental practices. The case of Menominee sustainable forestry demonstrates how resource conservation is predicated on long-term and ongoing anti-colonial resistance, especially through alliance strategies. This has allowed for the mitigation of losses with respect to resource control and access, despite colonial encroachment, and the reconstitution and maintenance of cultural traditions, despite alternating assimilation and extermination policies at different levels of white settler institutions. The outcomes of this struggle can be further clarified by considering concurrent changes at multiple scales, including the inter-imperial rivalries of an expanding Eurocentric capitalist system. In the case of Menominee forestry, the maintenance and development of sustainable environmental practices has been contingent on resolving internal social contradictions in a colonial situation and in seizing alliance opportunities facilitating self-preservation, which were not achieved in other communities in the same region, especially after the US Government's 1954 Termination Act. The experiences of indigenous peoples living under (still existing) colonial oppression shows that the maintenance or conservation of resources, such as forests, results from the outcomes of both anti-colonial and intra-community struggles rather than from voluntary participation in conservation projects.

Keywords: Colonialism, Conservation, Native Americans, World-system

Mike Engelmann, UO InfoGraphics Lab. Email: engman@uoregon.edu; Nick Martinelli, UO InfoGraphics Lab. Email: emartin2@uoregon.edu; *Re-Inventing the Wheel: Migrating transportation map production from CAD to GIS*

In recent years the Oregon Department of Transportation (ODOT) has increasingly turned to GIS tools to meet a wide range of planning and data analysis needs, such as pavement conditions, freight routing, accident locations,

and threatened/endangered species impacts. For mapping purposes, however, ODOT's GIS unit is working to reconcile the promise of GIS with the institutional resistance of the highway division's engineering legacy in relying on CAD products. One solution being implemented is migrating production of their city/county map series from CAD to GIS to reduce the inefficiency of maintaining parallel workflows which create redundant data layers and output products in both GIS and CAD formats. Another advantage of this data-driven approach is leveraging the ongoing statewide efforts to develop standardized GIS "Framework" layers, which in turn will more easily feed into other GIS/mapping projects downstream. The challenge for the finished product is meeting the expectations of a broad user base both within and outside ODOT which is accustomed to their long-standing city and county planning map series. The UO InfoGraphics Lab is assisting ODOT in developing both the methodology and supplemental data required to replicate the established design standards of their CAD maps using ESRI's ArcGIS software. Our work has focused on converting and editing multiple layers of GIS attributes and annotation to more effectively support the desired cartographic representation, while minimizing the need for custom symbology and application programming in order to avoid creating an additional implementation and maintenance burden on ODOT's GIS infrastructure.

Keywords: GIS, Cartography, Transportation

Kim England, University of Washington. Email: england@u.washington.edu; *Geographies of Home, Neoliberalization and Paid Care Work*

A range of commentators have raised the alarm about a mounting care crisis. The cost, quantity and quality of care for children, the elderly, and people with illnesses and disabilities are of increasing concern. The care crisis is having profound effects on the relationship between states, markets and households, the parameters of citizenship, and the responsibilities of the collective and the individual. Using the case of Canada, I explore two 'solutions' to this crisis. The first is the Federal Government's program designed to bring 'qualified live-in caregivers' (most of whom are women from the global South) to Canada because apparently there are insufficient Canadian citizens or permanent residents available for this sort of work. The second is the shift in the provision and delivery of home health care in Ontario as part of the province's cost-containment strategy of hospital closures and mergers, fewer beds and shorter hospital stays. I reflect on these 'solutions' to think about how the spaces of responsibilities and care are shaped by the ways the relational geographies of actually existing neoliberalisms work out on the ground. I argue that care work is multiscalar and encompasses interplays of various processes and relations that unfolding in a range of scales, sites and spaces.

Keywords: care, paid work, neoliberalism, Canada, women

Marcia England, University of South Carolina. Email: marcia@sc.edu; *"Please Don't Feed the Homeless": The effect of civility laws on rights to the city*

This paper examines the role of "civility laws" on conceptions of urban citizenship, especially those which seem to target marginalized groups, such as the homeless, prostitutes and chronic public inebriates. Focusing on Atlanta, Georgia, a city recently voted as one of the "meanest" in the United States by the National Homeless Coalition, this paper looks at how these ordinances specifically target the homeless and limit access to, and the right to be in, public space. These edicts include prohibitions against public urination, allow police to ban certain people from public parks, criminalize the feeding of homeless persons in public parks, keep people from sitting on sidewalks and bar aggressive panhandling. Many homeless, and others in need of social services, find it harder to get the help they need while facing harsher treatment under these civility laws. These ordinances, increasingly implemented in cities across the United States, have been a source of controversy since their inception on the basis that their enforcement unjustly and unconstitutionally targets racial minorities and the homeless.

Keywords: urban geography, public space, marginalization

Ned English, NORC. Email: english-ned@norc.org; Colm O'Muircheartaigh, NORC. Email: colm@norc.org; Claudia Coulton, Case Western Reserve University. Email: claudia.coulton@case.edu; Kristen Mikelbank, Case Western Reserve University. Email: kmm30@case.edu; Cathy Haggerty, NORC. Email: haggerty-cathy@norc.org; *Using Mental Maps to study Neighborhood Movement in the Inner-City: Formal vs. Informal Definitions*

Making Connections is a longitudinal in-person survey that focuses on urban issues affecting families with children in ten inner-city neighborhoods across the US. Wave 1 respondents (2002-'04) were asked to sketch the boundary of what they considered to be their 'neighborhood' on paper base maps. NORC subsequently digitized the sketched neighborhood boundaries to permit analysis with GIS. NORC then attempted to interview wave 1 respondents wherever they resided in wave 2 (2005-'07). We found that more than half of wave 1 respon-

dents had left their original housing unit by wave 2. This paper explores the issue of movement within and from the inner-city by determining if people are more likely to leave formal boundaries (such as of neighborhood, city, or county) or their own informal or 'custom' neighborhood boundary. In so doing it compares the extent and degree of movement from and within the formal neighborhood boundary to that defined by the respondent. Such research is significant in that it addresses two pervasive issues in urban survey research: the data capture and analysis of abstract concepts ("neighborhood") and the considerable movement of inner-city residents over short time-periods.

Keywords: GIS, mental maps, inner city

Ryan Engstrom, The George Washington University. Email: rengstro@gwu.edu; *Simulating Carbon Fluxes in the Arctic Coastal Plain Using the Arctic BIOME BGC Model*

It is important to understand the impacts of a warming climate on the carbon balance of Arctic tundra ecosystems due to the potential for the large stores of soil carbon held within permafrost to be released, adding a positive feedback to global warming. In previous research the widely used ecosystem process model, BIOME BGC was modified to incorporate the unique conditions in Arctic ecosystems, including non-vascular vegetation, the presence of permafrost, and large spatial variations in soil moisture. The model modifications resulted in a new model, Arctic BIOME BGC, which significantly improved the water cycle representation and evaporation estimates in Arctic ecosystems. However, the impacts of these modifications on the carbon portion of the model have never been examined. Therefore, the purpose of this study is to determine the impacts of the modifications made to Arctic BIOME BGC on carbon fluxes and compare these estimates to observed data from eddy flux towers in Arctic coastal plain ecosystems. Preliminary results indicate that Arctic BIOME BGC carbon flux estimates are similar to the original model BIOME BGC model, and correspond well to observed values from eddy flux towers.

Keywords: Arctic, Carbon, Modeling, Soil Moisture

Keisuke Enokido, University of the Ryukyus. Email: kenokido@ll.uryuky.ac.jp; "Get Back to Where You Once Belonged": Okinawa's Pursuit of Increased Substate Autonomy through Return-Visit Tourism

The return visit of emigrants to their former homeland is a distinctive form of tourism in which identity plays a principal motivating role. For this reason, such travel may be characterized as a form of transnational behavior. For substate nations seeking greater autonomy from their national governments (such as Okinawa, in Japan), finding and strengthening economic, political and cultural ties with outside partners is often a priority. Investigating the nature and function of emigrants' return visits to substate nations is critical for two reasons. First of all it enables us to understand why and how such transnational travel patterns are generated, and secondly, it permits us to explore the dynamic behavior of substate nations and their international impact. Located in the periphery of Japan and consisting of small islands, Okinawa is a distinctive form of substate nation from which many people have emigrated since the end of the 19th century. Currently, tourism is attracting increasing attention among local Okinawan communities as a promising industry, and the promotion of transnational return visits is on the rise in these local areas. However, the formation of transnational political and economic linkages has, thus far, had little effect on Okinawa's pursuit of autonomy. It is still too early to conclude that the return visit has no power to promote the political and economic autonomy so desired by the Okinawan people, but I argue that they are steadily becoming aware of its potential and of the need to exploit it more strategically.

Keywords: Okinawa, transnationalism, return visit, tourism, substate nation

Nicholas Enwright, Undergraduate Student, University of North Texas. Email: nme0012@unt.edu; *West Nile Virus in Dallas-Fort Worth, Texas, 2006: A Geographical Approach*

Since West Nile Virus first arrived in Texas in 2002, this mosquito-transmitted disease has become seasonally endemic to much of Texas. According to Texas Department of Health, from 2002 to 2005, 888 human cases of West Nile Virus were diagnosed with a case fatality rate of 8%. Due to the etiology of West Nile Virus, mosquito control has become a concern for cities and municipalities in the United States. Major cities in the Dallas-Fort Worth region rigorously set traps in suspected mosquito habitats and breeding pools and send any mosquitoes caught to the Texas Department of Health for West Nile Virus testing. Upon finding a positive West Nile Virus mosquito pool or finding a high density of mosquitoes in traps, a city will commonly spray the respective area with insecticides to prevent further spread. The objective of this study is to explore the geography of human West Nile Virus cases of the Dallas-Fort Worth region in 2006. Using the Human Ecology of Disease Model as a conceptual framework and GIS, the study probes the relationship between West Nile Virus cases and environmental variables such as elevation, proximity to streams, distance from positive mosquito pools, and demographics including age,

education, income, age of housing, and population density. The results provide a methodology for accurately targeting risk areas for efficient mosquito control.

Keywords: west nile virus, human ecology of disease model, medical geography, Dallas-Fort Worth

Bruce Erickson, Faculty of Environmental Studies, York University. Email: bge@yorku.ca; *Regimes of whiteness: Wilderness and the production of abstract space*

Whiteness as a category of identity relies upon a regime of visibility whereby physical marks of the body are coded to signify a meaningful marker of status. This discursive logic needs to be constantly rearticulated in order to sustain the force behind its pronouncements. Behind the reading of the body as a racial text lies the context which makes our bodies legible to systems of power. Understanding this context includes examining the role that space plays in constructing a regime of visibility for the body. In this paper I argue that the physical markers of whiteness expand beyond the boundaries of racial bodies to encompass the production of nature around them. Using the story of Grey Owl, an Englishman who became an important spokesperson for the Canadian Parks Service through the assumption of a First Nations identity, I will examine the production of whiteness in Canada. While working for the government Grey Owl published fictional accounts of his life in the Canadian wilderness. These texts become an important way that race and nature have been articulated within Canadian conservation circles and indeed through larger national narratives. In these discourses the physicality of Canada, following the regime of visibility that stems from whiteness, attempts (but ultimately fails) to present the wilderness of Canada as a marker of a white nation. Key to the production of this white wilderness is the use of leisure to produce an abstract space, free from any social context, that connects to the ahistorical nature of whiteness.

Keywords: Wilderness, Race, Production of Space

Kelly Marie Erickson, UW-Eau Claire. Email: erickskm@uwec.edu; Ross Guida, UW-Eau Claire. Email: guidarj@uwec.edu; Tyler Moe, UW-Eau Claire. Email: moetg@uwec.edu; Derek Hagen, UW-Eau Claire. Email: hagendc@uwec.edu; *The Cultural Atlas of Wisconsin: A Prototype*

This poster displays a sample of the work that has been done in an ongoing research effort to produce the Cultural Atlas of Wisconsin. The Cultural Map of Wisconsin, upon which the atlas is based, was published in 1996 by the University of Wisconsin Press and drew national attention and acclaim. In general, the map displays 1200 important cultural and historical places in the state with 400 descriptive text blocks and 800 icons identified in an accompanying booklet. The initial goal of the project was to produce a companion guide to the Cultural Map of Wisconsin, but in the summer of 2003 the University of Wisconsin Press agreed to publish it as a stand-alone cultural atlas. The Cultural Atlas includes more in-depth coverage of these places in addition to graphics, such as maps, tables, and historic photographs. The Atlas is organized into six individual chapters, representing six regions in the state: The Northwoods, The Driftless Area, the South Central region, the Eastern Ridges and Lowlands, the Southeast, and the Central Plains.

Keywords: Cultural, Atlas, Wisconsin

Kristofer Erickson, University of Washington. Email: kriseric@u.washington.edu; *All together now, do it yourself: hacker politics in Phrack magazine 1985-2005*

Computer-enabled spaces labeled "New Media" seem to offer unprecedented opportunities for organized political dissent: they are spatially decentralized, relatively inexpensive to access, relatively ubiquitous, and offer a comfortable amount of anonymity to publishers and users. A number of activists, futurists, scholars and hackers have argued that these features make computer-enabled spaces ideal for grassroots political activity, and that they should be protected and expanded to ensure a healthy democracy. This paper seeks to unpack these assumptions about cyberspace as democratically-enabling, by exploring how well this vision holds up in places where people act politically. Specifically, it will explore one site where we would expect to see a high degree of political engagement that makes the most of the unique features of computer-enabled space, the computer underground.

Keywords: communication, democracy, computer security

Camilla Eriksson, Stockholm University. Email: camilla.eriksson@natgeo.su.se; Michael Gentile, Stockholm School of Economics. Email: michael.gentile@hhs.se; *The Plight of the Internally Displaced Population in Rustavi, Georgia: from War to Urban Marginalisation*

Based on fieldwork in Rustavi, Georgia, this paper uses a combination of cartographic and qualitative methods in order to explore the current conditions of the IDP's (Internally Displaced Persons or internal refugees) originating from the breakaway conflict regions of Abkhazia and South Ossetia. First, we use complete data obtained from the IDP section of the department of social affairs

of the city of Rustavi on the previous (pre-flight) and current (2004) addresses of the registered IDP's in order to map and analyse the characteristics of their housing situation. Second, we zoom into the day-to-day lives of the refugee population by presenting some insights from a series of unstructured interviews with IDP's living in different environments (the refugee-occupied Soviet-era hotel, the venerological dispensary, the former hostel of the city's chemical fibre plant, etc.), highlighting their daily coping strategies within a context of general poverty, social stigma and spatial marginalisation.

Keywords: Georgia, Internally Displaced Persons, Former Soviet Union, urban geography, housing

Madeleine Eriksson, Umeå University, Department of Social and Economic Geography. Email: madeleine.eriksson@geography.umu.se; "People In Stockholm Are Smarter Than Countryside Folks"

The purpose of this study is to explore a neglected and masked uneven contemporary socioeconomic climate in Sweden that (re)produces subordinate and privileged regional identities. Due to the nation's centralized and urbanized structure the "stronger" regions are represented to be the larger urban centers, first and foremost the region of the nation's capital Stockholm. The "weaker" regions are represented as the rural areas, primary embodied by Norrland, the northernmost two-thirds of the nation. Norrland is characterized in this discourse as a region in need of financial support and as a region incapable of managing on its own. The discourse of Northern Sweden as essentially "different" and "backward" has been (re)produced in literature, politics and science since the colonization of parts of the region, and has subsequently been reinforced by processes of restructuring in industry and unsuccessful social engineering that proceeded in the trails of industrial modernity. The issues of unemployment and dependency on subsidies became associated with Norrland and distorted into discussions of "culture" and lifestyle choices. Drawing upon past and present representations of Norrland in popular culture, media and research I show how representations reinforce and perpetuate the colonial and asymmetrical association between what has naturally come to be viewed as the peripheral rural North and the urbanized centre South

Keywords: Sweden, modernity, regional/national identities

Rikard Eriksson, Umea University. Email: rikard.eriksson@geography.umu.se; Urban Lindgren, Umea University. Email: ; Cluster Mobility - Impacts of Inter-Firm Labour Mobility on Firm Performance

The ability for firms and regions to absorb and generate knowledge is a central part of being competitive in today's economy. In an increasing number of studies on cluster dynamics, it is assumed that firms in clusters are particularly competitive because the concentration of similar and related firms both facilitates firm exchange and the generation of new knowledge. However, there are divergent opinions on how clustered activities support knowledge diffusion and knowledge creation. Scholars either advocate collaboration or rivalry between firms, whereas others emphasise the sociability and local mobility of individuals. In this study we address the role of local labour market mobility in the process of knowledge diffusion and knowledge creation in localised clusters. The purpose of the paper is twofold; to present a method of defining clusters and to evaluate the method. Based on a unique data-set, covering all workplaces and workers in Sweden, we use observed local job mobility to connect workplaces into regional networks of mobility clusters. In order to evaluate the notion of mobility clusters, multiple regressions are used to analyse the relationship between cluster mobility and firm performance in terms of value added and income levels at workplaces while controlling for other determinants on firm performance identified in literature.

Keywords: Cluster definition, Labour mobility, Knowledge diffusion

Christine M. Erlien, University of North Carolina - Chapel Hill. Email: erlien@email.unc.edu; Characterizing landcover dynamics at the community level in the northern Ecuadorian Amazon

The spatial pattern of land cover impacts biodiversity, climate change, carbon budgets, and ecosystem functions. The Northern Ecuadorian Amazon (NEA) has experienced intense land cover change over the last forty years, with the discovery of oil, attendant road construction, and spontaneous migration of colonists seeking land. This research examines land cover change in the NEA through the perspective of direct impacts of the NEA's focal communities on the surrounding landscape. Direct impacts are defined as land cover changes observed as communities establish and expand. For each community, land cover changes are examined for the sectors (census administrative areas) in which the community is located. This research employs multiple Landsat images (1986, 1989, 1996, 1999, 2001), spatial analysis, and pattern metric analysis. Results are expected to show significant differences in direct impacts of communities on their surrounding landscape related to population, community age, transportation corridors, or level of development. Additionally, results are expected to show that

trajectories of rate, pattern, and extent of land cover change seen in study communities are comparable among particular size and age classes (e.g., the smallest communities will exhibit similar patterns as the youngest communities, while the oldest communities and the largest communities will exhibit similar patterns through time).

Keywords: remote sensing, pattern metrics, Ecuadorian Amazon, communities

Ruth Errington, Canadian Forest Service. Email: rerringt@NRCan.gc.ca; Dale Vitt, University of Southern Illinois, Carbondale. Email: dvitt@plant.siu.edu; Peatland development along a climatic gradient in west - central British Columbia, Canada

Climatic influences on peatland development at both temporal and spatial scales were studied in five bogs distributed along a gradient from coastal to continental climates in west - central British Columbia. Macrofossil analysis was used to determine the sequence of peat types present during the development of each bog. The bryophyte component of the macrofossil record was also used, with an extensive 'surface' database, to reconstruct pH and height of the peatland surface above the water table throughout each core profile. All peatlands were seen to initiate under climatically controlled conditions. Sites in the continental and transitional climatic regions developed during the Early Holocene Xerothermic Interval while peatlands in the coastal region developed later, by paludification, as temperatures and precipitation increased. Apart from the allogenic, climatic, controls on peat initiation, peatland development closely followed an autogenic successional sequence from minerotrophy towards ombrotrophy. Despite the general autogenic trend, evidence of allogenic factors can be seen. For example, moistening of the climate at approximately 4000 yBP caused a reversion from the autogenic trend, delaying the autogenic successional sequence at the site by approximately 1000 years. From this study it is evident that, temporally, climate has been an important factor in the initiation of peat formation. However, once peatlands have been established, autogenic factors exert a stronger control on peatland development. Spatially, climate is also seen to be an important factor as coastal sites exhibit markedly different development patterns from those in the continental and transitional climate regions.

Keywords: peatlands, British Columbia, Canada, Holocene, palaeoecology, climate gradient, bogs

Murat Es, University of North Carolina at Chapel Hill, PhD Candidate. Email: es@email.unc.edu; Becoming Visible: Cemevis and the Negotiation of Public Space in Turkey

This paper investigates the emergence of cemevis (houses of gathering) in urban public space of Turkey. Cemevis emerged as cultural and religious centers for Alevis ('ethnic and religious' communities comprising one forth to one third of Turkey's population) during the post 1980 period, serving as institutional sites of Alevist mobilization increasingly from the 1990s on. Presently, the legitimacy of cemevis as places of worship plays an important role in the restructuring and the negotiation of Alevi identity. Claims to such status are posed by Alevist groups and contested by the state and the Sunni majority. I argue that the integration of Alevis/m into state discourses and increasing interaction with Sunnis in urban context have been decisive in the inscription of Alevism in public space. Construction of cemevis concomitantly expresses Alevis communities' claim to visibility in public space and their challenge to the state to recognize Alevis as legitimate members of the public and as citizens with equal rights to that of the Sunni majority. My analysis suggests that gaining visibility in public space involves multiple levels of negotiating difference on the side of marginalized groups. These groups themselves are simultaneously transformed in the process as they negotiate the hegemonic definitions and categories with regard to public space. Findings of the research are based on a combination of fieldwork, which involved participant observation together with in-depth and semi structured interviews, with an analysis of the published material on Alevism, Alevis and cemevis.

Keywords: geography of religion, public space, places of worship, Alevis, Turkey, Middle East

James Kweku Eshun, M.S., Department of Geography, University of Cape Coast, Ghana. Email: james_eshun@yahoo.co.uk; Poverty mapping in the Cape Coast municipal area of Ghana

One of the greatest challenges facing developing countries is rapid urban growth. Closely associated with rapid urban growth and change is urban poverty - now considered as a global problem of huge proportion. The relationship between urban poverty, growth and change in a medium size town in Ghana is analysed in this study. Historically, poverty in Ghana has been assessed using expenditure patterns. But poverty goes beyond income. The present analysis critically evaluated the current paradigm under which poverty is conceptualized. The general objective of the research is to provide an understanding of the nature of urban poverty and the relationship between urban poverty and urban change. The

research was carried out in July-August 2005 and involved the administration of a questionnaire to 800 households, five in-depth interviews of municipal authorities and six focus group discussions to determine the urban change and poverty situation in the municipality. Results indicate that poverty situation in the low income areas has deteriorated over the past decades and policy response and programme by the municipality to reduce urban poverty has not been adequate. A new framework for urban poverty reduction for the municipality has been proposed.

Keywords: urban growth, poverty mapping, Ghana

Mohammad Eskandari, Clark University. Email: meskandari@clarku.edu; Bitter Sugar: Changing Politics of Agricultural Development in Southern Iran

This paper tries to understand how tensions between national plans and local realities are played out under different political climates. This research focuses on Iran's largest agro-industrial project in the South West province of Khuzistan. In 1989, the government of Iran embarked on a massive project of sugar-cane plantation in 80,000 hectares of land surrounding the city of Ahwaz. The environment-saline and alkaline soil and little rainfall?was all but suitable to sugar-cane plantation. Besides land confiscation and displacement, the project involved mobilizing technical, human, and financial resources at an unprecedented scale. How did the local communities and local institutions?universities, newspapers, local branches of national ministries, etc.? react to this national project under different political climates? By comparing the time of presidency of Akbar Rafsanjani (marked with intensive policing of dissenting voices) and Mohammad Khatami (with a platform of strengthening civil society institutions), this paper discusses the changing tactics and aims of local communities and civil society institutions vis-à-vis the project. Based on archival work and interviews with local participants, this paper claims that far from being passive recipients of centralized plans, these communities and institutions showed an in-depth knowledge of local environment and agriculture and a committed interest in the project, and utilized every available venue to voice their dissent and challenge the project. A change in political climate of the country gave these communities new channels for expressing their views and this resulted in a change of the behavior on the part the project managers.

Keywords: Agriculture, Iran, development, conflict, planning, civil society, Middle East

Aude Esperbé, MS in Geology, Geography department, San Diego State University. Email: aude.esperbe@gmail.com; André Skupin, PhD, Geography department, San Diego State University. Email: skupin@mail.sdsu.edu; A High-Resolution Self-Organizing Map Based on Physical and Human Attributes of Geographic Space

The self-organizing map (SOM) is a powerful method to detect complex relationships in n-dimensional space. A SOM built from population attributes was previously introduced to visualize similarities among census block groups. This poster extends that approach towards a more comprehensive representation of n-dimensional relationships by simultaneously incorporating human population attributes as well as physical environmental attributes. These are combined in a high-resolution SOM consisting of several thousand neurons. This poster details the creation of a SOM using more than 60 attributes as inputs - based on both population and physical attributes? for each of approximately 200,000 census block groups within the conterminous US. The census data consist of population, household, family information, age structure, sex, race and marital status. Meanwhile, the physical data consist of climate, land use, elevation and geology data. Once the data are gathered, they are transformed within a standard GIS environment. Numerous transformations are applied, including rasterization of polygonal sources and interpolation of point data. A large number of zonal operations are then used to average the data per block group or to find percentages for categorical data, like land use or geology. Finally the resulting data are standardized and enter a process of neural network training and visualization. Results of this visualization and possible applications of this new type of comprehensive model of geographic space will be presented.

Keywords: self-organizing maps, geographic space, artificial neural network, census, physical environment, GIS, n-dimensional data

Jamey Essex, University of Windsor. Email: jessex@uwindsor.ca; Deservedness, development, and the state in USAID's framework for foreign aid

The institutions, practices, and supporting discourses of US development policy and foreign assistance are currently undergoing profound changes. Central to these has been the creation of a new framework for foreign aid, built around a complex taxonomy of developing states and governance issue areas, with geographic and governance categories predicated on notions of state stability and fragility, strategic geopolitical position, and development progress. Given its long-standing position as the primary federal agency responsible for development and foreign aid, the US Agency for International Development (USAID) has

played an important role in designing these policy changes, even as its political status and standing have suffered in recent years. Thus the new framework is beset by contradictions, stemming both from the problematic relationship between development, security, and trade in agency rhetoric and strategies, and from intensive restructuring processes affecting USAID's internal character and external relations. This paper investigates the new framework for foreign aid, linking internal restructuring at USAID to broader trends in state development strategies. I argue that the current shifts in US development and aid policy - toward emphases on "transformational development" abroad and centralization over strategic decision making domestically, crystallized in the new framework? reflect both continuity and change in the geographic understandings and structures that underlie USAID's work. I look particularly at the ways in which the allocation of development aid is based in a contradictory discourse of deservedness and in neoliberal understandings of the state's appropriate role in development processes.

Keywords: development, foreign aid, US Agency for International Development (USAID)

Jurgen Essletzbichler, University College London. Email: j.essletzbichler@ucl.ac.uk; David Rigby, UCLA. Email: rigby@geog.ucla.edu; Modeling Economic Evolution in Space

A simple model of economic evolution is offered that rests on population dynamics. The population of interest comprises firms that may be differentiated in terms of technology and behavioral routines governing accumulation and investment in the search for new technology and new routines. A process of selection differentially allocates profits across these firms on the basis of production cost. Accumulation and investment in search are funded from profits. Technology is defined by a pair of capital and labor input coefficients and the search for new technology involves processes of imitation and innovation. The price of capital is fixed along with the rate of growth of the labor force. Wages vary with the employment rate. With this model we show how technological change is a function of the variance of technologies in use and we show how relative prices affect the direction of technological change. We go on to explore how the trajectory of technological change varies across regions defined by populations of firms with different characteristics. Finally, we examine uneven development as an outgrowth of competition among plants spread across different regions.

Keywords: evolutionary economics, variety, selection, retention

Lawrence E. Estaville, Texas State University. Email: le02@txstate.edu; Hispanic Businesses in the U.S.: A Geographic Exploration

Hispanics are and will continue to be for the foreseeable future the fastest growing segment of the U.S. population. Along with their culture, they imprint on the landscape their entrepreneurial spirit. This exploratory study maps the locations of the 500 largest Hispanic businesses and analyzes distributions of the types of businesses and the demographics they serve.

Keywords: Hispanic Businesses, U.S. Demographics

David Etherington, Middlesex University, Business School. Email: gowestwales@btinternet.com; Martin Jones, University Of Wales, Aberystwyth. Email: msj@aber.ac.uk; New Economic Spaces of Value: City-Regions, Competitiveness, Labour Market Inequalities

This paper explores the links between the production of regional state/space and the valorisation of capital(ism). Set within the context of UK 'regional policy' this paradox is set to work by discussing the relationships between city-regional competitiveness, work-welfare regimes?those policies and strategies dealing with labour market governance and welfare state restructuring?labour market inequalities and low pay. Ongoing research on the Sheffield City-Region is used to explore the ways in which the state apparatus is embroiled in the complex geographies of economic value.

Keywords: Space, Value, City-Regions

Nancy Ettlinger, Geography, Ohio State University. Email: ettlinger.1@osu.edu; Theorizing Democracy in New Orleans

I develop a critical normative framework that links economic diversity and governance with social difference from the vantage point of postHabermasian radical democracy in an urban context. Post-Katrina New Orleans presents an interesting case because planning in the wake of physical wreckage suggests the possibility of designing a new system from the outset. Consistent with Iris Young's recent book, I take undoing segregation as the major problem in tackling problems of inequality. Yet this and related frameworks tend to be silent on the economy and offer little guidance towards policy and collective action. Further, well intentioned plans that engage social issues such as housing and schools, namely mixed neighborhood designs, are often frustrated by the social reproduction of segregation at finer scales, within 'integrated' neighborhoods and schools. Far beyond locational sensibilities, integration requires strategic overlap of social,

economic, and political networks in “communities of practice” in which people associated with different groups work with and learn about each other (and in the long run inculcate knowledge across generations) to dissolve the ignorance that produces discrimination, and in turn, segregation. Implementing such a system requires proactive interaction among citizen/community groups, government officials, and businesspeople. But groups such as ACORN need to demand not just jobs but assistance and cooperation towards small firm development among those otherwise tied to minimum-wage, Taylorist workplaces; further, the local potential economic profile needs to be assessed not in terms of preexisting industries but in terms of talents of previously disenfranchised New Orleansians.

Keywords: postHaabermasian radical democracy, communities of practice, relational capital, postKatrina New Orleans, new citizenship, policy

Adrian Bruce Evans, Dr, Cardiff University. Email: evansa18@cardiff.ac.uk; *Drinking smoke and eating tea: Towards a performative understanding of the consumption of foreign commodities in eighteenth-century England.*

During the eighteenth century there was an enormous increase in both the quantity and variety of foreign goods entering England. Foreign imports included items such as; mahogany, silk, tea, coffee, sugar, tobacco, lemons and chinaware, to mention but a few. This influx of foreign goods and the associated changes that they engendered in the material worlds of early modern consumers has received a great deal of attention from historians, such as Walvin (1997), Schivelbusch (1993) and Camporesi (1998). However, the majority of research in this area has tended to draw on elite literary source materials to focus on the explicit meanings and abstract imaginings associated with foreign commodities, whilst neglecting their more practical and ‘affectual’ impacts. In this paper I draw on the works of contemporary theorists of practice (including; Bourdieu 1998, Deleuze and Guattari 1988) in conjunction with empirical information collected from over 1000 probate inventories of shops and domestic interiors to provide an alternative account of the consumption of foreign goods. Moreover, I examine the extent to which it is possible to reclaim some of the more embodied, non-reflexive elements of past consumption practices (see Miller et al 1998, Hermes 1993, Glennie and Thrift 1995). In particular, I show how the everyday descriptive language used in inventories can reflect the appraisers’ sensual/perceptual understandings of objects and I show how information relating to the ‘spacings’ of objects within the home can yield insights into the different practices through which they were experienced and consumed.

Keywords: Historical Geography, Consumption, Practice

Andrew J Evans, University of Leeds. Email: geoaje@leeds.ac.uk; *Fuzzy/Vague and Cognitive GIS: Are we asking the wrong questions?*

Over the past decade or so there has been a considerable literature dedicated to the construction of GIS systems to deal with objects in a way that matches that used by human beings. This literature ranges from the philosophical (in what sense do objects exist?) to the mechanical (how do we store an object?). Specifically, much of the literature revolves around notions of ontology (how do we place objects in a flexible categorical framework?) or spatial algebra (how do we store such objects so we can discuss their spatial relationships?). In some senses, these are not the most interesting questions. Metaphysical questions are rarely resolved to everyone’s satisfaction, and technical solutions generally evolve over time. A more immediate problem, which has political and scientific facets, is: what can we actually do with such data? This presentation centers around attempts to utilize cognitive-fuzzy/vague entities (“high crime areas”) both by themselves and in comparison with more standard datasets, discusses the problems which need solving, and the relationships between the two types of data.

Keywords: Fuzzy Vague Cognitive GIS Ontology

Bethan Evans, Manchester Metropolitan University. Email: b.evans@liv.ac.uk; *‘The first generation where children die before their parents’: emotion, affect and the embodiment of the war against obesity*

This paper responds to Horton & Kraftl’s (2006) suggestion that childhood may be considered an ‘affective condition’ through considering how recent work in geography on emotions, affect and embodiment can be used to interrogate the centrality of children’s bodies in public health campaigns. It does this through analysis of policy and media reporting, and of informal conversations with those involved in the implementation of policy strategies surrounding, and framed within, a drive to halt the growth of childhood obesity in the UK. The paper suggests that the emphasis on children in obesity discourse is reliant on a particular notion of adult embodiment as static, and as the end point on a fixed trajectory of corporeal development. This is contrasted with an understanding of children’s bodies as fluid, malleable, soft and not-yet-fixed, or becoming. The paper argues that obesity discourse reproduces and utilises particular risks, fears and hopes inherent within such understandings of children’s bodies, through particular manipulations of the affective nature of childhood (Horton & Kraftl,

2006). The paper then questions the implications of this in relation to the use of such discourses to justify practices responding to fears about the health of children’s future bodies despite concerns about the possible negative consequences for children’s current mental and physical health.

Keywords: children, bodies, obesity, emotion, affect

Josh Evans, McMaster University. Email: evansjd@mcmaster.ca; *Normalizing Deviance? Exploring the Social Space of a Harm Reduction Environment*

The concept of ‘addiction’ has a long and complex history. While addiction has generally been organized under the purview of mental health, it has remained somewhat under examined by geographers studying mental health and disability. This presentation seeks to address this gap by examining the impact of a new supportive housing environment on the recovery experiences of chronically homeless individuals living with severe alcohol dependence. This service-delivery setting, located in Hamilton, Ontario, is unique in the way it integrates 24-hour supportive housing and primary health care with a harm reduction, alcohol-maintenance program. The harm-reduction strategy was formulated to address the barriers faced by ‘street drinkers’ who are highly stigmatized and have found little success in abstinence-only, zero-tolerance programs. Many of these individuals have cycled through rehabilitation programs suffering through harmful withdrawal symptoms without achieving full recovery or attaining stable housing. In addition, many of these individuals live with impairments and chronic illness related to their dependence on alcohol. Using qualitative data gathered through interviews with program residents and staff and participant observation within the new environment this presentation will examine the complex negotiations of care and control that shape the social space of this unique service delivery setting.

Keywords: addiction, harm reduction, recovery

Martin Evans, University of Leicester. Email: mne5@le.ac.uk; *Flexibility in Return, Reconstruction and Livelihoods in Displaced Villages in Casamance, Senegal*

The paper presents preliminary research on the return of displaced populations in Casamance, Senegal, scene of West Africa’s longest-running civil conflict. Amid improving but still problematic security conditions, it reports on recent fieldwork in three villages with different human displacement histories, analyzing the dynamics of reoccupation and exploitation by villagers of their former habitable and agricultural spaces. In all three cases such activity remains constrained to varying degrees by insecurity, landmines and neglected infrastructure. The fears of return to sites of former violence are also evident. In this setting, flexibility is evident in two ways. First, in ongoing changes of village form, reflecting security issues and returnees’ changed expectations of settlement layout and house design after years of urban living. Second, in quotidian patterns of economic activity, often operating at a small scale as households and individual villagers negotiate the microspaces of daily life in response to complex interactions of material, security and psychological factors. However, flexibility has long been noted in studies of livelihoods in the developing world, even if it has been described in other terms. The paper therefore concludes that the situation described represents a continuum rather than a clean break with villagers’ previous states, both before and during displacement.

Keywords: Senegal, West Africa, conflict, human displacement, livelihoods, flexibility, post-conflict reconstruction

Kyle T. Evered, Michigan State University. Email: ktevered@msu.edu; *Pipelines as Development: The Baku-Tbilisi-Ceyhan Pipeline and Promises of Prosperity in Turkey*

Since the collapse of the Soviet Union, the post-socialist republics of the Caucasus and Central Asia became a focal point in the evolving geopolitics of global energy resources. Associated with this region’s renewed significance in the eyes of the west, Turkey also emerged as an important actor. In general, this study examines the evolution of Turkey’s position in the global geographies of energy resources, the varied and often-competing interests that are at play at various geographic scales, and the most visible manifestation of these new geographic relationships in the world - the Baku-Tbilisi-Ceyhan (BTC) pipeline. In particular, this project initiates a political ecology study of the BTC pipeline within Turkey by exploring the promises made to local communities and inhabitants where the pipeline will pass through, on the one hand, and alternative perceptions and experiences with this project, on the other hand. In doing so, this research situates the present example of the BTC in a context that also considers comparatively other examples of mega-projects (e.g., other pipelines or the dam and irrigation schemes of Southeastern Anatolia) in order to better examine both the promises for development and the actual experiences of local communities that live in their vicinities.

Keywords: Baku-Tbilisi-Ceyhan pipeline, energy resources, natural gas, oil, Turkey

Yvonne Everett, Dr., Humboldt State University. Email: everett@humboldt.edu; In Search of Transparency and Participation: Tsunami Relief in Sri Lanka

In Sri Lanka the December 26, 2005 tsunami killed 30,959 people, made 552,601 people homeless. In the process of relief and reconstruction, challenges of all kinds have arisen. Yet few of the critical issues had not previously been noted in the disaster literature. The research reported on here focuses on defining such recurring problems and understanding why they arise again and again in order to work toward breaking this cycle in future. Experience in other disaster situations and in community development indicates that resolution of critical issues is more likely with transparent and participatory approaches. The assumption is that if disaster survivors understand how and why decisions are being made and have the opportunity to participate decision processes, the outcomes will be better informed and participants will be more likely to agree with them. This paper analyses the degree to which transparency and participatory approaches have been applied in post-tsunami relief and reconstruction in Kalmunai, a community on the East Coast of Sri Lanka. The paper is based on the experience of a Sri Lanka non governmental organization that has been working in the community since January, 2005. It is further informed by a needs and livelihood survey of 1836 households carried out by the author and the NGO to assist with relief and reconstruction. The paper finds transparency and participatory approaches lacking and suggests avenues for improving the situation in future that may have relevance beyond this particular case.

Keywords: tsunami, disaster, transparency, participation

Jean Evers, University of Hawai'i at Manoa. Email: kinie@hawaii.rr.com; KU's journey into the West: A Hawaiian image in space and place

The legendary Kū tiki is a popular souvenir for tourists visiting Hawai'i and has become one of the most ubiquitous images used to create a Hawaiian sense of place in popular media. The original Kū image is located in the Bishop Museum in Honolulu, Hawaii where, until a recent exhibition, the statue was mislabeled and severed from its Hawaiian meanings. This paper explores the journey of Kū from its place of ritual birth through its assimilation into the Western style museum collection of Pacific artifacts and the role this representation played in the contemporary symbol of place. From my analysis of archival material, historical records, and display practices, I argue that Kū's appropriation as a souvenir commodity paralleled the museum's commodification of the image as it was used to attract visitors during the 1960s. Objects of cultural heritage in museum settings are displayed in situ and consequently are dissociated from their original meanings. The separation of artifacts from their original context is an implication of the adoption of a particularly Western style colonial episteme. Renegotiated meanings of the Kū have become embedded in the image through their continual commoditization and appropriation by market oriented reproductions. The process of re-linking cultural artifacts with their traditional knowledge and within their indigenous episteme is an important element of the decolonization project. This paper therefore seeks to deconstruct the symbolic colonization of Kū by investigating the historical trajectory of Kū from its indigenous meanings to its contemporary re-presentation as a symbol of place.

Keywords: cultural heritage, sense of place, Hawai'i, tiki

Derek Eysenbach, University of Arizona. Email: dereke@email.arizona.edu; Neoliberalism and Urban Community Development: A post-mortem of public participation

Scholars have well established that a new era of urban governance is upon us. Neoliberalism, as both theory and practice, has radically altered socio-political relationships within the city, and a bevy of compelling case analyses has discussed these "actually-occurring neoliberalisms." Too often, however, these cases have become discussions of what the neoliberal urban condition 'is,' rather than a discussion of the ongoing changes in everyday practice that create new paradigms of urban theory. This paper examines urban neoliberalism through the changing discourse of public participation and community development. I consider the life and death of a Tucson, AZ neighborhood association that had been involved in participatory aspects of community development for over three decades. A vibrant life of activism, created in the progressive ideals of the "War on Poverty," met an untimely demise and collapsed in the face of a blistering debate on land use. The neighborhood's governmentality could not endure the discursive shift that has redefined community development in economic terms and limited the political roles that citizen activists may play.

Keywords: urban theory, neoliberalism, Foucault

Sara Irina Fabrikant, University of Zurich. Email: sara@geo.unizh.ch; Daniel R. Montello, University of California Santa Barbara. Email: montello@geog.ucsb.edu; Stacy Rebich, University of California Santa Barbara. Email: rebich@geog.ucsb.edu; Seeing through small multiple map displays

A recent review of the cognitive literature on animated graphics suggests that animations are not superior to a series of static displays for conveying complex dynamic processes (e.g., Morrison and Tversky, 2001). These cognitive scientists argue that experimental studies reporting advantages of animation over static displays lacked equivalence between animated and static graphics in content or experimental procedures. Utilizing the eye-movement data collection method to track people's viewing behavior, we investigate whether static small-multiple map displays are indeed equivalent in information content compared to non-interactive animated maps, as claimed by above cognitive scientists. In an ongoing experiment we first ask novice participants to study a series of small multiple maps showing monthly ice cream consumption for an average year for different states in a fictitious country, and then answer a number of questions about these maps. The test questions (within-subject independent variable) vary in type and complexity. We prompt viewers to think-aloud while performing spatial inference tasks. Digital audio recordings of their verbal statements while answering the test questions permit joint analyses with accuracy of response, and participants' eye movement recordings (dependent variables). With the collected empirical evidence we hope to provide better understanding of how people use static small multiple displays to explore dynamic geographic phenomena, and how people make inferences from static visualizations of dynamic processes for knowledge construction in a geographical context.

Keywords: geographic visualization, eye movements, empirical studies

Maria Fadiman, PhD, Florida Atlantic University. Email: mfadiman@fau.edu; "Starvation taught me art": tree poaching and wood curio carving in Zimbabwe.

This study looks at forest use in Victoria Falls, Zimbabwe, Africa, with particular emphasis on wood "curio" carving. Although the local people, Ndebele and Shona, have been making utilitarian and decorative carvings throughout their history, they now face the challenge of a weakened economy and thus more people than ever are turning to wood sculpting as a form of livelihood. As one man said "starvation taught me art". However, the surrounding woods, both on communal and national park land, has been heavily deforested due in large part to carvers poaching trees. Locals are now even poaching lower grade trees, because of previous over collection of the preferred wood sources. As more people turn to making crafts in an attempt to earn a living, the sustainability of curios seems to deteriorate. However, people are looking into how to support more sustainable harvesting and carving practices. In an effort to maintain Victoria Falls National Park and the surrounding communal lands, Ndebele and Shona are experimenting with carving smaller items so as to be able to earn more profit from less wood, utilizing naturally fallen branches instead of the heartwood from the main trunk, making use of scrap wood from lumber mills, reducing the middlemen, and to implement reforestation programs.

Keywords: Curio, sustainability, Zimbabwe, natural resources

Mofoluso A. Fagbeja, MSc GIS, National Space Research & Development Agency, Nigeria. Email: mfagbee@yahoo.com; Jimmy Adegoke, PhD, University of Missouri, Kansas City. Email: adegokej@umkc.edu; Ganiy I. Agbaje, PhD, National Space Research & Development Agency. Email: gagbaje@nasrda.net; Godstime James, MSc, University of Missouri, Kansas City. Email: Godstimejames@umkc.edu; Assessment of Coastline Changes in the Niger Delta Using Remote Sensing and Geographic Information System

The Niger delta region of Nigeria has a coastline that spans about 500 kilometers and extends from the Benin River to the Imo River estuaries. Coastline changes are due mainly to natural processes that are also highly affected by human activities. Such natural and human processes include deep-water wave energy; near-shore wave transformation and circulation; morphological adjustments and feedbacks; dredging, infrastructure and physical development; mineral exploration, ports construction, removal of backshore vegetation etc. In this study, satellite imagery and ancillary data were employed to map, analyze and identify the changes along the coastline of the Niger Delta. Landsat Satellite data for two time periods of 1986 and 2003 covering the Niger-Delta coastline were used. Pre-processing include image enhancements to produce sharper images; difference images (change detection analysis) were generated between the baseline images (Landsat TM) and the post-change images (Landsat ETM+). Visual analysis and comparison of the difference images with the original images was used to identify areas of accretion and erosion. The GIS operations include digital extraction of identified areas of changes and coastlines for the years of study and area calculation in order to determine the spatial extent of the changes (in km²). Along the entire coastline, coastline erosion was observed to be

dominant over accretion. The total area of observed changes along the coastline was 46.5 sq. km. Of this, 27.7 sq. km. constitute eroded area, while 18.9 sq. km. of the area showed coastal sediment accretion. Field verification studies were carried out in June 2006.

Keywords: Coastline, erosion, accretion, remote sensing, Niger delta

Todd D. Fagin, University of Oklahoma. Email: tfagin@ou.edu; Bruce Hoagland, Dr., University of Oklahoma. Email: bhoagland@ou.edu; Historical Vegetation Change in the Arbuckle Mountains, South-Central Oklahoma

The Public Land Survey of Oklahoma began in 1870 and included the Chickasaw Nation, western Oklahoma, and land held by smaller tribes in the northeast. Unlike other states surveyed by the General Land Office, all of Oklahoma was re-surveyed in the 1890s, presenting an excellent opportunity to evaluate the impact of early settlement on land cover in the state. In this study, we digitized plats from the 1871 PLS to serve as a baseline for comparison with digitized plats from the 1897 survey. All mapped features were assigned to categories (e.g., agriculture, vegetation, hydrology, settlement, transportation) and digitized using ArcGIS. In addition, bearing trees were recorded into a spatial database and plotted onto the landcover map. Changes between the two survey periods were substantial. The number of agriculture patches increased both in number and in size, while grassland and wooded areas decreased in area but increased in number of patches. The results is increasing fragmentation of forest and woodland habitats. Analysis of bearing tree data showed a decline in woody plant density and a shift in size class distribution.

Keywords: Biogeography; Vegetation Change; Oklahoma; Arbuckle Mountains

Frances Fahy, Ph.D., National University of Ireland, Galway. Email: frances.fahy@nuigalway.ie; Micheál Ó Cinnéide, Ph.D., National University of Ireland, Galway. Email: micheal.s.ocinneide@nuigalway.ie; The Reality of the Locality: Exploring Spatial Aspects of Quality of Life in Galway City, Ireland

Quality of life is increasingly recognised as an essential component of sustainable urban development. Indicators are used to assess quality of life and to monitor progress towards sustainability over time. An emerging body of literature contends that these indicators should be derived in close consultation with target populations in order to optimise the extent to which they capture the real determinants of quality of life in particular places. Furthermore, quality of life considerations vary significantly across urban neighbourhoods and consequently the spatial scale at which such studies are conducted may have significant implications for the results obtained. This study focuses on spatial variations in quality of life within Galway City, a city of circa 70,000 people situated on the west coast of Ireland. Galway is reported as having an exceptionally high quality of life and indicators that capture this multifaceted complex of variables contributing to this have been derived. However, significant variations in quality of life are found to exist across city neighbourhoods. Factors contributing to this spatial pattern are explored in detail. The results obtained in respect of Galway City are discussed in the context of related studies in urban centres in the United States and other countries. An important lesson emerging from this study is that quality of life indicators derived at the neighbourhood level are of the utmost importance when assessing the reality of living in different urban settings.

Keywords: quality of life indicators, sustainable urban communities, scale, Ireland

Linda S. Fair, Ph.D., Department of Geography, Binghamton University. Email: fair@binghamton.edu; "Why Can't I Get Married?" - Denmark and the 2002 "Twenty-four Year (Marriage) Law"

In response to the perceived problem of "arranged marriages" or more specifically, "forced marriages," Denmark enacted the "24 year (marriage) law." A section in the Aliens Consolidation Act addresses marriage by Danish residents to individuals from outside Denmark and the Nordic countries. In order for a residence permit to be granted to a spouse or cohabitant, both the Danish resident and the spouse or cohabitant must be over the age of 24 years. Enactment of this law has been criticized both within and outside Denmark. One main criticism is that it violates international human rights agreements such as the Council of Europe's Convention for the Protection of Human Rights and Fundamental Freedoms. The "24 year law" has had a direct impact on the family lives of immigrants. Interviews with refugees and asylum seekers granted residence permits in Denmark revealed that many of them were suffering from the consequences of the enactment of this law. Many were unable to bring spouses into Denmark either because of the age restriction or because of other requirements in the law such as the need to provide a financial security of DKK 50,000. Ironically, it is not only immigrants who have been negatively affected by this law. It has also had an impact on native Danes. This paper provides a description of the law, a discussion of the human rights criticism, a look at the

consequences of the enactment of this law and a first-hand look at the impacts on refugees and asylum seekers.

Keywords: Denmark, immigrants, human-rights, arranged-marriages, immigration-laws, ethnicity, refugees, asylum-seekers

Liza D. Fallon, University of Tasmania. Email: liza.fallon@g-f.com.au; Global governance and the constitution of a space of international action: observations on the Coalition of Legal Toothfish Operators

The extension of longlining into the Southwest Atlantic during the 1980s led to the rapid expansion of a commercial Patagonian toothfish fishery across the Southern Ocean that grew substantially during the 1990s. Patagonian toothfish (*Dissostichus eleginoides*) is heavily exploited in regions of the Southern Ocean, and commercial extinction of some stock under the highest pressure may occur. Much of the pressure on this stock derives from illegal, unreported, and unregulated (IUU) fishing, which also profoundly undermines the 1959 Antarctic Treaty and the 1982 Convention on the Conservation of Antarctic Marine Living Resources. It also brings into question the capacity of international networks of government, non-government and private stakeholders to discipline dissident actors using international diplomacy and compliance activities. This paper reviews a range of challenges to the protection of the Patagonian toothfish by drawing on qualitative in-depth interviews with senior scientists and bureaucrats. In particular, it makes a novel contribution to the field by focusing on the values and actions of executives of international fishing companies who have recently formed a new organization, the Coalition of Legal Toothfish Operators (COLTO), concerned with protecting the Patagonian toothfish from over-exploitation. Our work also adds to debates in the geographical literature on the effects of non-government organizations (NGOs) as political players who work at various scales by building up 'globalised' networks of engagement and affect the nature of global governance in their wake.

Keywords: Southern Ocean fisheries, CCAMLR, global governance, IUU fishing, non-government organizations; COLTO

Chuncui Fan, University of California - Los Angeles. Email: velmefan@ucla.edu; Peter V. Hall, Simon Fraser University. Email: ; Geoffrey Wall, University of Waterloo. Email: ; Migration, hukou status and labour market segmentation: the case of hi-tech development in Dalian, China

This paper examines the relationship between migration and labour market segmentation in the north-eastern Chinese city of Dalian. Several authors have stressed the importance of institutional arrangements in shaping the opportunity structures confronting migrants to China's urban areas. In particular, the 'insider status' defined by the hukou or household registration system has been implicated in differential access to housing, schooling, health and other benefits, as well as employment. Our examination of the role of the hukou system in shaping employment outcomes in three hi-tech industrial sectors of Dalian does not challenge this general finding. However, it reveals important variations among different industrial sectors. While employment and earnings are still strongly associated with hukou status overall, this is not the case within the software and biotech industries. Hukou status also appears to be declining in significance within the formerly state-owned enterprises of the digital manufacturing sector. In all these industries, the increasingly decentralized decision-making of local economic development policy and shortages of skilled workers are leading to a selective relaxation of the hukou system, at least for some migrants. The conclusion highlights the implications of these changes for labour market outcomes and hi-tech industrial development.

Keywords: migration, insider status, labour market segmentation, high-tech, China

Cindy Fan, UCLA. Email: fan@geog.ucla.edu; Rural-Urban Migration and Urban Transition in China

For more than three decades, Professor Clifton Pannell has analyzed cities and urban transition in China. His work is marked by a high sensitivity to history, changes, and a multi-dimensional understanding of cities. His conceptualization highlights demographic, structural and spatial shifts in the Chinese economy as the key forces that drive urban transition. In this paper, I focus on the relationship between rural-urban migration and urban transition. I review the recent literature on migration in China and assess the extent to which this large body of work advances theoretical understanding of Chinese cities. The findings show that the accomplishments of the migration literature are highly uneven. More attention on structural transformation such as employment shifts and demographic perspectives such as labor pool is needed for a better understanding of the role of rural-urban migration in China's urban transition.

Keywords: Urban, Cities, Migration, China

Daidu Fan, Tongji University. Email: fandd@online.sh.cn; Guodong Xu, State Key Laboratory of Estuarine and Coastal Research, East China Normal University. Email: guodongxu2000@sina.com; Zhong Shi, Department of Harbor and Coastal Engineering, Shanghai Jiao Tong University. Email: zshi@sjtu.edu.cn; Past typhoon activities reconstructed from sedimentary record in the Yangtze Delta, China

Hurricane Katrina shocks the world with its extreme devastation, and pours question to governors, the public and scientists on the return period of such supper hurricane. The question cannot be answered by examining the short-term (several decades) accurate instrumental observations, because recurrence intervals of rare but most destructive hurricanes are usually over century or millennial scales. The newly burgeoning paleotempestology attempts to tackle the question by extending history of hurricane activities through geological records. The Yangtze delta is highly vulnerable to global changes and prone to typhoon strikes. The deadliest typhoon in the last century claimed for over 26,000 lives with a straight strike on the delta in 1905. Accurate instrumental records of typhoons can only be dated back to 1949 in China, and those of storm surges can be traced back to not more than 100 years in Shanghai. In this paper, we developed multi-proxies of organic carbon isotope ($\delta^{13}C$) and TOC/TN ratio, together with typical sedimentary structures and storm sequence, to diagnose single typhoon-produced layers in a 10-m long coring section. Geochronology was constructed by employing Pb-210 dating. The data shows that the 19th century had more extreme intensity typhoons than the 20th century, influencing the Yangtze delta. The conclusion, however, need further attested by comparison with documental records of landfalling typhoons in the Yangtze delta. Keywords: hurricanes, typhoons, paleotempestology, Yangtze delta

Keywords: hurricanes, typhoons, paleotempestology, Yangtze delta

Peilei Fan, Dr., Michigan State University. Email: peilei@alum.mit.edu; Developing innovation capability: A comparison study of India and China's biotechnology industry

With an annual growth rate of 20-35%, India and China both have achieved significant revenue growth in biotech industry in the last five years. In this paper, I review the development of India and China's biotech industry, with a special focus on the development of innovative domestic biomedical companies, such as Shantha Biotech and Bharath Biotech in India and Hisun and Sibiono in China. I intend to understand why India has successfully nurtured a group of innovative domestic companies that have achieved globalization in terms of production and R&D; whereas with a few exceptions, most China's domestic companies have failed to build their competitiveness and been confined within the domestic market. The role of institutions in shaping the development pathways will be highlighted.

Keywords: Innovation, India, China, biotech, domestic firms, government

Xiuqi Fang, School of Geography, Beijing Normal University, China. Email: xfang@bnu.edu.cn; Peihong Yin, School of Geography, Beijing Normal University, China. Email: yinpeihong@163.com; Fengdong Chen, School of Geography, Beijing Normal University, China. Email: douglas_chan@sina.com; The Changing Regional Differences of Grain Production in China

Based on the statistic agricultural data with a county resolution for the time period of 1985~1987 and 2002~2004, the changing regional distribution of grain production in China in recent 20 years has been examined in this paper. It is found that, (1) Grain productivity indicated by grain yield per unit cropland has increased in more parts of China, except for the marginal zone of summer monsoon; (2) The difference that grain productivity in eastern China is much higher than that in western China has remained obviously; (3) The difference in grain productivity between northern China and southern China has reduced for the sensitive increase in grain productivity in North China; (4) The main grain-producing areas that has the stability of output of surplus grain have shifted from the south to the north of China.

Keywords: grain production, productivity of cropland, regional difference, China

Maria Fannin, University of Bristol. Email: m.fannin@bristol.ac.uk; Le corps morcelé et l'usine à bébés: Health care reform and midwifery in France

Beginning in the 1970s, a policy of stringent minimum requirements for hospital personnel and facilities led to a series of hospital closures and the spatial reorganization of maternal health care. By the late 1990s, "regionalization" policies that classified facilities into three separate levels began to categorize pregnancies based on fetal risk of prematurity. These policies were an attempt to improve France's rates of maternal and infant mortality and morbidity and altered the landscape of health care in France. In an era of increasing pressures on states with relatively strong social welfare systems, such as France, the effects of rationalization policies such as the regionalization of health care are felt in the day-to-day practices of health care professionals in heterogeneous ways.

Attempts to measure the extent of changes in midwives' work have focused in part on the "technicization" of the profession, on the introduction of obstetric technologies into the practice of midwifery and on the increasing responsibilities assumed by midwives that accompany these technologies. I examine midwifery within the context of recent reforms to health care in France, specifically how midwives narrate transformations to the health care system through the use of two metaphors linked to the sites and spaces of midwives' work: the body and the hospital or clinic.

Keywords: health, midwifery, reproduction, France

Abiola Fanu, California State University, Northridge. Email: bunmie21@yahoo.com; The socioeconomic change of vietnamese and Cambodians in Southern California between 1990 and 2000

An assessment of the socioeconomic change of two ethnic groups in Southern California to identify their Assimilation and Acculturation in the United States. This poster will give an understanding to viewers about the progress being made by Cambodians and Vietnamese between 1990 and 2000.

Keywords: Refugees, Immigrants, Socioeconomic change

Caroline Faria, The University of Washington. Email: cvf@u.washington.edu; Gendering the New Sudan: The transnational politics of body and state

The murders of three Sudanese women living Canada and the US in the last year has led to a heightened discussion of gendered violence and the shifting gendered norms, roles and responsibilities that have occurred within resettled Sudanese refugee communities. My work examines these shifts, highlighting how the politics of the body are increasingly connected to a gendered, yet unstable and contested, imaginary of the 'New Sudan' following the 2005 signing of the Naivasha Peace Accords in Kenya. I am particularly interested in these connections across scale between the body and the state and the ways in which these are often articulated as forms of 'long distance nationalism'. These gendered discourses both reflect and are materializing in evolving efforts by resettled women and men to gender imaginaries of the New Sudan in progressive and productive ways.

Keywords: gender violence, gender, transnationalism, migration, refugees, Sudan

Matthew Farish, Department of Geography, University of Toronto. Email: matthew.farish@utoronto.ca; Northern Fencing: Canada, the United States, and the Distant Early Warning Line

Sovereignty disputes, resource-extraction opportunities, and ecological crises have recently directed substantial international attention to the region north of the 66th parallel. This fascination with the Arctic, however, is not novel. During and after the Second World War, the Canadian and American governments suddenly focused on the North as a zone of value, launching an era of extraordinary Arctic activity, much of it bearing the distinctive stamp of military funding and supervision. Of the numerous bi-national Cold War Arctic initiatives, none was more significant than the Distant Early Warning (DEW) Line, completed in the late 1950s. It was considered a triumph of scientific design and logistical planning, but the Line was also a speculative project - a string of radars, ultimately stretching from Alaska to Greenland, enrolling the Arctic into a continental defense grid. The implementation and maintenance of the Line was made possible by a complicated series of alliances between Canadian and American political, military, and industrial interests, and the result was a 'fence' or 'rampart' that profoundly altered the cultures and environments of the north. It also attracted substantial media attention in both countries, although the tone of this coverage differed, as American strategic discourse was tempered by Canadian concerns over sovereignty. This paper, then, will consider the DEW Line as an important example of North American cross-boundary geography, moving from the abstractions of diplomacy and defense plans to the very specific landscapes of radar sites.

Keywords: Arctic, Cold War, continental defense, militarism, indigenous peoples

Brandie L. Fariss, UNC-Chapel Hill. Email: bfariss@unca.edu; Exploring the Effects of Grazing on Biodiversity in Peru's Huascarán National Park

Highland ecosystems are immensely diverse and important given that they make up a relatively small percentage of our total land area globally. High biodiversity, monumental scenery, and a growing recognition that the health of mountain ecosystems influences the health of all other ecosystems, both lowland and coastal, have led to the establishment of many protected areas charged with the conservation of mountain biodiversity and the preservation of unique mountain environments. Huascarán National Park (HNP) is an exemplary protected area charged with conservation and development, and one that is experiencing the common challenge of achieving both. Although there is little question that what was first recognized as a global treasure in 1973, is indeed a

cultural landscape shaped by a long history of human activity, the sustainability of traditional land use is now in question. The objective of this study was to test the prevailing assumption of over-grazing in the park by exploring the effects of grazing on native plant biodiversity. Multi-level models were fit from vegetation samples, community surveys, informant reports, and topographic analyses conducted using a Geographic Information System (GIS). The integration of statistical modeling and GIS creates a powerful tool for quantifying and visualizing the conservation threats resulting from changing land use and resource management scenarios. Findings suggest that historic grazing patterns have maintained native species richness, yet the changing land use patterns developing due to the region's increased market involvement may have negative and irreversible effects on its biodiversity.

Keywords: People and parks, Huascarán National Park, Peru, LULCC, Biodiversity, Grazing, Predictive modeling, GIS

Kathleen A. Farley, San Diego State University. Email: kfarley@mail.sdsu.edu; Sheila M Palmer, University of Leeds. Email: S.M.Palmer@leeds.ac.uk; Gervasio Piñeiro, Universidad de Buenos Aires, Argentina. Email: pineiro@ifeva.edu.ar; Esteban G Jobbágy, Universidad de San Luis, Argentina. Email: jobbagy@unsl.edu.ar; Marcelo D Nosoetto, Universidad de San Luis, Argentina. Email: mnosoetto@unsl.edu.ar; Robert B Jackson, Duke University. Email: jackson@duke.edu; *Streams as integrators of land use effects at the watershed scale: acidification following eucalyptus establishment in grasslands*

Streams act as an integrator of the effects of landscape change within watersheds, and the differences between alternative land use systems are reflected in concentrations of dissolved nutrients. We examined the effects of afforestation of grassland watersheds by sampling soils and stream water in eight paired watersheds in Uruguay. We anticipated that plantation forestry would result in decreased soil pH and soil base cation concentrations due to base cation uptake by trees. We found that pH and exchangeable base cations were significantly lower in afforested soils compared to grassland soils. These changes were reflected in streamwater chemistry, with pH, base cation concentrations and alkalinities that were significantly lower in streams draining afforested watersheds compared to streams draining grassland watersheds. Our data suggest that repeated cycles of harvesting and replanting will negatively impact the soil store of base cations at these sites and contribute to an impairment of downstream water quality.

Keywords: water quality, land use change, South America, stream, soil

Eugene Farrell, Texas A&M University. Email: ejfarrell@geog.tamu.edu; Douglas Sherman, Texas A&M University. Email: sherman@geog.tamu.edu; *Wind tunnel simulations of saltation: Is close enough, good enough?*

This paper examines the scaling up process of aeolian sand transport models from wind tunnels to beach and desert environments. Most experimental work is carried out at small spatial scales due to reductionist approaches and/or logistical and financial constraints. However, the application of these small scale experimental results to real world problems has been largely unsatisfactory. This paper demonstrates that airflow - surface relationships and subsequent transport models derived from wind tunnel studies should not be applied to natural systems without scaling corrections. Specifically, the scaling constraints of wind tunnels impact aeolian processes in two ways: (1) wind tunnel geometry inhibits the development of turbulent coherent flow structures and, thus, particle trajectories are reduced in height and length, and (2) the saltation enhanced roughness is much smaller in wind tunnels; probably for the same reason. Until these process scaling issues are explicitly addressed in wind blown sand studies, the accuracy of transport models will continue to be poor except by accident. The verification and validation of empirical and theoretical methods for correcting the results of small scale process studies to predictions at larger scales remains an important consideration for the discipline of aeolian research.

Keywords: saltation, sand transport, scale, surface roughness, particle trajectory

Heinz Fassmann, . Email: heinz.fassmann@univie.ac.at; *Growth and Decline: two industrialized cities (Linz and Baton Rouge) in comparison*

The paper compares two industrialized cities, their demographic development and their intraurban structures. Linz in Upper Austria as well as Baton Rouge in Louisiana are of the same size (200,000 inhabitants), are characterized by a traditional oil and steel industry and both are capitals of their state. But more important are the dissimilarities: Baton Rouge is a growing city consuming much more space for the same number of inhabitants. For all basic needs (housing, transportation, retail, industry) more space is spent than in the compact city of Linz. Exact statistics of the different land use pattern will be demonstrated. Also the different pattern of settlement structures within the cities will be shown. The high segregation by race, social status and age in Baton Rouge

is in contrast to the much more even distribution in Linz. The different mechanism of the housing market and the diverge ideas how people should live will be used for explanations.

Keywords: Growth and Decline of Cities, Urban Structure, Land Use, Austria, USA

Todd Faubion, University of Washington. Email: tfaubion@u.washington.edu; *HIV/AIDS in South Africa: The Impact of Decentralized Development on a National Treatment Program*

South Africa's HIV/AIDS epidemic continues to increase in prevalence, with most estimates placing the total number of individuals with HIV or AIDS at between five and six million people. Given concerted efforts to reverse this trend and despite the rollout of an antiretroviral treatment program, the epidemic continues to intensify. While a modest, somewhat fractured treatment plan has been undertaken, necessary treatment is still out of reach for approximately 600,000 people who could benefit from an antiretroviral regimen. I explore the possibilities for a holistic treatment program and, more broadly, the possibilities for truly addressing the epidemic in South Africa. Contextually, I examine South Africa's present 'development' policy and argue that the current method of governance will be incapable of addressing an epidemic this generalized and of this magnitude. The government has long resisted a broad treatment program; I argue that through decentralized development policy and a subsequent lack of resources distributed from the national government, the capacity to effectively treat the disease and prevent future infections is severely limited. I suggest that the policy of decentralizing development alleviates much of the national government's responsibility to individual citizens in a depoliticized manner and will further undermine efforts to implement a cohesive and effective national treatment program.

Keywords: HIV/AIDS, South Africa, development, treatment

James Faulconbridge, Lancaster University. Email: j.faulconbridge@lancaster.ac.uk; *Comprehending and negotiating dynamic national business systems: insights from global law firms*

The distinctive national business systems/varieties of capitalism that exist throughout the world are well recognized but there remains a number of important and unanswered questions about the way processes of change occur as firms attempt to reproduce systems overseas and learn from the experience. This paper offers insights into the peculiarities of this process in the somewhat understudied service sector and examines the practice used by global law firms to negotiate the overseas implementation of their business models in jurisdictions with diverse 'varieties of profession system'. Using empirical material, the paper first identifies a number of key practices including expatriation and the recruitment of lawyers with experience in the US or UK. The benefits of 'being there' these provide are noted in terms of understanding the peculiarities of the different national systems. It is then shown how such understanding is used to inform negotiations between contending parties and allow pressure to be exerted on elements of the business systems discovered to be convergent or less institutionalised and more likely to change. The paper describes how different forms of global convergence, 'hybridity' and 'fragmentation' exist in business systems across time and space as a result of these negotiations. In conclusion suggestions are made about how these insights might help us understand wider negotiations about changes in national business systems and the extent to which forms of 'strong' and 'weak' convergence develop.

Keywords: varieties of capitalism; globalization; law firms

John M. Faustini, Oregon State University. Email: Faustini.John@epa.gov; Philip R. Kaufmann, U.S. Environmental Protection Agency. Email: kaufmann.phil@epa.gov; *Land Use Impacts on Stream Bed Substrate Influenced by Geology in the John Day Basin, Oregon*

Human land uses and land cover modifications (e.g., logging, agriculture, roads) can alter runoff and increase sediment supply to streams, potentially degrading aquatic habitat for benthic organisms and fish. This study used synoptic stream habitat survey data from a regional assessment (N=58) to quantify stream channel substrate characteristics and relate these to human disturbance within the riparian zone and upstream catchment at local to whole-catchment scales inferred from field observations and remote sensing data. We assessed potential excess fine sediments using several indices of bed stability and excess fine sediments based on the difference between observed particle size or fine sediment abundance and empirically predicted values for least-disturbed sites. Bedrock lithology was an important natural control on the relationship between streambed substrate and human disturbance. Bed stability was significantly negatively associated with a field-based index of local human riparian disturbance in catchments underlain by resistant rock types, but only weakly negatively associated with riparian disturbance in catchments containing a significant proportion of erodible rock types. In contrast, bed stability in resistant basins was significantly positively associated with catchment-scale road density, but strongly

negatively associated with road density in basins underlain by erodible bedrock. Our results suggest that roads are an important form of (or surrogate for) human disturbance in this landscape, and that geology may play an important role in determining the response of stream channel substrate to human landscape and riparian disturbance. Disclaimer: This is an abstract and does not necessarily reflect EPA policy.

Keywords: fine sediments, bed stability, stream habitat, anthropogenic disturbance, roads

Laura Fayollat, . Email: lfayollat@hotmail.com; Title: "Doing Women's Work": Gendered Workspaces and Gender Expectations

This qualitative study investigates how a diverse group of women employed in the same gender-specific job as grocery store product demonstrators perceive their gender roles in their everyday lives. The research proposed that a cross section of older white American, African American, Latina, and immigrant women employed in this gender-specific job would feel confined and/or influenced by traditional gender roles more than younger, ethnically diverse women holding the same position. The participants taking part in this study work in the St. Louis Metro East Area and are between thirty and eighty years old. After exploring and analyzing the data from twenty semi-structure, in-depth interviews, this yielded surprising similarities between women in different ethnic groups and age brackets. Data analysis showed that traditional gender-specific roles have shaped the lives of older generations of women more readily than their younger counterparts. However, younger women whom strongly expressed having modern gender roles in their interviews still find themselves confined to some similar traditional roles that older participants have in the home. Younger generations of women were still less active in gender-specific household chores and activities than their older counterparts, but their focus on the family remained the same. Among various ethnicities, a Latina woman and three immigrant women from East Asian countries were most likely to emphasize home over work. At the other end of the spectrum, the four African American women interviewed emphasized the independence of women. The white women fell across the spectrum in their perceptions of gender roles and expectation.

Keywords: gender, workplace, feminist geography

Melanie Feakins, Dr, University of South Carolina. Email: feakins@gwm.sc.edu; Offshore in the Core: Offshore Outsourcing of Software to Russia and the Onshoring of Services and Sales in the US

Offshore outsourcing has become the buzzword of the IT community and the popular media that writes about economic change in the current era of globalization. Although it is used broadly, it refers specifically to two forms of externalization: spatial and organizational. From the organizational side it suggests sourced and sub-contracted relations for production and services that extend beyond the boundaries of the contracting entity (outsourcing); spatially, it designates relations and contracts that cross national-state borders where the contractors are located (offshoring). This paper reverses the perspective and position from which offshore outsourcing phenomena are routinely analyzed. This reversed perspective demands a concept that captures the particular inversions at play. The label I have given is 'onshoring'; Onshoring encompasses practices that require corporeal, legal, and/or representational presence of the offshore in the core. The onshoring concept is developed with research material from fieldwork conducted with IT firms in St Petersburg, Russia, their affiliates in the US, and their clients in the US. The paper documents and analyzes the practices and materialities employed in onshoring strategies by firms whose development workforce is in Russia. These onshoring strategies and processes constitute expanding, if liminal, elements of economic globalization. The paper shows that onshoring is a prism through which the larger phenomena of 'offshore outsourcing' can be framed and scrutinized to reveal the complex flows that constitute the expanding geographic trends.

Keywords: offshore outsourcing, firms, globalisation, software

Johannes Feddema, University of Kansas. Email: feddema@ku.edu; Simulating Urban Systems in a GCM

Urban systems have a significant effect on the disposition of energy and water in an environment. While this locally significant climate effect only impacts a small area of the land surface, it has a direct impact on roughly half the human population. By simulations the combined effects of urbanization and larger scale climate changes from land cover change and atmospheric composition, we can now assess for different locations climate impacts on specific human population sectors (e.g. high residence urban or sub-urban populations). This paper will qualitatively assess the effectiveness of an urban canyon type model in the National Center for Atmospheric Research (NCAR) Community Climate System Model (CCSM) to simulate typical urban heat islands over the contiguous US. We test the robustness of the model through sensitivity studies and evaluate the model's ability to simulate urban heat islands in different environments. Findings show that heat storage and sensible heat flux are most

sensitive to uncertainties in the input parameters within the atmospheric and surface conditions considered here. Sensitivity studies suggest that attention should be paid to not only accurately characterizing the structure of the urban area, but also to the input data reflecting the thermal admittance properties of city surfaces. The magnitude and timing of the heat island varies tremendously depending on the prevailing meteorological conditions and the characteristics of surrounding rural environments.

Keywords: urban climate, climate change

Gennady Fedorov, Baltic CASE. Email: fedorov@albertina.ru; Migration Policy in the New Development Strategy of the Russian Exclave, the Kaliningrad Region: Objectives, Opportunities and Conditions for Realization

The Kaliningrad region, the Russian exclave in the Baltic Sea region, is a very interesting object for research on migration. Only 42% of its population was born in the region; most of the inhabitants are migrants. Currently, an increase in the number of the population due to migration is small: 3-4 thousand people per year. The new regional government plans a considerable economic growth in the region, and the new immigration program aimed at attracting 450 thousand migrants to the region during 2007-2015 is being developed. Now, the population of the region is 940 thousand people. The Kaliningrad region is one of the 12 Russian regions identified as priority development territories in the new federal policy on receiving immigrants from the countries of the Near Abroad, i.e. non-Russian countries that were once part of the USSR. It is important to set realistic tasks and examine opportunities offered by this new resource as well as forecast social and economic changes in the region brought about by the new migration program. The paper includes the analysis of opportunities and conditions for the realization of the program, i.e. the migratory potential of other Russian regions, the Baltic States, Kazakhstan and Central Asia, Ukraine and Belarus, the economic, social and institutional conditions of the Kaliningrad region; a specific character of the population of the region; financial resources, etc. Conclusion: the new immigration program in the Kaliningrad region is difficult to implement.

Keywords: migration, Russia, Kaliningrad

Garry Fehr, University of Guelph. Email: gfehr@uoguelph.ca; Linking 'chains of explanation' with the commodity chains of India's non-timber forest product sector

Classical political ecology literature has followed 'chains of explanation' embedded within political economy meta-narratives in order to more fully understand why marginalized populations continue to degrade the resources their livelihoods depend upon. Researchers use commodity chain methodologies to determine the extent and nature of power differentials in economic transactions. The commodity chain methodology utilized in this paper aims to expand political ecology's use of political economy meta-narratives by exploring the micro and meso-scale interactions embedded within local social, political and economic power relationships. This paper is based on seven months of research in several forest dependent villages of central India and along the commodity chains of the non timber forest product sector. It is situated within the context of India's current liberalization process which has struggled to reform a highly regulated mixed economy and more fully integrate it with the global market economy. Overall the reforms have been implemented in an uneven manner and yielded varied results across India's socially and economically stratified rural population. Although the research examines a classic example of political ecology's marginalization and degradation thesis, the commodity chains approach reveals how multi-scalar implementations of economic and political power produces uneven impacts across regional, social, economic and political space. Practical contributions of the research include recommendations to inform India's forest policy reforms in such a way that more of the economic and social benefits extracted from the forests are retained by local forest collectors and to ensure that harvesting of these forest resources remains sustainable.

Keywords: political ecology, commodity chains, sustainability, livelihoods

Rob Feick, University of Waterloo. Email: rdfeick@fes.uwaterloo.ca; Map-Centred Visualization Of Criteria Weight Sensitivity In GIS-MCA Analyses

The need to develop better means to explore and represent different viewpoints within spatial decision processes has been evident for some time in the participatory GIS and spatial decision support literature. Spatial MCA tools, which couple GIS and multi-criteria analysis (MCA) methods, can be useful in these situations since individuals express the relative importance of selected "facts" through criteria weights. This capability to disaggregate a complex decision issue into quantitative data scores and value-based criteria weights has the potential to improve decision process tractability and participants' understanding of the merits of different strategies or alternatives. However, since criteria weights are subjective and are at initially defined on an a priori basis, they are often subject to considerable uncertainty. A number of approaches to sensitivity analysis have been adapted from the MCA field to allow individuals to

view, in tabular or chart formats, the stability of results in response to criteria weight changes. To date, comparatively little attention has been given to examining or representing the spatial variation in sensitivity. In light of the geographic variability in criteria data values that characterise many spatial decision problems (e.g. environmental protection, urban growth management, etc.), this shortcoming appears particularly problematic. This paper explores some methods for decision participants to visualise how weight sensitivity varies throughout a study area. In an effort to encourage the dissemination of spatial MCA into practice, particular emphasis is given to methods which can be applied in practice by users with little or no prior experience.

Keywords: GIS, multi-criteria analysis, sensitivity analysis

Ian Feinhandler, PhD, University of Colorado. Email:

ian.feinhandler@colorado.edu; *The Electoral Geography of the BJP: Hindu Nationalism and Neoliberal Economics in the 2004 Indian Parliamentary Election*

This paper examines the electoral geography of the Hindu nationalist Bharatiya Janata Party (BJP) in India in the 2004 Lok Sabha election. By controlling for various socio-demographic cleavages, the significance of contextual effects within sub-regions of India is determined and explored using ordinary least squares regression. From this analysis, place emerges as a factor that influences voter behavior. In addition, the composition of the vote for the BJP by two key social groups is estimated using Gary King's EzI method of ecological inference; this procedure reveals significant spatial variation in the vote for the BJP. By extending electoral geography to the largest democracy in the world, this paper finds that social cleavages of caste, class, and religion, have replaced the catch-all politics that once dominated the Indian political process, but that these cleavages are mediated by place-specific contextual effects.

Keywords: India, electoral geography, Hindu nationalism, BJP, contextual effects, neoliberal economics

Marshall Feldman, PhD, University Of Rhode Island. Email:

marsh@uri.edu; *Fixing the Spatial Fix*

In 1977, Richard Walker put forward a political economic theory of suburbanization that subsequently was very influential. This paper examines the theory, identifying its major themes. The paper then examines developments in urban political economy during the past thirty years to identify absences, modifications, and potential criticisms of Walker's theory. The paper also discusses the subsequent literature specifically dealing with suburbanization and urban form during the period covered by Walker. Finally, the paper summarizes developments in empirical spatial patterns of suburbanization and urban form in the US since the 1970s. Based on these four components, the paper proposes ways to "fix" the spatial fix in the quadruple sense of modifying and augmenting Walker's original theory, addressing actual developments in urban form over the past thirty years, understanding the current situation, and identifying the real contradictions stemming from the suburban solution as a spatial fix for the contradictions of an earlier period.

Keywords: urban geography, suburbanization, suburban solution

Maryann Feldman, University of Georgia. Email: mfeldman@uga.edu;

Ji Woong Yoon, University of Georgia. Email: jiwoongy@uga.edu; *Where Do New Industries Come From? : Evidence From The Biotechnology Industry*

How new industries emerge and what factors contribute to their development has been a question studied from different perspectives since Schumpeter first posed the question. Studies in economics explain the evolution of new industries via the industry life cycle theory, or through a key technology applied through the vertical value chain. Institutional perspectives identify the legitimations necessary to mobilize resources for the new ventures that form the basis of a new industry. Scholars also consider the impact of regional specialization via knowledge spillovers; however, the contribution of place and the geographic limits associated with the diffusion of knowledge is under theorized. There are also few empirical studies that incorporate a geographic component to the study of radical new discoveries. This paper examines the evolutionary process of inventive activity in biotechnology to investigate the origins and genesis of new industries. In particular, we map the technology landscape using Cohen-Boyer's rDNA technique, a seminal discovery that defined the biotechnology industry and consider the geographical distribution of the invention over time. This mapping of technology landscape and geographical distribution allows us to identify the industry clustering patterns and provides an understanding of where and how local resources are used. Also, we examine the geographical composition of the organizations using rDNA technique and the organizational movement of inventors. We suggest that this exercise offers a novel method of studying the emergence of new industries driven by the new technology.

Keywords: Economic geography, technology innovation, regional specialization

Chen-Chieh Feng, Geography, National University of Singapore. Email: geofcc@nus.edu.sg; *Class-Based Definition for Hydrologic Features for GIS Interoperability*

The research is about clarification of meanings of hydrologic features recognized in United States' National Hydrography Dataset. Specifically, the research aims at the development of a theory of these hydrologic features so that the exchange of geospatial data between geographic information systems (GIS) can be achieved at the semantic level. Being able to exchange geospatial data at the semantic level is vital to the modeling of hydrologic phenomena such as flooding, because any misinterpretation of the data in a GIS database can potentially cause erroneous modeling results, lead to the making of improper policies, and thus carry serious consequences. Exchanging geospatial data at the semantic level is typically realized through the use of well-defined classes whose meanings are agreeable to both the data providers and data users. The problem with such an approach is that the classes' definitions are often inconsistent, incomplete, and imprecise. This research proposes the use of instances associated with these classes to handle the problem. Specifically the research will focus on the clarification of various relations, such as parthood and containment, between classes through the examination of the relations between their corresponding instances. A formal ontology will be used to ensure that the resulting meaning is consistent, complete, and precise. A simple test will be conducted to examine if the meanings of these hydrologic features are correctly captured and sufficient to support the exchange of geospatial data at the semantic level.

Keywords: GIS, ontology, data model.

Qi Feng, Dr., Chinese Academy of Sciences. Email: qifeng@ns.lzb.ac.cn; G.D. Cheng, Academician, Chinese Academy of Sciences. Email: ; *Trends of water resource development and utilization*

The development and use of water resources in most river basins of arid northwest China is still at the surface water development stage. Currently, the extent of surface water resource exploited is 480.07108 m³, accounting for only 56.0% of the total exploitable surface water resources of arid Northwest China. The canal systems provide 42% of the water used, and farmland use is 0.8. When the ground and surface waters of river basins in the region are comprehensively developed in the future, channelized surface water may be increased to 686.17108 m³ and the channelized ground water may reach 248.27108 m³. This would constitute a 95% increase over current levels in surface water resource development. The total use of water resource would account for 55.0% of total channelized water resources. In the future, with scientific and technological advancements the utilization ratio of canal system will reach 0.9 as the utilization rate of farmland water. So the total use waters will reach 756.87108 m³ increasing by 3-4 times than current levels and accounting for 84.8% of the total exploitable water resources in arid Northwest China.

Keywords: Arid Northwest China, Water resource, Development and utilization, Trends

Zhaodong Feng, Professor, Department of Geology, Baylor University. Email: Zhaodong_Feng@baylor.edu; *Holocene climatic and environmental changes recorded in Baahar Nuur lake core in the Erdos Plateau, Inner Mongolia of China*

A 5.3 m lake core was drilled at Baahar Nuur lake in the Erdos Plateau and measurements of mean grain size, organic d13C (d13Corg), organic carbon content, C/N, carbonate content, carbonated13C (d13Ccar) and d18O (d18Ocar) were conducted for retrieving the Holocene chronosequence of climatic changes based on 15 AMS 14C dates. The record documented four major stages of climate change in the Erdos Plateau: (IV) a cold and dry conditions before ~7.65 14C ka BP; (III) a warm and humid stage between ~7.65 and ~5.40 14C ka BP; (II) a generally drier and cooler climate since ~5.40 14C ka BP with two humid events occurred from ~4.70 to ~4.60 14C ka BP and from ~4.20 to ~3.70 14C ka BP, and (I) a dry climate characterized by complete desiccation of the lake after 3.70 14C ka BP. The stage III can be further divided into three sub-stages: (IIIa) a warm and humid episode from ~7.65 to ~6.70 14C ka BP, (IIIb) a warm and relatively dry episode from ~6.70 to ~6.20 14C ka BP, and (IIIc) the magthermal and maghumid episode of the Holocene from ~6.20 to ~5.40 14C ka BP.

Keywords: Climate Change

David A. Fennell, Ph.D., Brock University. Email: dfennell@brocku.ca; *Ethics: We're Stuck with it [in Tourism]...Whether We Like it or Not!*

Trivers' (1971) theory of reciprocal altruism, emerging from animal behaviour studies, is premised on the belief that human social behaviour is said to have evolved in relatively small, stable communities where groups of people had opportunities to forge cooperative relationships over time through repeated interaction. The more time we have to engage in altruistic acts?acts that are returned in kind? the better chance for individuals and groups to set up longer term cooperative relationships. Cooperation of this sort can be challenged in tourism because of limited interactions based on restricted periods of time, with

implications at the micro scale (tourist-host interactions) and at the macro scale (collective interactions within the region as a whole). Despite these challenges, ethics and trust have emerged from reciprocal altruism as mechanisms that induce both short-term and long-term cooperative relationships for mutual benefit. Implications of these relationships are discussed in the context of generating ways to improve cooperation for the tourism industry as a whole.

Keywords: ethics, reciprocal altruism, cooperation

Tovi Fenster, Tel Aviv University. Email: tobiws@post.tau.ac.il; *Belonging Revisited: writing about belonging from within*

In 2004 I published my book *The Global City and the Holy City: Narratives on Planning, Knowledge and Diversity* (Pearson) which focused on everyday experiences of (dis)comfort, (lack of)belonging and (lack of) commitment to various spatial scales (from the home to the city) in Jerusalem and London. I now re-write the book in Hebrew and this process allows me to revisit some of my earlier assumptions, analysis and conclusions regarding constructions of emotions in everyday life as related to identities, power relations and urban citizenship. The paper focuses on these experiences and the process of re-writing them in my own 'spaces of belonging' (language and political, social and gendered context).

Keywords: belonging, scales, urban citizenship

Jill Fenton, Dr, Department of Geography, Queen Mary, University of London. Email: j.fenton@qmul.ac.uk; *Au Bon Endroit: surrealism, creative play and passion*

While walking to the café la Tour Saint-Jacques in the centre of Paris during the spring of 2006, two members of the Paris surrealist group are aghast to notice that the Tour Saint-Jacques, a monument much revered by surrealists, has been shrouded in a white illuminating cover. They contemplate what this veiled construction resembles - a silo, a tower of ice or of icing sugar. Subsequently, they photograph the gleaming white vision and initiate an international surrealist enquiry that raises questions about its origins and purpose. Some respondents, in immediately identifying the construction, are unable to reply enthusiastically to the enquiry; others, like myself, respond in the intensity of the moment and according to an impassioned vision of how life ought to be. This paper explores *Au Bon Endroit*, a surrealist game that reflects creative practice as the opening to a new poetic sense of place that engenders hope, possibility for a meaningful life, and a different society. The paper illustrates how surrealist imaginative play, in summoning *détournement* from a humdrum existence, in the course of everyday life nurtures passions beyond our wildest dreams. Such creative and enthusiastic exploration contributes to cultural geography's engagement with alternative geographical imaginations.

Keywords: Surrealism, passion, hope, creative practice, *détournement*, everyday life, alternative geographical imaginations, cultural geography

Nancy Ferber, Portland State University. Email: nancy.ferber@gmail.com; *Participation and Support of the Literary Arts in Portland, Ore: Gains in social capital, trends in the creative class and establishing identity while creating a sense of place in the urban environment*

The field of literary arts thrives in Portland, Oregon. It is a crucial component in defining Portland's cultural identity. Through extensive opportunities for local participation, Portland has shaped, and been shaped by literary artists. Local writers and non-profit organizations in support of the literary arts are engaging invisible and marginalized populations around the city. This paper argues that Portland's growing literary arts networks are increasing gains in social capital, as well as further developing Portland's creative class. Through examining Portland's unique publications, organizations and cultural events, this paper presents evidence of the creative class becoming a distinctive force in the city. By profiling organizations and establishments around Portland, trends appear which exemplify the growth and efforts of the creative class. The field of literary arts itself is broad; this paper aims to focus on the increasing accessibility of both actual texts and interactions between the field of publishing and literary consumers. The uses of writing and public readings is encouraging individual expressions and community building. The literary arts scene in Portland is allowing individuals to create community by sharing these common experiences. This accessibility within the field is adding to a sense of place and developing social networks in and around the Portland Metropolitan area. Portland is becoming an area with high participation in the literary arts, because its creative class is forming unique ties and networks with trends in the literary arts field and the city itself.

Keywords: Literary Arts, Portland Ore, Creative Class, Social Capital, Sense of Place, Identity

Yaïves Ferland, Defence R&D Canada - Valcartier. Email: yaives.ferland@drdc-rddc.gc.ca; *Geographical factors for establishment of the Canadian Defence R&D Centre in Valcartier (Québec)*

Canadian Armament Research and Development Establishment (CARDE, today DRDC Valcartier) was founded in 1945, 20 miles West from Québec City, as a fusion of five war laboratories. This civilian science and technology facility was placed under the authority of the Defence Research Board created sixty years ago, in 1947. During WWII, those necessary laboratories controlled and improved the production of the Dominion Arsenal on its new plants installed in 1933-38, beside the expeditionary military Camp Valcartier, settled in 1912-14. Creation of the Department of Munitions and Supply, September 1939, opened officially the "scientific front" of this "fourth force", engaged in a new era of active international collaboration with the United Kingdom and Canada Inspection Military Board (UKCIMB), the USA and Australia. At its peak in 1943, the Arsenal was the most important provider of both light and artillery ammunitions within the Commonwealth. By 1945, Government was anxious to preserve this vanguard military-industrial capacity and the scientific expertise in explosive chemistry and ballistics concentrated there. For the third times, the question of the best location for this kind of special defence operations rose again; where else than Valcartier for optimal experimental conditions for new products such as missiles and lasers? A retrospective analytical study considered dozens of factors and location criteria, at many scales, demonstrates that DRDC - Valcartier is still at its best purposive place in the Québec region. It is located on sandy well-drained soil at the edge of the Canadian Shield, in a wooden basin circled by hills.

Keywords: Military geography, Defence Canada WWII, location analysis

Damian Fernandez, Florida International University. Email: fernande@fiu.edu; *Community?*

The paper presentation will deconstruct the idea of community among Latinos (and Cuban-Americans in specific) in Miami by analyzing issues of trust, social capital, and civic engagement. The paper will be based on data collected as part of the NSF funded project "Civic and Place Engagement in Three Latino Enclave Neighborhoods in Transition."

Keywords: neighborhood, civic engagement, immigration

Sarah H. Fernandez, MA, UCLA. Email: sarhafe@yahoo.com; *Losing the Indigenous Links: An Historical Geography of Coca in Ecuador*

Even though much has been written in the past about coca and its numerous associated topics, scant information on this subject can be found with regard to Ecuador. Ecuador's location between two major coca-producing countries would logically lead one to assume that it has been susceptible to many of the same issues surrounding coca in these other nations, but so far only a handful of individuals and organizations have attempted to examine these issues within the Ecuadorian context. The most likely explanation for this lack of material is the curious absence of coca in modern day Ecuador, which differentiates this country from its Andean counterparts. The first objective of this paper is to analyze the mysterious disappearance of coca in Ecuador. How and why did coca vanish from this country in the first place? This study will address a combination of colonial prohibitions, native demographic collapse, the impact of mining, and competition from other crops as probable factors in the demise of coca in Ecuador.

Keywords: Ecuador, Latin America, historical geography, coca, cultural geography, cultural ecology

Dinali Nelun Fernando, Rutgers University. Email: dnelunf@eden.rutgers.edu; *Assessing climate impacts on water scarcity variations within a river basin in northwestern Sri Lanka*

Water scarcity is an acute problem in many parts of Sri Lanka and often lasts for more than six months each year. Past studies on water scarcity in Sri Lanka have not taken into account the impact of climate variability and change that affects the magnitude and distribution of water scarcity in a given location. This study assesses water scarcity at sub-district scale within a river basin in northwestern Sri Lanka from 1979-2000 and analyzes how climate influences the seasonal distribution of water scarcity within the basin. The operational definition of water scarcity adopted was "when water supply exceeded water demand". Assessments of water scarcity were made at the seasonal timescales of October to December, January to March, April to June and July to September. The distribution of average water scarcity during JFM, AMJ and JAS follows the seasonal distribution of precipitation, and during OND follows the seasonal distribution of rice cultivation. Trends in inter-annual water scarcity during JFM and JAS follow inter-annual precipitation trends during those seasons. OND water scarcity has decreased from 1991-2000 despite a statistically significant decrease in basinwide OND precipitation from 1961-2000, and an increase in the OND water demand for rice from 1980 onwards. A similar decrease in the incidence of water scarcity was observed during AMJ despite a similar decrease in seasonal precipitation. Such counter-intuitive patterns of water scarcity need to be

understood in the context of regional patterns in seasonal precipitation and long-term changes in the extent under seasonal and perennial crops.

Keywords: Water scarcity, climate impacts, sub-district scale, seasonal time scale

Jude L. Fernando, IDCE Clark University. Email: jfernando@clarku.edu; Jude L Fernando, Ph.D, IDCE Clark University. Email: jfernando@clarku.edu; *Humanitarian Interventions in Complex Emergencies and Natural Disasters: Towards Praxis Oriented Scholarship*

This paper examines the dilemmas of praxis centered scholars working on issues pertains to humanitarian interventions, complex emergencies, and natural disasters. It is based on on-going field work in Sri Lanka. Theoretically, the analysis is located in current debates between traditional and new humanitarians. Traditional humanitarians argue that all humanitarian interventions should maintain principles of neutrality, impartiality and human dignity. New humanitarians disagree, on the grounds that such principled-interventions are impossible and counter productive for the wellbeing of those affected by humanitarian crises. The very acts of conducting research and how one write about their findings are not politically neutral. They shape and are shaped by contexts within which they work. The very presence of the researcher in these crisis locations, types of questions they ask of different stakeholders, and their practical activities do contribute to shaping the dynamics of these crises, which in turn affect the 'objectivity' of research. This paper explores the difficulties faced by socially responsible researchers in relation to how they reconcile the tensions between the need to respond to immediate and long term human suffering by working with humanitarian organizations and maintaining 'objectivity' in research projects in highly politically charged environments. It draws from my own field work and working with those affected by the 2004 tsunami and civil war in Sri Lanka.

Keywords: Humanitarian Emergencies, Scholar-Practitioner paradigm, social responsibility, Natural Disasters, complex emergencies

Susanna Ferreira, University of Stellenbosch. Email: slaf@sun.ac.za; Visser Gustav, Dr, University of the Freestate. Email: visserge.sci@mail.uovs.ac.za; *Creating an African Riviera: From local regeneration project to global playground*

The use of leisure and tourism to re-image and redevelop cities has been interpreted as a mechanism for attracting capital and people. In a period of intense inter-urban competition and urban entrepreneurialism whole built environments become centerpieces of urban spectacle and display. Waterfront developments have become emblematic in this regard. Over the past 20 years the redevelopment of the Victoria and Alfred Waterfront in Cape Town has been transformed "port to playground" and is internationally acknowledged as one of the most successful of these developments. This redevelopment has, however, not been uncontroversial. Tensions and conflicts have risen over the use of space, the meaning of place and ownership of space. In 2006 the Waterfront was sold to a Dubai-based and led development consortium. The stated objective of the consortium is to transform the Victoria and Alfred Waterfront into an "African Riviera". Concerns have emerged that these new developments will "plasticize" the Waterfront. The purpose of this paper is firstly, to emphasize the importance of place-identity and place-marketing in the increasing competition among major urban tourist destinations. Secondly, the Waterfront's development is located on a continuum between 'growth machine' and 'growth management' models. Thirdly, drawing on international debates, the paper argues that the engagement of local agencies is critical in formation of the character of heritage spaces, and, finally, we speculate on how the change in ownership will affect the sense of place or identity of Cape Town.

Keywords: regeneration post-modern harbourscape meaning of place

Kristel Fesler, Oregon State University. Email: feslerk@geo.oregonstate.edu; Nathan Eidem, Oregon State University. Email: eidemn@geo.oregonstate.edu; *Cooperation and Conflict over Water in the Western United States*

This paper presents research findings on cooperative and conflictive behavior over fresh water resources in the Upper Colorado River Basin, the Upper Rio Grande River Basin, the State of Oregon, and Internationally. Incidents of cooperation and conflict were collected from major news sources, coded using a standardized classification system, and compiled into event databases. Cooperative incidents outnumbered conflictive ones in all study areas. Quantitative analyses of demographic and physical datasets showed no single parameter greatly explained variability in cooperative or conflictive behavior internationally or in Oregon. Further qualitative analysis showed cooperation and conflict severity depends upon alterations in institutional frameworks. The number and severity of incidents in Oregon were affected by actions at all levels of government: local, state and federal. This analysis emphasizes the importance of institutions, like management plans, and highlights increases in social instability when institutions are altered. This is especially apparent when

stakeholders are faced with protocol changes that subsequently lead to uncertainty. The results of this research support shifting focus from increasing supply to stakeholder mediations and the creation of institutions prepared for future uncertainty of water resource availability.

Keywords: Event Data, Water, Resource Management, Conflict, Cooperation, Colorado River Basin- Upper, Rio Grande River Basin- Upper, Oregon

Russell Fielding, Louisiana State University. Email: rfield2@lsu.edu; *A Comparison of Pilot Whale Drives in Newfoundland and the Faroe Islands*

The long-finned pilot whale (*Globicephala melas*) is a common cetacean species in the North Atlantic Ocean and has been hunted by humans for food and oil for many centuries. A common hunting method used by pilot whalers has been to initiate a "drive" in which the whales are surrounded by boats and driven onto the shore or into the shallow water, then killed. This method uses the natural herding instinct of the pilot whales to the whalers' advantage and entire pods are often taken at once. These pilot whale drives have historically occurred throughout the inhabited regions of both sides of the North Atlantic but by the mid-twentieth century were only occurring in two locations: the Faroe Islands and Newfoundland. Canada's 1972 ban on commercial whaling put an end to the Newfoundland pilot whale drive, leaving the Faroes as the North Atlantic's lone whale-driving society. After introducing both pilot whale drives, this paper compares the Faroese and Newfoundland whaling communities and examines reasons why the whale drive has continued in the Faroes but has been ended in Newfoundland.

Keywords: newfoundland, faroe islands, whales, fisheries

Gary Fields, University of California - San Diego. Email: gfields@ucsd.edu; *Enclosures Past and Palestinian*

This paper seeks to generalize the experience of the enclosure process currently taking place in Palestine by comparing it to the British Enclosures of the late 18th and early 19th centuries. It draws on insights from Foucault about power, discipline, and the recasting of space as a fundamental tendency of modernity, and uses this insight to situate the comparison within a theoretical framework of "Mastering Space." The paper uncovers parallel territorial practices of modern power holders ranging from profit-driven English landowners in the 18th century, to nationalist-inspired Zionists of the 20th century in unmaking and remaking land and landscape where subordinate groups live and work. The paper makes an argument about the relationship of enclosure to the two most basic routes to modernity, the development of capitalism and the development of nationalism. By uncovering parallels in the two cases, this study reveals how the exercise of power and the recasting of place is fundamental to both lineages of the modernist project, reinforcing the idea of capitalist development and nation-building as complementary. In emphasizing the common thread of enclosure in both capitalist development and nation-building, this study shows how conflict based on differences of class, and conflict based on differences of nation share a similar territorial logic. The study poses the question of what made the recasting of territory a critical part of modernity, and reveals how the remaking of space conformed to the goals of modern power holders ranging from early modern English landowners to contemporary Israeli Zionists.

Keywords: Palestine, Enclosure, Landscape, England, Wall

Heather L. Fields, California Polytechnic State University, San Luis Obispo. Email: loluma001@gmail.com; David W. Stahle, University of Arkansas, Fayetteville. Email: dstahle@uark.edu; R. Daniel Griffin, University of Arkansas, Fayetteville. Email: dendrodan@gmail.com; *Age Structure, Climate, and Recruitment History of Selected Blue Oak Woodlands in California*

The blue oak (*Quercus douglasii*) woodlands are the largest hardwood ecosystem endemic to California. Blue oak trees were not widely cleared for commercial timber production, and extensive old-growth blue oak forests remain throughout the native ecosystem. However, blue oak regeneration is a significant scientific and management concern. We collected tree-ring samples and observed vegetation characteristics at 36 old-growth sites throughout the ecosystem. Over 2,300 living trees greater than 10cm in diameter and dead logs were sampled at approximately breast height. The samples were cross-dated with dendrochronology, and when possible, the year of recruitment into the canopy was established. Based on 1,280 randomly sampled living trees, we define blue oak age structure and recruitment history at the site, regional, and ecosystem level. Blue oak trees in our random sample average 165 years old, 10% are over 225, and 1% are over 335 years old. Recruitment to the 10cm DBH class appears to have been relatively continuous through time across the ecosystem, with a large pulse of recruitment in the mid- to late-19th century. The precipitation sensitive blue oak tree-ring chronologies indicate that relatively wet conditions may have contributed to this 19th century recruitment pulse. Our 10 cm DBH minimum sampling constraint does not allow description of blue oak recruitment over the most recent 50 years, but we found a very low sapling to tree ratio (0.37). These

new blue oak data may contribute to the conservation of this ecosystem by describing the impressive age and wide distribution of these ancient oak woodlands.

Keywords: dendro-ecology, blue oak, recruitment

Yves J. Figueiredo, PhD, Université Paris-Sorbonne. Email: yves.figueiredo@paris4.sorbonne.fr; From aesthetics to ecology: the long apprenticeship of the Yosemite Commission (1864-1890)

The first white men who saw Yosemite in 1851 described a valley which was "park-like in its lack of underbrush and small tree growth, with its floor clear under the tall trees, carefully preserved by the expert foresting of the Indians." In 1890, the Yosemite Commissioners wrote in their report that "views formerly fine and inspiring are obscured entirely by the dense tree and underbrush growth of the last forty years." During the first decades following the establishment of the Yosemite park, managers systematically fought natural fires and allowed the forest to colonize the valley, thus contributing to the drastic change in the visual appearance of the valley. By 1890 however, the Commission reversed its policy concerning forest fires. This decision was guided by aesthetic motives (open up views of the valley and of the falls for the tourists) as well as a new understanding that systematically suppressing fires was potentially more harmful than allowing them. My paper will show that it was in fact for primarily aesthetic motives that the Yosemite Commission arrived at the first ecologically sound management plan of the valley. Using archival material (including the reports of the Yosemite Commission), I will argue that despite the bitter accusations of mismanagement by John Muir and Robert Underwood Johnson, the Yosemite Commission tried to introduce ecological practices in Yosemite Valley in the 1890s.

Keywords: Yosemite; preservation; aesthetics; ecology

Pierre Filion, School of Planning, University of Waterloo. Email: pfilion@fes.uwaterloo.ca; Smart Growth and Affordable Housing: The nature of the Trade Off

Perhaps the most damaging critique that is levelled at Smart Growth policies is that they make housing less affordable. In debates about the impacts of Smart Growth, critiques often invoke a correlation between metropolitan regions that rely on growth management measures and high housing costs. The paper explores the relationship between Smart Growth policies and the cost of housing. First, it observes that metropolitan regions that are most likely to rely on such policies generally experience substantial growth and therefore strong pressures on housing values. Second, the paper demonstrates that it is the cost of land that is most sensitive to growth management policies. It thus follows that the types of housing that consume most land are the ones that will be most affected by these policies. Consequently, the impact on house values will be minimized if Smart Growth measures are accompanied with a shift towards the production of higher density units; otherwise, critiques of Smart Growth will be vindicated. The paper relies on the Toronto experience to explore ways of inserting high-density housing within the existing urban and suburban texture. It identifies the kinds of sectors where such housing is presently being built and relates variations in the cost of these units to types of development and their location.

Keywords: Smart Growth, Housing, Planning, Toronto

Michael Finewood, PhD student, University of South Carolina. Email: finewood@gmail.com; The Embodiment of Economic Development in Coastal South Carolina

This paper is about how places can be constructed in such a way that gives meaning to - and privileges - economic development, and how people embody those notions of economic development at different scales. This conceptualization provides a situated understanding of the contradictions of land use in capitalism, and how people perceive those contradictions as natural. Along the coasts of South Carolina, developers and town stakeholders are pursuing strategies of rapid economic development. For example, townships in Southern Beaufort County have committed 90% of all developable land to commercial and neighborhood development. Town managers anticipate being the third largest populated region in South Carolina in the next five to ten years. The material outcomes of development processes are dramatically changing the physical and social landscapes. And although the social and environmental costs are recognizably high, community members remain convinced that economic development is inevitable or necessary. This location provides a unique opportunity to see how economic development is given meaning not just through policies and institutions, but is taken on as personal worldviews.

Keywords: development, capitalism, coastal south carolina

Chanelle Fingal, BA in Geography, University of the West Indies, Mona Jamaica. Email: chanfing@hotmail.com; "Quality production and a better deal for producers and consumers": Globalisation, Fair Trade and the St. Lucian Banana Industry.

Globalisation and its sister process trade liberalization have resulted in the phasing out of the guaranteed preferential access that bananas from the Windward Islands once had to the British market. This action was a tremendous blow to the banana industry in the Eastern Caribbean and in particular to the small farmers who rely on bananas for their survival. Fairtrade has since emerged as an alternative and has created a new niche market for Windward Island bananas in the United Kingdom. Fairtrade, in its truest form is supposed not to only ensure a market but also other social and environmental benefits for the small farmers. Through the analysis of interviews with fairtrade and other officials as well as a questionnaire survey of a number of small farmers, this paper will illustrate some of the impacts that fairtrade has had on the banana farmers in St. Lucia. The financial and environmental benefits which have been gained through fairtrade shall be presented. In addition, this paper shall express the fact that all of the expected social benefits of fairtrade are yet to reach the St. Lucian banana growers.

Keywords: agriculture, globalisation, Fair Trade, bananas

Kevin Fingerman, University of California, Berkeley - Energy and Resources Group. Email: kfingerman@berkeley.edu; Understanding the System of Rice Intensification: Lessons from South India

The System of Rice Intensification (SRI) is a low-input method of rice farming that has generated some debate as it has spread rapidly in the 20 years since its development in Madagascar. Proponents claim that not only does the system produce yields that far exceed those from conventional methods, but that SRI can nearly double the efficiency of agricultural water use while vastly reducing or eliminating the necessity for chemical inputs. Opponents, meanwhile, maintain that enthusiasm for the technique is overblown, and that convincing evidence is lacking for the benefits attributed to SRI. This debate is also shaped by the fact that the SRI technique was not developed through the conventional lab-to-land pathway. This paper attempts to shed some light on the debate through analysis of case studies using insights from SRI farmers, researchers and extension practitioners in the Indian state of Andhra Pradesh. Using 15 semi-structured interviews and a survey of 32 farmers conducted in the summer of 2006 we develop a list of factors that contribute to successful application of the SRI technique, both in the Indian context and elsewhere. We recognize that adoption of SRI can be either beneficial or detrimental to farmers depending on context, and hold that the prudent step at this point is to better understand the ecological, geographical and social dynamics that contribute to SRI's success in order to move forward in a considered manner.

Keywords: rice, India, water efficiency

Nissa Fink, University of Cincinnati. Email: finkna@uc.edu; Muslim Burials in Mainstream Cemeteries: The Case of Cincinnati

In 2004, land was purchased by the Muslim community in Memphis, TN with the express purpose of establishing an Islamic cemetery. Due to opposition by the local community, that plan was never carried out. Opposition to similar cemetery projects has also surfaced in Charlotte and Atlanta. While the reason for such opposition may be questioned, so may the reason for why a specifically Islamic cemetery is needed. What are the requirements of a Muslim burial? Can these requirements be performed in a mainstream cemetery? What happens in locations where no Islamic cemetery is available? This research examines the burials of Muslims in Southwest Ohio, with the purpose of examining both the locational and cultural attributes of these burials. The location of Muslim burials were obtained through interviews with local Muslim leaders; site surveys were used to examine the location of Muslim burials within the cemetery as well as demographics and cultural attributes of the individual burials. Cultural attributes examined included the existence of a cult of piety, burial markers, inscriptions and grave orientation.

Keywords: Cemeteries, Islam, Muslims, Necrogeography, burial, Cincinnati

Sarah A. Finkelstein, University of Toronto. Email: finkelstein@geog.utoronto.ca; Konrad Gajewski, University of Ottawa. Email: gajewski@uottawa.ca; Diatom community dynamics in a Fragilarioid-dominated Holocene paleolimnological record from Russell Island in the central Canadian Arctic Archipelago

Many diatom records from Arctic lakes are dominated by a single group of benthic taxa: the Fragilarioids. This group can constitute >90% of valves in fossil diatom assemblages. It is often assumed that diatom records dominated by this group offer little in terms of paleoecological information. We present here a whole-Holocene paleolimnological record from a small lake on Russell Island (Lake PW02), in the central Canadian Arctic Archipelago (74°00' N, 97°50' W, 182 m asl). The record is dominated by Fragilarioid types; we examine separately

each of nine species or morpho-types within this group to test whether individual Fragilarioid taxa responded differently to Holocene climatic changes. The ratio of the two most common types indicates a higher proportion of *Staurosira venter* relative to *Staurosirella pinnata* in the earliest Holocene. By 8300 years ago, *S. pinnata* rises to an abundance of ~20% and *Staurosira construens* appears. *Fragilaria oldenburgiana* declines by 5000 years ago, as two species in the genus *Pseudostaurosira* begin to increase. Recent sediments deposited over the past 200 years contain the highest numbers of individuals of *S. venter* and *S. pinnata* morpho-types with particularly long valves. We conclude that studies done at high taxonomic resolution offer possibilities to extract enhanced paleoecological information from records dominated by Fragilarioid diatoms. The record from Lake PW02, like many others from Arctic lakes with low algal diversity throughout the Holocene, shows pronounced increases in diatom diversity in the most recent sediments.

Keywords: diatoms, paleolimnology, Holocene, Arctic, lake sediments, biogeography

Mary Finley-Brook, University of Richmond. Email: mbrook@richmond.edu; Karl H. Offen, University of Oklahoma. Email: koffen@ou.edu; *Bounding the Commons: A Political Ecology of Land Demarcation in Northeastern Nicaragua*

The modernist state dream of a perfect cadastral system cataloging individual private land owners in the lowland tropics of Latin America has finally ended. Large chunks of collectively-owned lands will not only remain but be enclosed, mapped, titled, regulated, stabilized, and open for green business. In the process of bounding the tropical commons, ethnic communities, state agencies, multiscale NGOs, and multilateral lenders all struggle to establish the conditions most conducive to their own interests. Funding sources wedded to a one-size-fits-all green neoliberalism push against the weighty inertias of regional resources histories, ethnic politics, discursive imaginaries, divergent agendas, and overlapping national legislation. The relatively new re-territorialization of the lowland tropics in Latin America begs theorization supported by empirical case studies. It remains unclear how ethnic communities form distinctive social and spatialized collectivities, decide upon specific land or territorial claims, negotiate formal boundaries, influence regulatory procedures, interact with regional governments and extractive industries, and interact with the pressures of multilateral and NGO objectives. In the present study we explore these issues in three case studies taken from our research in the North Atlantic North Autonomous Region of Nicaragua (RAAN). We use the tools of political ecology to examine the contested political process of bounding the commons into social-spatial units. An examination of the daily processes within Nicaraguan case studies demonstrates disempowerment and alienation of Miskitu and Mayangna populations and an unwillingness on the part of state representatives and foreign donors to understand or even entertain their territorial claims.

Keywords: political ecology, territory, Nicaragua, land demarcation, eco-governmentality, indigenous peoples

John C. Finn, Arizona State University. Email: FinnJ@asu.edu; *Commodification and Culture in Cuban Music*

After nearly three decades of cultural and economic isolation from the West, and a paralyzing economic crisis in the early 1990s, Cuba is increasingly globally active. The resulting increases in globalization affect all sectors of Cuban society. This is especially true for many of the islands musicians whose careers are deeply imbedded in the international market. In this paper I break with traditional approaches to music geography that focused on musical hearths, diffusion, delimitation, thematic analysis, and cultural mapping, instead exploring the dialectical relationship of music as an expression of cultural and a cultural asset, and at the same time a commodity for sale on the international market. I will present results from qualitative case-study research with Juan de Marcos Gonzalez, the creator of the world-renowned Buena Vista Social Club. Through the lens of this well-known Cuban musician I explore the increasingly contested terrain that cultural producers throughout the global south are forced to negotiate in attempting to preserve cultural authenticity while surviving economically in the increasingly globalized realm of international capitalism.

Keywords: Music Geography, Music, Globalization, Commodification, Cuba

Douglas T. Fischer, University of California - Santa Barbara. Email: fischer@geog.ucsb.edu; Christopher J. Still, University of California, Santa Barbara. Email: still@icess.ucsb.edu; A. Park Williams, University of California, Santa Barbara. Email: williams@geog.ucsb.edu; *Biogeographic impacts of California coastal fog and stratus*

Fog has long been recognized as hydrologically important in many ecosystems, including coastal deserts, tropical cloud forests, and montane areas worldwide. Fog drip can be a major water source, particularly during the dry season, and there is evidence in some ecosystems of direct fogwater uptake by foliar absorption. Fog and low clouds can also greatly increase availability of soil

water by reducing evapotranspiration. We have used parallel measurement, modeling and remote sensing approaches to quantify the importance of fogwater inputs and persistent cloud cover to the growth of two of the many conifers endemic to the California coast (*Pinus muricata* and *P. torreyana*). We have modeled drought stress over the last century based on local climate records, calibrated against a dense network of weather stations on a 7km coastal-inland gradient. Water availability varies greatly year to year, with episodic droughts driving widespread tree mortality, as documented with historical photos. Frequent cloud cover near the coast reduces evapotranspiration, thereby delaying and moderating the annual summer drought. Satellite data show significant interannual variability in cloud cover within the coastal "fog belt." Substantial summer fog drip at higher elevations also reduces drought severity. Tree rings show greater growth in foggy years. Stand boundaries appear to be driven by spatial patterns of mortality related to water availability and frequency of severe drought. These results suggest that coastal endemic conifers may be particularly susceptible to climate change, in agreement with palynological evidence of contraction of coastal pines during warm periods over the last 160 kys.

Keywords: Fog, range dynamics, *Pinus*, evapotranspiration, drought

Diana Michelle Fischetti, B.A., Departments of Geography and Environmental Studies, University of Oregon, Eugene. Email: dfischet@uoregon.edu; *Voluntary Simplicity and Ecovillages: The Role of Place in Challenging Consumer Culture*

Voluntary simplicity addresses not only the patterns of material consumption in industrialized nations and their associated environmental, political, social, and cultural impacts, but also the psychological impacts of consumer culture, and the often associated desire for a more fulfilling and meaningful existence. Accepting the assertion that consumption, as structured by capitalism, results in the derivation of consumers' sense of personal identity has led many to question whether personal identity is enhanced, satisfaction gained, or happiness found through consumption. Social scientists have begun to discover that within industrialized consumer culture, people's ability to derive satisfaction from consumption actually decreases with increasing consumption, beyond a certain threshold. The relationship between materialism and well-being is now understood to be an inverse one. In addition to consumption, sense of place also plays a role in the construction of personal identity. Ecovillages, communities whose members strive to live in a socially and environmentally sustainable manner, are often associated with voluntary simplicity. These communities often display specific social and environmental design characteristics. This paper will explore the ways in which the deliberate creation of a place that embodies the rejection of consumer culture and the cultivation of other means of constructing meaning, results in a sense of place that can modify the formation of personal identity. This paper will also explore the ways in which voluntary simplicity and ecovillages link to broader-scale dynamics, processes, and structures.

Keywords: sense of place, voluntary simplicity, ecovillage, consumption, identity, materialism, capitalism, consumer culture, place, community, sustainability

Diana Fisher, Ph.D., California State University - Los Angeles. Email: Dfisher2@calstatela.edu; *Collective Memory & Cultural Practice in West Hollywood*

The unofficial naming of a large section of West Hollywood as "The Ruskii Rayon" ("The Russian Neighborhood") by Soviet-Russian émigrés can be analyzed through the trope of memory, where the production and consumption of the local cultural landscape reflects the "ongoing dialectics" between real and imagined "pasts" and "presents." Both individual and collective memories play an active role in shaping how émigrés reconfigure space and use West Hollywood, California as an instrument of cultural expression and identity formation. Organized through years of nostalgia, fetishization, ambivalence, and hybridity, West Hollywood has thus become a city marked?in both public places and private spaces?by Soviet-Russian immigrants who draw from remembered homeland habits and rituals as a way of (re) constructing a meaningful and satisfying life in the United States. These collectively recalled habits and rituals materialize in embodied and performative uses of city space within the Ruskii Rayon. These uses are varied and include group street strolling activities, routine jaywalking violations, strategic frequenting of ethnically owned local business establishments, and a constant interaction with the diverse topography of the city. On their own, immigrants in West Hollywood are spirited authors of space; as a collective ensemble, they are a cultural force to be reckoned with in the city.

Keywords: Memory, Urban Space, Performance

Tabor Fisher, PhD, Le Moyne College. Email: fisherct@lemoyne.edu; *The Position of the Theorist in the Lower Ninth Ward*

A too easy equation of race and poverty with the Lower Ninth Ward can spatially contain our responses to the social inequities that contributed to the disaster wrought by Hurricane Katrina. This containment reproduces abstract space and inhibits movements for social change.

Keywords: Lower Ninth Ward; social production of space; Lugones, Maria; racism; Hurricane Katrina

Joshua T Fitzpatrick, Central Washington University. Email: joshfitz79@hotmail.com; *The Need for Instream Flow Protection in New Mexico: A Comparative Analysis of the Yakima River, Washington with the San Juan River, New Mexico*

Instream flows in a river are an important requirement of successful riverine health. Instream flows are defined as the minimum stream flow needed to protect and preserve instream resources and values, such as fish, wildlife, recreation, Native American treaty guarantees, and the aesthetic values of a free flowing river. The state of New Mexico has very few laws protecting and promoting instream flows, which has subsequently allowed many river flows to be diverted for irrigation and development purposes. This thesis will examine a stretch of Washington's Yakima River downstream of the Sunnyside dam as a case study analog of instream flow protection vis-à-vis water demands to the San Juan River in Northern New Mexico. I will: 1) analyze the legal structure of laws protecting Washington instream flows as a surrogate for New Mexico instream flow protection and; 2) utilize geographic information systems to conduct spatial analyses that map land and water use change over recent history. I expect to expand the array of options to policy makers in New Mexico based on the protection measures implemented on the Yakima River. The significance of this study is important as it can assist in securing a healthy riverine environment as well as safeguard New Mexico from transboundary conflicts between both the Lower Colorado River Watershed and Mexico.

Keywords: Instream flow, New Mexico, policy

Kevin Flaherty, Graduate, Humboldt State University. Email: knfl@sfsu.edu; *Understanding Housing needs in San Francisco*

San Francisco's Housing market has shown an unprecedented rise in value over the past fifteen years and this has not only contributed to a change in the structure of the housing market but also in the demography of the City as well. Though city planners have added provisions to the city plan aimed at providing more affordable housing to the general stock they have consistently approved much more housing termed "Market Rate" than they have "Affordable". The intent of this paper is to present how GIS analysis can be used to graphically depict the relationship between the price of housing and the community that lives in it.

Keywords: Affordability; Affordable Housing

Charles A. Flanagan, Ph.D., State of Louisiana. Email: cflan@cox.net; *Webs of Contingencies: Integrating Scales, Surfaces, and Networks in the Recovery Efforts Following Hurricanes Katrina and Rita*

This paper presents a conceptual framework to explore the complexities of the recovery efforts initiated in south Louisiana in the aftermath of Hurricanes Katrina and Rita. The scope and intricacies of the recovery efforts elude linear representations and create significant challenges for geographic information systems (GIS). I propose a conceptual framework that integrates geographic scales, numerous types of surfaces, and networks of institutions to elucidate contingent characteristics of disaster recovery efforts. Implementations of the recovery programs require the coordination and cooperation of a great number of institutions, both public and private, across local, state, and national scales. The complex interactions of these institutions, viewed as transactions between networks, have direct impact on the material conditions of the built environment in the hurricane impacted areas of the state. The existing material conditions on the ground (e.g., large swaths of destroyed, depopulated neighborhoods) as well the conditions envisioned in recovery plans and programs (e.g. reconstructed, repopulated neighborhoods) are viewed as surfaces. The conditions of these surfaces are discussed as the ongoing project of the transactions between networks across myriad scales. The conceptual framework is illustrated with examples drawn from my experiences of working directly on recovery efforts for over a year. The goal of this discussion is to explore the relationships between scales, surfaces and networks, in order to facilitate better coordination and cooperation among all stakeholders in the recovery efforts and, hopefully, to contribute to an equitable and sustainable recovery in south Louisiana.

Keywords: Hurricane Katrina, Hurricane Rita, disaster recovery, networks, GIS

Thomas S Flanagan, University of Denver. Email: tflanag4@du.edu; Sharolyn J Anderson, University of Denver. Email: sharolyn.anderson@du.edu; *Mapping Perceived Wilderness to Support Protected Areas Management in the San Juan National Forest, Colorado*

Wilderness can be defined in both political and popular terms. Political wildernesses are areas designated as such by a government and given a resultant protected status. Popular, or perceived wilderness is wilderness as defined in the mind of an individual. This research investigated the potential for maps of perceived wilderness created in a geographic information systems (GIS) environment to be used in the management of political wilderness and other protected areas. Using data gathered through a questionnaire survey of the wilderness preferences of recreational users of Colorado's San Juan National Forest (SJNF), we divided users into four "purism groups" that reflected the level of discrimination demonstrated by the user in personally defining the wilderness setting. For each purism group, we determined specific conditions considered by the group to be undesirable in the wilderness setting. In the GIS environment, we mapped the extent of perceived wilderness in the SJNF for each purism group using a method that excluded areas of the national forest demonstrating conditions considered by the group to be undesirable in the wilderness setting. We assessed the potential for maps of perceived wilderness to be used in the management of political wilderness and other protected areas by comparing the extent of perceived wilderness in the SJNF to the extent of political wilderness, inventoried roadless areas, and recreation opportunity spectrum class groupings in the national forest.

Keywords: geographic information science, wilderness, perceptual mapping, protected areas management

William Flatley, M.S., Texas A&M University. Email: flatley@tamu.edu; Carolyn A. Copenheaver, Ph.D., Virginia Polytechnic Institute and State University. Email: ccopenhe@vt.edu; *Successive Land Surveys as Indicators of Vegetation Change in an Agricultural Landscape*

The objective of this research was to identify the nature and timing of historical vegetation changes in a small agricultural watershed in order to better understand the underlying causes of these changes. A total of 304 land surveys were collected for a small agricultural watershed from early settlement in 1787 through to the present day. Types of witness corners were tallied and tested for shifts in frequency across time periods. Tree species were also classified by silvical characteristics including sprouting capability, shade tolerance, and seed type and these groupings were tested for shifts in frequency across time periods. Results showed significant shifts in white oak (*Quercus alba* L.), chestnut (*Castanea dentata* Marsh. Borkh.), chestnut oak (*Quercus prinus* Wild.), black oak (*Quercus velutina* Lam.), red oak (*Quercus rubra* L.), black locust (*Robinia pseudoacacia* L.), yellow poplar (*Liriodendron tulipifera* L.), and scarlet oak (*Quercus coccinea* Muenchh.). The central change was a steady decline in white oak, probably due to the absence of fire and changes in soil properties. Chestnut replaced white oak as the dominant species, but was removed by chestnut blight in the 1930's. Sprouting capability appeared to be the most important silvical characteristic across all species.

Keywords: Biogeography, witness trees, land surveys, historical ecology, Southern Appalachians

Jonathan Fleming, University of North Alabama. Email: jjpfleming@gmail.com; *Visualizing Yesterday's Maps with Today's Technology*

Topographic cognition is an essential skill for geographers and anyone interested in the outdoors. Contour lines presented on 2-dimensional paper maps are a traditional means for displaying topography. Digital data holds many advantages over paper maps because of the spatial analysis operations available in a GIS (line of sight, aspect, hillshade, etc). There are many instances where topographic data are not available in a digital format. This lack of digital data can eliminate access to spatial analysis operations for both computer aided cartography and GIS applications. There are many ways to preserve non-digital map data in a digital format, including basic scanning. Once this data is preserved digitally, it can be converted and attributed with elevation data which can then be interpolated into a Digital Elevation Model (DEM). DEM's hold an advantage over 2-dimensional contour maps because they can be represented in apparent 3-dimensions which is often easier to visualize and interpret for the untrained. This poster presents a case study involving the preservation and conversion of a pre-digital 1963 contour map. The area in consideration can no longer be surveyed because it has been impounded and is now a reservoir. This research focuses on ways to preserve the non-digital data, convert the non-digital contour lines to digital attributed vector data, and then interpolate the vector data into a Digital Elevation Model in order to improve the cognition of elevation.

Keywords: Topography, Cartography-Cognition, Elevation, Vectorization, Bathymetry, GIS, Digital Elevation Model

Steve Fletcher, Senior Lecturer in Coastal and Marine Affairs, Bournemouth University. Email: sfletcher@bournemouth.ac.uk; Stakeholder involvement in the process of converting science into policy: Perspectives from the European Marine Strategy Directive

Within the EU Marine Strategy Directive, stakeholder involvement is a continuing theme, particularly with regard to the establishment, implementation and updating of national and regional Marine Strategies. The Directive also asserts the requirement for a sound knowledge base to inform and underpin national and regional Marine Strategies. The conversion of science to policy through a stakeholder process is therefore likely to present challenges to member states and competent authorities. The poor management of a stakeholder process risks the formulation of poor policy, not due to scientific inadequacies, but through incomplete stakeholder understanding of, or flawed treatment of, scientific inputs. It is therefore important that the conversion process is managed with regard to the stakeholder profile and the complexity and tractability of the issues under debate. Additional important considerations for those leading the science to policy conversion process include: the recruitment of accountable and genuinely representative stakeholders; the motivation of stakeholders to engage in a learning process; the provision of scientific information to stakeholders that is comprehensive and comprehensible; the operation of a policy-making process that is fair to all participants; and, that all stakeholders have a demonstrable influence on the creation of policy. It is concluded that the manner in which the participatory process is organised and operated can influence policy outcomes; as such participatory processes will require careful and sensitive management to ensure they produce credible, supported, and scientifically grounded policy.

Keywords: Stakeholder, Science, Policy, EU Marine Strategy Directive

Tom Fletcher, Bishop's University. Email: tom.fletcher@ubishops.ca; From Conservation to Reform Environmentalism: Memphremagog Conservation

Memphremagog Conservation, Inc. (MCI) is one of the oldest watershed groups in Quebec. This paper examines its history in the context of North American environmentalism, based on the group's archived files and the author's recent work with them. MCI formed in 1967 in response to problems with algal blooms due to nutrient loadings from two small cities, several villages and extensive farming. Its earliest efforts involved inspections and improvements of septic tanks of waterside cottages and the development of a code of ethics for the lake's users. Upon reaching its 20th year, MCI had recently fought and won a dramatic fight against a U.S. Department of Energy plan to bury nuclear waste on the Vermont side of the watershed. The group's most recent campaign, Operation Healthy Lake, involves water and sediment testing as a tool to inform watershed land-use management decisions, some of which are quite controversial; a recent provincial government plan to approve a condo development in a protected area is one of the more notable examples. This progression of MCI's priorities shares many similarities with the development of North American environmentalism more generally. Moreover, small local and regional groups like MCI are changing as larger environmental groups move from their history of voluntarism to a heavy reliance on paid professionals. The combined effect of these changes is that MCI has transformed from a relatively apolitical conservation group that espoused a kind of Leopold land ethic to a highly political advocate of reform environmentalism.

Keywords: Conservation, Environmentalism, Environmental Politics

Sebastien Fleuret, CNRS-France. Email: sebastien.fleuret@univ-angers.fr; Re-engeniering of local health systems : networks and new spaces

This presentation aims to demonstrate that new organizations of care and social services deliveries (especially the development of coordinations and networks) leads to define new spaces. We studied samples of re-engeniering of health system in France and in Quebec. Both are moving towards more integration of delivery of care. In Quebec, 95 territories were created with a leading structure : the center for health and social services. This structure is responsible for bringing all the providers of services into a network and for giving to the population the guarantee of continuity and quality of care. It results in a new geography of health at the local scale. In France, continuity and quality of care are also used as arguments to justify changes in the organization of the system. But since the delivery of services is more compartmentalized (between different administrations and at different scales), it is impossible to create new spaces of health globally like in Quebec. Despite this difficulty, we can observe a similar trend to a redefinition of the geography of care and social services based on specific issues : aging, disabilities, emergency, specific diseases, ? This presentation shows that despite strong local differences, a cross-country study reveals similarities in the creation of new spaces in health.

Keywords: Health care, delivery, services, networks, France, Quebec

E. Spencer Fleury, MA, University of South Florida. Email: spencer.fleury@gmail.com; Toward a Framework for Karst-Aware Land Use Regulation

Many jurisdictions in the United States have implemented land use regulations that attempt to mitigate the impacts of development and urbanization on karst. However, the techniques used to do this vary widely from place to place. This is at least partially related to the fact that there are no universally-accepted guidelines for developing land use regulations that explicitly account for the nature of karst terrains. This presentation will describe my efforts toward developing a flexible and effective framework for writing and developing karst-aware land use regulations. The framework is based on surveys of land use professionals in karst-prone areas, analysis of zoning and land use ordinances and of protected area management plans, and on quantitative analysis of the impacts of selected existing karst-related regulations. Ultimately, the goal is to create a land-use regulatory framework that can be effectively applied in virtually any karst region.

Keywords: karst, land use, urbanization

Colin Flint, University of Illinois. Email: flint@uiuc.edu; Adolf Hitler and the Construction of Family Values in US Geopolitical Discourse

Michael Walzer's writing on Just War includes a discussion of when it is moral to conduct immoral acts in warfare. Walzer introduces the concept of "emergency ethics" in which the circumstances and consequences are so dire that immoral acts, such as the bombing of civilian targets, are justifiable. Walzer's discussion focuses upon the British bombing campaign against Germany in face of a Nazi invasion. But what of today? The US invasion of Iraq rested upon arguments that were, at best, at the margins of just war theory. And yet there is a geopolitical need to represent the war as just. This paper explores the sense of "emergency ethics" within US geopolitical rhetoric - noting the frequent use of modern day "Hitlers" Hussein and bin Laden ? and connects it to the construction of a threat to an idealized description of the "American family". The use of threats to the family as justifying military action is traced to the Korean War and is contrasted with the frequent references to "domestic" situations in letters from US and British servicemen to their family and loved ones.

Keywords: Political Geography, Geopolitics, Just War, Korean War

Jennifer L. Fluri, Dartmouth College. Email: jennifer.fluri@dartmouth.edu; "We Benefit from Supporters Like You": Addressing Academic Rigor through Activist Research

This paper will explore the role of activism and agency in conducting fieldwork with/on an organization one is both studying and supporting. The political, economic, and social support for an organization can and does at times compromise the researcher's position, ability and/or capacity to examine and analyze the organization both subjectively and objectively. Conversely, providing support to an organization one is researching can also present unique insights to the operational structure of the group and its involvement with (and limits to) individuals outside the nucleus of the organization. By focusing on my case study and fieldwork with The Revolutionary Association of the Women of Afghanistan's (RAWA) and its international supporters "network", I discuss the opportunities, challenges, and pitfalls of engaging in activist support in tandem with academic research. This article will further problematize the politics of activist research and the ethical and methodological issues associated with social, economic, and political support for groups that are also academically analyzed and represented through research publications and teaching.

Keywords: Activism, Academy, Afghanistan, Gender, Feminism, Academic Rigor

Steven Flusty, York University. Email: sflusty@yorku.ca; Bunkers and the Mirrorhouses: The Resurgence of the Imperial Metropole

Nearly a century ago, Patrick Geddes identified world cities as centers of far-reaching political, economic and cultural control. While much research has since elaborated upon this broad introductory definition, it has also tended to neglect Geddes' emphasis upon politics and governance by subordinating it to the logistics and localization of corporate capital. In the process, the imperial context within which the idea of world cities first evolved has been tacitly disappeared, leaving us increasingly well able to locate the market's invisible hand but ill-equipped to similarly place its indispensable iron glove. While the past century has witnessed some spatial disaggregation of the world city's political and financial control functions, world cities of political power, of coercive force, even of imperial domination are not only alive and well but, since the beginning of this century, increasing in prominence. In this presentation, excursions through two cities in particular - Washington D.C. and Brussels ? will serve to reveal the resurgence of the imperial world city. Despite the stark contrasts between Washington, D.C.'s landscape of concrete opacity and the multiply glazed transparency of Brussels' European Quarter, both cities' streetscapes are suffused with expressions of geopolitical triumphalism. These in turn bear heavy implications for everything

from Guyanese spaceports to Soviet-surplus prisons in Eastern European and, in so doing, testify to both cities' capacity for the production and projection of regulatory, diplomatic, ideological and military might.

Keywords: world cities, imperialism, geopolitics, globalization

John J. Flynn, College Of St Catherine. Email: jfflynn@stkate.edu; "Beauty All Around Me": Artistic Impressions of Three Special Places in the Navajo Country

The Navajo Nation, in the American Southwest's Four Corners region, is full of places of meaning to the Dine' or Navajo; mountains, mesas and many other natural features have been invested with sacred status and incorporated into a worldview. Numerous features in the region also have significance and appeal to other people, including to artists and writers. This presentation is a focus on three special, and to some sacred, places: Monument Valley, Canyon de Chelly and Shiprock, as they have been represented in painting, photography, literature and other arts by both Navajo and non-Native people.

Keywords: arts, Navajo, cultural geography

Randall Edward Flynn, MA, National Geospatial-Intelligence Agency. Email: Randall.E.Flynn@nga.mil; Political Geography and Cultural Intelligence Analysis at the National Geospatial-Intelligence Agency

The United States and Allied Intelligence and Defense Communities have relied on space-borne and remote sensing assets to produce predictive assessments of adversarial actions. Why should studies of other cultures and societies interest military geographers and intelligence analysts today? This presentation will overview the National Geospatial-Intelligence Agency's (NGA) Political Geography program and mission. It will highlight NGA's work in producing thematic geospatial products, the agency's efforts in maintaining the Geographic Names Data Base, collaborative work with the U.S. Department of State to develop boundary analysis methodologies, and initiatives to collect ethnological data resulting in the ability to combine a technological explication of a region within a cultural geographic context. "Cultural Intelligence" is an underrepresented and underutilized discipline. We define it as the collection, analysis and application of ethnographic data that will yield insight into the thought process and value system of a given group, allowing for prediction of their behavior. The largest consumer of cultural intelligence is the war-fighter, whose mission success depends on familiarity with the society in which they are deployed. Because there is no national resource for cultural intelligence, war-fighters are forced to become collectors, interpreters, analysts and disseminators of this data. Polling users and producers of cultural intelligence in the United States, we identified gaps in the Intelligence Community's approach to this field. The Intelligence Community requires a methodology to prepare geospatial context for analysis of the geography of cultural intelligence. NGA analysts are applying their unique skills in new ways to address these gaps.

Keywords: boundaries-political; toponymy; intelligence-cultural

William Flynn, Oklahoma State University. Email: william.flynn@okstate.edu; Note Worthy: The Geography of Smooth Jazz

This paper explores the geography of contemporary jazz, a subgenre that coalesced out of a variety of musical influences in 1980s coastal California and has long been associated with this region serving as its core. Much research in music geography to date is based on song lyrics and since smooth jazz is primarily an instrumental form, this paper fulfills two purposes, as it (1) examines different approaches to studying music geography and (2) it covers a musical style that has not yet received scholarly attention. The paper will also highlight the long-running Catalina Island Jazz festival, examine the link between contemporary jazz and viticulture, and discuss how "fusion" has recently turned into diffusion.

Keywords: Music Geography, Jazz

William Flynn, Oklahoma State University. Email: william.flynn@okstate.edu; Allen Finchum, PhD, Oklahoma State University. Email: allen.finchum@okstate.edu; Temporal Comparison of Geography Faculty Migration and Hiring Patterns: 1991 and 2006

This presentation will discuss the results of a continuing study of Geography Faculty migration and hiring patterns based on datasets compiled from the 1990-91 and 2005-06 AAG Guidebooks. Patterns of faculty migration from PhD granting institution to academic job setting are analyzed and discussed to determine if trends in faculty migration exist or are changing as the discipline and the academy moves well into the 21st Century. Also, Hiring trends of institutions based on size and program complexity in relation to the hiring of PhD candidates from various locations are also reviewed. The purpose of the research is to aid in determining if patterns of faculty migration and institutional hiring practices exist within the community of geography faculty and the various types of departments that hire such individuals. It is believed that distinct regional variations exist in such patterns, and the intention of this portion of the research project is to better understand how these patterns might have changed in the past

15 years. This period was chosen as it represents approximately one-half of the normal academic career, and a significant turnover in faculty should be present between the periods selected for review, although some overlap in faculty placement will also be present.

Keywords: Geography Faculty, Migration, Higher Education

Matthew Fockler, University of Nevada. Email: mattfockler@sbcglobal.net; Thicker Than Blood: Water, Irrigation and the Truckee Meadows

In the early 1850s, white settlement of the Truckee Meadows, in what would be known eventually as Nevada, was far from a forgone conclusion. Early settlers, hay-cutters and trading post operators mostly, encountered alkali hills, swamp filled lowlands, and a river that was prone to flood. Early settlers attempted to mediate these conditions by draining off the swamps through ditching. With the boom of the Comstock a market for feed created a rush for irrigable land in the Truckee Meadows. Irrigation became a tool to make the Meadows bloom. The story of who actually dug the first ditch in the Truckee Meadows is lost to history. We do not know the name of the man who first took a shovel full of damp river mud and rock and slung them aside, again and again. What we do know is that, in the early days of the Truckee Meadows, as the Comstock boomed and fortunes were made, men in the Truckee Meadows decided to shape the land in a way that would allow them to provide for themselves. Irrigation in the Truckee Meadows would outlive the Comstock. Today, irrigation ditches spread across the landscape and fuel, not just agriculture, but industry and suburban development. This study looks at the role of irrigation ditches in the cultural and physical development of the Truckee Meadows through five cartographic representations of water, irrigation, and its uses in the Truckee Meadows.

Keywords: historical geography, water, irrigation, cartographic representation, GIS

Niels Fold, Department of Geography, University of Copenhagen. Email: nf@geogr.ku.dk; Getting to grips with pickers, farmers and labourers: Transnational capital in Ghana's perennial export crop sectors

Rural transformation in African economies has been spurred by the removal of state monopolies, including the replacement of pan-seasonal and pan-territorial prices with 'market' prices. Transnational capital now firmly controls access to global markets while local capital is mostly relegated to serve different 'comprador' functions. Export crop production is still dominated by smallholders although some export crops are more suitable for wage labour or - at the other end of the spectrum - simple commodity production based on picking and gathering activities. This traditional set of actors - while not forgetting the changed power relations between them - has been supplemented by NGOs who increasingly act as mediators of money, commodity and information flows. This paper examines differences and similarities in the sectoral practices of transnational capital in Ghana's dominant perennial export crop sectors (cocoa, shea nuts, palm oil, pineapples). It is argued that different transnational practices and functional roles of local capital and NGOs are structured by variations in the 'nature' of the crop (perishability, transportability, pre-shipment processing, etc.), different institutional settings (variations in contractual relations with producers) and distinctive forms of 'civic global governance' (campaigns and consumer preferences in (Northern) markets). Despite notable inter-sectoral differences, the general tendency is an increasing spatial dichotomisation in 'involved' and 'marginalised' rural regions with increasing social differentiation taking place in the former. However, acknowledging the variety in practices and functional roles as constitutive elements of broader rural transformation processes may (potentially) result in more resilient regional and social policies.

Keywords: transnational (agro-food) capital, perennial crops, Ghana

Ronan Foley, NUI Maynooth, Ireland. Email: ronan.foley@nuim.ie; Equitable Access to Carer's Services: Mapping the Geographies of Informal Care in Ireland.

Carers have become important providers of social care in Ireland. Within the developing areas of geographies of care and voluntarism (Milligan & Conradson, 2006), there are ongoing debates about the relative importance of place and locality in the equitable provision of services. Such debates are particularly relevant to informal carers, and this study will examine whether there are any equity issues associated with the provision of services to carers within Ireland (Power, 2005). Census data on informal carers was first collected in Ireland in 2002 and the research initially mapped the distribution of carers in Ireland at a variety of spatial scales. Those distributions were then analysed against relevant census variables to establish whether any causal relationships could be identified. The location of carer's services nationally was also mapped from a national database. The underlying thesis was that there was likely to be spatial inequity between carers and service locations. The results suggested that some spatial inequities exist in Ireland and that rural/urban variations account for

much of the equity gap between need (carer geography) and access/provision (service geography). There was little evidence of clear relationships with a number of expected explanatory variables, i.e. deprivation and family formation at an area level. At a regional scale, clear differences emerged in service provision as measured through 'location quotients'. Surprisingly the expected findings in relation to service-rich urban provision and service-poor rural provision were unclear. Potential explanations were related to historic patterns of provision, income and the underlying demographic distributions of elderly residents.

Keywords: Informal Care, Access, Services, Access

Jadah Folliott, M.A., The University of Western Ontario. Email: jfolliott@uwo.ca; Micha Pazner, Ph.D., The University of Western Ontario. Email: pazner@uwo.ca; *Wildfire Scar Pattern Interpretation*

Since the 1980s large wildfire activity has been increasing. Based on a global warming trend, the impacts of climate change may include more frequent and severe fires, shorter growth periods between fires, and a decrease in the carbon storage of forests. Satellite imagery and GIS have been used in past studies to observe the effects and extents of fire regimes. This study will develop new pattern analysis and visualization methods, custom tailored to wildfire scars. The objective of this study is to become familiar with the data, problems, and study area of our broader research plan. Initial image interpretation of wildfire scar patterns in Canada's Boreal Forest will be undertaken using Landsat GeoCover, topographic maps, and ancillary data (e.g., fire-related and other forest disturbance information). The following research questions will be addressed: 1) How can wildfire scars be distinguished from other forest disturbances? 2) Can these disturbances be used to identify wildfire scars through elimination? 3) Can fresh burns be distinguished from older burns (e.g., scars that are weeks versus months old, or scars from different wildfire seasons)? 4) Can older fires be classified by regeneration stages? 5) Can soil and impervious surfaces be used as indirect indicators in wildfire scar pattern analysis? These questions will be addressed using digital image enhancement and manual image interpretation. It is expected that the results of this study will guide the next stage of our research.

Keywords: Global warming, climate change, wildfires, Boreal Forest, remote sensing

Gail A. Fondahl, Univ Of Northern British Columbia. Email: fondahlg@unbc.ca; *The 'Ecological Path' and the 'Tree of Memory': Challenging Place Annihilation through Landscape Performance in Southeastern Siberia*

Indigenous peoples in Siberia have endured a turbulent post-Soviet period of economic and political reforms that have radically changed the political, economic and social landscapes of their homelands. If legal rights to land have notably improved notably (at least on paper), standards of living have markedly deteriorated, compelling many indigenous families to re-assume the subsistence livelihood strategies of their ancestors. Meanwhile, resource development is reducing the land available for pursuing subsistence activities in many areas, while the inter-generational transmission of knowledge regarding such activities has been disrupted by compulsory schooling and sedentarization. This presentation explores how the indigenous Evenki at the north end of Lake Baikal are resisting place-annihilation caused by both the direct actions of resource development and the indirect effects of the decline of indigenous place-based knowledge, by the production of landscape elements that assert and educate about Evenki place-based identity. Through performing a landscape of an 'Ecological Path' and a 'Tree of Memory,' for both Evenki youth and visitors from afar, Evenki elders manipulate memories of indigenous pasts (pre-Soviet and Soviet), communicate place-based cultural teachings and celebrate Evenki survival and renewal in the face of continued threats of place-annihilation.

Keywords: Indigenous, Siberia, resistance, revival, place-based identity

Mark Alan Fonstad, Texas State University, San Marcos. Email: mfonstad@txstate.edu; *The Three-Dimensional River Environment: Tests of Classical Hydraulic Geometry Predictions using Remote Sensing Approaches along the Brazos River, USA*

Large rivers in semi-arid and mild mid-latitude areas often are wide, shallow, and produce physical habitats of great complexity. Policy and scientific decisions regarding management of these rivers require measurement techniques that can handle the high geodiversity and that are simple, straightforward, and can use existing geographical data. The Brazos River is a 500 km long clearwater river that has its headwaters in the eastern New Mexico and flows across Texas into the Gulf of Mexico. In clearwater rivers such as the Brazos, some light often reaches the riverbed and returns to the surface, providing optical information about different components of the physical habitat structure. The HAB-2 transform allows the estimation of river depth at each image pixel, and separation of the depth effect from the remaining image information. This remaining spectral information can be correlated with suspended sediment concentrations, bottom albedo, and water surface geometry. The widespread

availability of CIR digital orthophotoquads across much of the United States allows the use of HAB approaches to extract three dimensional data for large area riverscapes. In so doing, they allow the testing of classical models of fluvial forms and large-area processes. The classical theory of the downstream hydraulic geometry, for example, postulates power relationships between a rivers upstream drainage area and its width, depth, and velocity. Calibrated high-resolution imagery shows systematic deviations from the classic theory as well as a level of randomness at most scales that support's Phillips's theory of multiple modes of adjustment in fluvial systems.

Keywords: geomorphology, remote sensing, sediment transport, Brazos River

Joseph F Fontanella, COL, USA (Ret.), Deputy Director, USAERDC-TEC, U.S. Army Corps of Engineers, Topographic Engineering Center. Email: joseph.f.fontanella@erdc.usace.army.mil; *Military and Applied Geography at the U.S. Army Topographic Engineering Center*

AAG invited executive speaker and geographer, Colonel Joseph F. Fontanella (USA Retired), Deputy Director of the U.S. Army's Topographic Engineering Center (TEC), helps geographers understand opportunities in military and applied geography across the various geographic specialty domains. Geographers and other geospatial scientists form the core of the intellectual capital found at TEC. The presentation prepares the audience for a follow-on discussions session on opportunities within the center, its partner organizations, and its contractors. The presentation addresses the center's mission, how it fits into the Corps of Engineers and the Army, and how TEC uses it geographers. The presentation concludes with an overview of the geographic problems that TEC faces as an enterprise. The presentation covers information about enterprise settings relevant to those considering employment in either applied or military geography as well as for academics preparing students for applied careers in any geographic workforce found in the knowledge economy.

Keywords: military geography, applied geography, topographic engineering

Kenneth E. Foote, University of Colorado at Boulder. Email: k.foote@colorado.edu; *Time Management for Early Career Faculty*

This paper focuses on the difficult, often conflicting choices early career faculty face in balancing the time they invest in research, teaching, and service. The paper reviews research findings relating to time management, research & teaching productivity, procrastination, and stress and suggests strategies for addressing key concerns often expressed by early career faculty about the stresses they face as they begin their careers. Two activities are included in the chapter for use in professional development seminars or workshops.

Keywords: early-career faculty, EDGE, professional development, time management

Margaret D. Foraker, Salisbury University. Email: mdforaker@salisbury.edu; *Labor and Amenity Migration to the Delmarva Peninsula*

This paper examines the relationship between amenity/destination migration and labor migration to the Delmarva Peninsula. The Delmarva Peninsula is a region undergoing rapid change largely as a result of population growth (net migration) and urban development pressures from megalopolis. In addition to its relative location, Delmarva's rural landscape, environmental amenities, and resort/recreation attractions are fueling amenity and retirement migration. As business, housing, and infrastructural growth boom to meet rising demand, traditional rural industries on the peninsula such as chicken processing are necessarily reacting with a more competitive labor strategy. Within the context of the low wage labor margins of resort/retirement/retail development and chicken processing, Delmarva serves as a prime location for exploring the connections, dependencies, and confusions of supportive migration streams. Analysis of 1990 and 2000 census data is used to establish a context of economic and social re-composition on the peninsula and to explore both linkages and segregation among dual migration streams.

Keywords: Delmarva Peninsula, labor, amenity migration

William Forbes, Stephen F. Austin State University. Email: forbesw@sfasu.edu; *Perceptions of Conservation and Development in Southeastern Peru*

This presentation summarizes a proposal to survey social perceptions of conservation and development issues in southeastern Peru. Renowned conservationist Aldo Leopold featured Peru's Rio Madre de Dios in a 1924 essay about declining global wilderness. Today the region is known for some of the highest biodiversity on the planet. The proposed research would compare western attitudes on conservation, exemplified by Leopold's land ethic, with attitudes of a variety of local groups on nature, poverty alleviation, and economic development. National parks, indigenous groups, and the proposed trans-Amazon

highway are of particular interest.

Keywords: Peru, land ethic, development

James Ford, PhD, Dept. of Geography, McGill University. Email: james.ford@mcgill.ca; Gita Laidler, Dept. of Geography, University of Toronto. Email: gita.laidler@utoronto.ca; Bill Gough, Dept. of Geography, University of Toronto. Email: gough@utsc.utoronto.ca; Theo Ikkummaq, Hamlet of Igloolik. Email: ; *Vulnerability to sea-ice change in Arctic Canada*

This paper characterizes vulnerability to sea-ice change in Igloolik, Nunavut. Using the vulnerability framework of Ford and Smit (2004), we conducted 64 semi-structured interviews between 2004-2005, and focus groups in 2006. These methods were used to: identify the nature of sea ice use among Igloolik Inuit, characterize how risks associated with sea ice use are managed, and analyze those characteristics of the community that enable or constrain this ability. The research demonstrates that Inuit in Igloolik have been highly adaptable in the face of changing sea ice conditions. However, societal change, and more recently climate change, have increased the susceptibility of people to sea ice risks and have resulted in the emergence of vulnerable groups within the community. To assess vulnerability to future sea ice change we used downscaled climate change scenarios and sea ice modeling to estimate directional changes in community-identified sea ice risks. The models predict significant changes in sea ice conditions including later ice freeze-up and earlier break-up, more dynamic ice conditions, and thinner ice in the Igloolik region. We conducted focus groups in fall 2006, and analyzed past experience and response to sea ice variability and extremes, to assess what these projections mean for sea ice use and to identify future adaptation options, constraints, and opportunities. The research indicates continued importance of traditional coping mechanisms in light of climate change. The ability to draw on these coping mechanisms, however, will be unequal: young Inuit and those without access to economic resources, in particular, are vulnerable.

Keywords: Climate change, vulnerability, Inuit, sea-ice, natural hazards

Pip Forer, P.h.d., SGGES, University of Auckland, New Zealand. Email: pipf@clear.net.nz; *Activities, options and spaces in individual lifelines*

This paper is concerned with the dynamics of the contexts in which individuals make decisions about future activities subject to constraints on information, mobility and time. It explores the nature of forward planning and the way in which opportunities may be recognised, adopted or ignored within planning horizons which act at different temporal and spatial scales. Using both urban and regional examples it discusses the links between spatial knowledge, mobile technologies and decision making and identifies ways to represent the ongoing pattern of individual opportunity.

Keywords: time geography, spatial decision making, activity patterns

Patrick Forest, Université Laval. Email: patrick.forest.1@ulaval.ca; Marie-Josée Verreault, Université Laval. Email: marie-josée.verreault.1@ulaval.ca; *Spatial encroachment on public land: Assessing geo-legal strategies in Grands-Jardins National Park, Québec, Canada*

Since the 1980's, the province of Québec has established many national parks in order to protect natural landscapes of interest. One of these parks, Grands-Jardins National Park, is contiguous to public lands under commercial forest management. According to the current law enforcement, lumber companies can log wood on public lands through timber supply and forest management agreements. In this particular forest zone, the recently modified regulation provides that cutting areas are to be dispersed throughout the landscape, while being interspersed of residual forests. To mitigate the impact of this regulation upon the annual cutting allowance, a lumber company was allowed to take into account some parts of the Grands-Jardins National Park territory in the calculation of the residual forest blocks. Relying on the literature in legal geography (Blomley and al. 2001, Holder and Harrison 2003, Manderson 2005), the objective of our empirical research is twofold. Firstly, it aims at acquiring a better understanding of the concepts of encroachment (Blomley 2005), of territoriality (Raffestin 1980, Sack 1986, Johnston 2001), and of territorial jurisdiction (Ford 1999, Vandergeest and Peluso 1995, 2001). Secondly, we want to assess and highlight the use of geo-legal strategies by private lumber companies and governmental departments. We demonstrate that both the interpretation of the law and the territorial dynamics drive these changes.

Keywords: legal geography, territoriality, forest, law interpretation, environment

Philippe Foret, Dr., Swiss Federal Institute of Technology, Zurich (ETHZ). Email: pforet@bluewin.ch; *Chinese borderlands: Mapping race, land and climate at Kara Khoto*

This paper on the historical geography of the Heihe river delta (in Inner Mongolia) will analyze the role that cartography can assume in border studies. Chinese and Japanese geographers have extensively studied Kara Khoto (or Heicheng), a Mongolian Silk Road city that European scholars first surveyed in the 1920s and 1930s. I am interested in the mapping conducted then of the cultural and ecological borders that used to separate pre-modern nomad from peasant societies. I will therefore examine the textual and pictorial records collected by the geologists, geographers, and archaeologists who directed topographical expeditions in the Chinese borderlands. This would feed a discussion on the significance that between the two world wars this marginal region took for the understanding of climate change and the interpretation of long-term interactions between civilization and barbarism.

Keywords: History of geography, history of cartography, Chinese studies, border studies, environmental history

Jennifer Forkes, University of Toronto. Email: j.forkes@utoronto.ca; *Measurements of the foodshed: Size, Shape and Structure.*

Beginning with Getz (1991) and Kloppenburg et al (1996), the concept of the foodshed has encouraged critical thought about where our food comes from and the environmental burden it brings with it. In this paper, I argue that in order to move towards innovative policy and action, a set of indicators is needed to measure the broad array of environmental impacts arising from the current operation of urban food systems. Additionally, I emphasize that a holistic approach to understanding the foodshed must incorporate a consideration of the amount and destination of food wastes, and must advocate for a re-use of embodied nutrients and energy. Using Toronto, Canada as an example, I illustrate four environmental indicators for an urban foodshed: the food-mile (the distance food and food waste travel, a measure of the radius of the foodshed); the food-print (the area required to produce and disposed of food and wastes); the food-emission (the amount of greenhouse gases produced as part of transportation and waste disposal); and the food-cycle (the degree to which food wastes are re-used in food or other urban systems). The indicators are used to link theory to practice through an evaluation of the impact of three municipal food system policies on the environmental sustainability of the urban food system. The paper concludes by highlighting the need for increased data collection and coordination at the scale of the urban foodshed.

Keywords: food systems, nutrient cycling, indicators, organic wastes

David E. Fornander, PhD Candidate, University of Arizona. Email: dfornand@email.arizona.edu; *Fish, Floatboats and Feds: "Directions and disparities in policy surrounding the Endangered Species Act and listed Snake River Chinook salmon on the Sawtooth National Recreation Area."*

Since the mid 1900s and coinciding with the initial damming of the Columbia River watershed, wild salmon and steelhead stocks in the Pacific Northwest have declined at an alarming rate. Current governmental policy and discourse have indirectly placed much of the burden for conserving this regional icon upon local communities, yet how much affect and power they actually have upon salmon recovery is a topic of much debate. Using endangered Snake River Chinook salmon in the Sawtooth National Recreation Area (SNRA) as a case study, this work addresses how current patterns of commercial floatboat use are directed by policy and the role this alternative livelihood strategy may play in the reproductive fitness and long-term survival of the few remaining wild salmon and steelhead in the region. A collaborative project involving individuals at the state, local and federal level, this research critically examines the use of the Endangered Species Act (ESA) of 1973 as a protective tool, and more importantly the potential disparities associated with its enforcement and regulation. By examining management and regulation surrounding shifting land use strategies such as ecotourism, this work will better equip environmental managers and policy makers to provide alternatives strategies for protecting areas of concern for threatened fish and wildlife.

Keywords: Salmon, environmental policy, conservation, land management, and ecotourism.

James Forrest, PhD, Macquarie University. Email: jim.forrest@mq.edu.au; *The Trouble with Segregation Indices: Towards resolving the existing 'state of theoretical and methodological disarray'*

The study of the spatial segregation of ethnic groups in urban areas has long suffered from the plethora of measurement techniques, both spatial and aspatial. The lack of agreement 'about which measure is best to use and under what circumstances' acts to limit our understanding of what is actually happening across urban systems at both the national and international level. This is especially so in increasingly complex, multicultural societies in an age of widespread international migration. The value of threshold analysis as a means of

moving beyond the present impasse is demonstrated in the case of school segregation in a British urban context.

Keywords: segregation indices, threshold analysis, school segregation

Gunnel Forsberg, Stockholm University. Email: gunnel.forsberg@humangeo.su.se; Susanne Stenbacka, Uppsala University. Email: susanne.stenbacka@kultgeog.uu.se; *Creating Gendered Ruralities - Cases from Sweden.*

With the point of departure taken in local studies in three Swedish regions, this paper will critically analyse negotiations of rural gender contracts. These negotiations result in three different strategies concerning the gendering of everyday practices. Adopting as a way of taking part in mainstream restructuring of gender contracts or holding on to traditions while meeting new societal demands. Challenging can be done in public or in private and implies that gendered ruralities are challenged, for example in the labour market or in everyday relations. Re-treating implies a passive strategy with a defensive attitude towards society activities. We attempt to show how the spatial formation of gender is working through peoples' experiences, coloured by representations of the rural. The constructed rurality is built on a collective memory and a common conception of what the rural should be like. The gendered representations are stitched to people according to their given spatial urban or rural label. These labels become parts of a person's identity and affect the practising of masculinities and femininities. Two regions can be characterised as peripheral; one forest based region on the border between Sweden and Norway and one in the sparsely populated Northern/Arctic region on the border between Sweden and Finland, and a third more centrally located metropolitan region. Empirical findings are based on in-depth interviews.

Keywords: gender, ruralities, social geography, Sweden

Richard L. Forstall, Independent Scholar. Email: mzwa85a@erols.com; Richard P. Greene, Northern Illinois University. Email: rgreene@niu.edu; James B. Pick, University of Redlands. Email: James_Pick@redlands.edu; *The World's Largest Cities? Why So Little Consensus?*

Lists of the world's most populous urban areas are surprisingly inconsistent across standard reference sources. These even disagree in identifying the world's largest city. We first review the differences found in lists of the twenty largest areas, according to several unofficial sources and the United Nations. We show that these variations in populations and rankings stem primarily from differences in concepts and definitions, not from bad census counts or lack of basic information about the individual urban areas. As specific examples, maps and statistical data for Tokyo, Mexico City, Los Angeles, and Beijing elucidate the administrative areas and statistical definitions in use for each of these urban areas, and illustrate how the varying definitions yield different totals of population and extent. We conclude by comparing the UN's list of largest urban agglomerations with a list of the largest metropolitan areas defined using consistent criteria so far as possible.

Keywords: metropolitan areas, definition, Tokyo, Mexico City, Los Angeles, Beijing

Elizabeth M Forsyth, UCLA Undergraduate. Email: readehorn@yahoo.com; *Influence of Religion on Midwestern Agriculture*

This paper examines how the Midwest has used religion to help shape the family farm and the influence religion has had on agricultural practices in the region. Population maps and ratios, combined with historical evidence on the foundations and practices of the Midwestern family farm, are used to help determine religious influence on agriculture. The region's Lutheran/Catholic divide serves as a mirror of the greater American religious landscape of Protestant/Catholic divisions. Examining these divisions in agricultural communities can help our understanding of the impact religion can have in everyday life, both within agricultural communities and for urban consumption that agriculture supports. This impact is becoming increasingly relevant as people begin to question the roles industrial agricultural and genetic engineering, increasingly the Midwestern norm, play in communities.

Keywords: midwest, religion, genetic engineering, family farms, industrial agriculture, midwestern agriculture, catholicism, lutherans

Joseph Fortier, Clark University. Email: jfortier@clarku.edu; *A comparison of Machine Learning Algorithms: The Effects of Classification Scheme Detail on Map Accuracy*

Remote sensing research has benefited greatly from the introduction of machine learning algorithms to land-use/ land-cover mapping. However with an increased number of classification algorithms now readily available to remote sensing practitioners, knowing which algorithm is most appropriate for a given project can be difficult because different methods interact with input data in different ways. Previous studies have compared machine learning algorithms to

assess their impact on land-cover map accuracy but little is published about the effect of categorical detail on classification accuracies. In this study Landsat-7 ETM+ and environmental GIS data are combined to compare the maps generated by a Classification Tree Algorithm, Fuzzy ARTMAP, Self Organizing Feature Map, and a Back-Propagation neural network, at multiple levels of aggregation, over a subset of Massachusetts, USA. The results of this study demonstrate that while simple levels of categorical aggregation (e.g., 6-8 land-cover classes) have little impact on algorithm performance, increased categorical detail (e.g., 15-22 land-cover classes) leads to multiple sources of commission and omission error throughout the study area.

Keywords: Massachusetts, land-cover mapping, machine learning algorithms, classification scheme, classifier accuracy

Eugene A Fosnight, SAIC contractor for USGS EROS. Email: fosnight@usgs.gov; Gary N Geller, Jet Propulsion Laboratory, California Institute of Technology. Email: Gary.N.Geller@jpl.nasa.gov; *TerraLook: Satellite Imagery for a Changing World*

Science writers, field scientists, resource managers, educators, students, policy makers, and the general public are all interested in using satellite images of the Earth. However, many are prevented from using these images by arcane data formats, specialized analysis systems, or the expert knowledge needed to use most remote sensing products. With the TerraLook product, we seek to expand and broaden the remote sensing user community by providing user-selectable collections of satellite images, which are distributed as simulated natural color JPEG images that are easy to acquire and use. The TerraLook collection consists of georegistered Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) images and orthorectified Landsat images from three epochs (circa 1975, 1990, and 2000). TerraLook is a no-cost product available from the USGS Center for Earth Resources Observation & Science (EROS) (<http://eros.usgs.gov/>). TerraLook builds on the success of the NASA Jet Propulsion Laboratory's Protected Area Archive project (<http://asterweb.jpl.nasa.gov/paa.asp>). The TerraLook's simulated natural color JPEG images have many benefits. JPEG images are compressed, which make them quick to download and display. Simulated natural color images are easily grasped by a wide range of users. The algorithm used to process TerraLook images permits the creation of a consistent time series from the earliest Landsat satellite sensor to existing land imaging sensors. The TerraLook product is GIS-ready, but more importantly, TerraLook images can be viewed in any software that can display JPEG images. An easy to use TerraLook viewer is also available to view, compare, and annotate TerraLook images.

Keywords: remote sensing, simulated natural color, time series

Jennifer Foster, York University. Email: jfoster@yorku.ca; *Constructing landscape continuity, producing social order*

Convergence around ecological concepts like landscape continuity suggests certain degrees of consolidation of ecological ideals that extend beyond the science of ecology into postcolonial landscape patterns. As the concepts of ecology are infused with preferences and histories performed through landscapes, they reflect both the coarse and subtle ways that ecologies produce and reproduce social relationships that are spatially inscribed. An important conduit through which these discrete politicizations congeal is environmental aesthetics, or the aesthetics of everyday life. This presentation considers how the specific concept of landscape continuity kindles social exclusions and erasures that correlate ecology, aesthetics and social order.

Keywords: landscape continuity, social order, environmental aesthetics, postcolonialism

Matthew W. Foulkes, University Of Missouri. Email: foulkesm@missouri.edu; *An examination of the relevance of traditional theoretical approaches to studies of the geographic mobility of the rural poor*

Studies of US migration and residential mobility have predominately relied on the neoclassical theoretical framework. While recent studies and internal disciplinary reflection may be loosening the dominance of economic-based theories, the core of migration research remains rooted in approaches stressing economic rationality. Yet it is debatable whether these economic-based theories are applicable to the migration behavior of the poor living in the rural US. The rural poor face greater constraints, follow non-conventional housing careers, have a higher percentage of forced moves, and may conceptualize moving differently than the non-poor. Utilizing evidence from a variety of studies of poverty migration and residential mobility, this paper will explore the relevance of neoclassical and human capital theory to the migration and residential behavior of the rural poor. It will also explore the insights gained from alternative approaches to studying migration and residential mobility, and how current theoretical explorations occurring in population geography might inform our understanding of poverty migration.

Keywords: migration, poverty, migration theory

Andrew Fountain, PhD, Portland State University. Email: andrew@pdx.edu; Matthew J Hoffman, Department of Geology, Portland State University. Email: hoffman@pdx.edu; Hassan J Basagic, Department of Geography. Email: basagic@pdx.edu; Keith L Jackson, Department of Geography. Email: kjack@pdx.edu; *Glaciers in the American West: Response to climate change during the past century*

We have inventoried 8303 glaciers and permanent snowfields in the American West, exclusive of Alaska. A subset of that inventory, largely restricted to the National Parks have observational histories dating to the beginning of the 20th Century. Results from photographic analysis show that glaciers retreated quickly as the climate was warming from the Little Ice Age. By the 1950's to 1970's the retreat in many, but not all, glacial regions slowed or started to advance. In the northwest, retreat accelerated after the 1975-76 shift in winter atmospheric circulation, which caused thinner winter snow packs. Trends in warmer summer temperatures do not play a role except in Colorado and southern California. The magnitude and rate of retreat between glaciers varies greatly. The variability results from the interaction between local topography and large scale climate forcing. The distribution of area with elevation is a major factor and local topographic factors may enhance or suppress local snow accumulation. Altitude range of a glacier also is an important factor such that enhanced precipitation resulting in snow at higher elevations may compensate for rising freezing levels and less snow at lower elevations. Also, as glaciers shrink they retreat into higher elevations and local climates of favorable energy balance conditions slow the rate of shrinkage. In these environments the glaciers can become insensitive to further climatic change, in our case, reduced winter snow accumulation. We speculate that this unstable state of equilibrium would persist until a climatic threshold is crossed whereby the glacier essentially disappears.

Keywords: mountains, glaciers, hydrology, USA

Eric J. Fournier, Samford University. Email: ejfourni@samford.edu; Max Baber, Samford University. Email: rmbaber@samford.edu; *Tear-Downs, Renovation, and Neighborhood Change: A GIS Analysis of Major Home Renovation and Patterns of In-fill Construction in Homewood, Alabama.*

The building of large new houses (or major renovations of existing homes) on small lots in desirable neighborhoods is a relatively new phenomenon. This process has resisted easy labeling, but it is a significant new force in the geography of housing in some U.S. cities. This study explores the housing market of Homewood, Alabama as a means of examining this process. Building permit data are used to show the spatial and temporal patterns of large-scale renovation and new in-fill construction. The use of GIS allows us to examine the diffusion of renovations from a wealthy adjacent suburb towards less affluent areas. In addition we explore the role that barriers (such as highways) play in the diffusion of renovation. Finally we integrate the housing data with census data to create a demographic profile of neighborhoods that have experienced large-scale renovations and attempt to predict areas that will experience this phenomenon in the future. The results of this project will contribute to an ongoing debate in the city about zoning regulations, neighborhood change, and a new version of the city's master plan.

Keywords: Housing, Neighborhood change, Alabama

Christopher Fowler, University of Washington. Email: csfowler@u.washington.edu; *The Complex City: Agent-based models and critical, quantitative, economic geography*

Geographers have rightly criticized the deductive models of economists for oversimplifying the complex processes that drive urban economies. As an alternative, many geographers have turned to qualitative, case study approaches that often do not seek to provide generalizable theory, but instead draw insight from the uniqueness of each urban environment. Agent-based modeling can offer an attractive middle ground between these two approaches. Agent-based models can incorporate path dependence, heterogeneous agents, and indeterminate outcomes within a framework that permits replication of experiments and mathematical analysis of processes and outcomes. In this presentation I will briefly elaborate on these points using two examples; one an internal critique of a deductive model taken from economics, and the other a simple model testing theories of neighborhood segregation.

Keywords: Quantitative Methods, Agent-based Model, Complexity

Rebekah M Fox, Dr, Royal Holloway, University of London. Email: rebekah.fox@rhul.ac.uk; *My Mother, My Self and My Doctor: Regulating the Pregnant, Childbearing and Maternal Body Across Recent Generations*

This paper takes a cross-generational perspective on issues relating to pregnancy, diet and body image by exploring the experiences and understandings of two generations of mothers in Britain. Based upon in-depth interviews with recent mothers and their own mothers, it examines the continuities, changes and conflicts in cultural conceptions of the pregnant and post-natal body during the late twentieth / early twenty-first century. Motherhood is a pivotal time in a

woman's life course (each time it happens) with implications for her identity, quality of life and mental well-being, as well as rapid physical and bodily change. However perceptions and experiences of pregnancy vary across time and space and are subject to both internal embodiment and external social control. Using Foucault's notion of self-surveillance I argue for the increased medicalisation and surveillance of pre-natal care, diet and lifestyle across recent generations and explore the ways in which various forms of 'expert' or 'embodied' knowledge become accepted, rejected or internalized as 'common sense'. Secondly I consider new expectations and concerns surrounding body image in the pre and post-natal periods, in an increasingly consumer and media dominated society exemplified in the cult of the 'celebrity mum'. Overall I argue that pregnant women's bodies have never been entirely their own, subject to external comment and control from a variety of sources, but the forms this takes have varied over time, demonstrated in the everyday experiences of mothers interviewed in this study.

Keywords: Pregnancy, Body Image, Medicalisation, Surveillance, Motherhood

Samuel H. Fox, University of Oregon Geography. Email: sfox1@uoregon.edu; *Somalia's Contested Coast*

The southeastern coast of Somalia marked the spatial intersection of transnational hazardous waste dumping, modern piracy, and concentrated impact areas of the Indian Ocean tsunami in December 2004. The receding tsunami wave exposed large amounts of illegally dumped hazardous waste while reports of piracy along the Somali coast greatly increased in the following months. The attack on the Seaborn Spirit, one of the most luxurious cruise ships in the world, in November 2005 brought international attention to this chain of events. This presentation will situate these events in the unique context of stateless Somalia and propose a theoretical framework for understanding their interconnected and inherently geographic condition. Additionally, it will call for further investigation into the spatial location and socio-economic drivers of modern piracy.

Keywords: Somalia; core; periphery; modern piracy; political ecology; hazardous waste

Andrew Foy, Virginia Tech University. Email: afoy@radford.edu; Laurence W. Carstensen, Virginia Tech University. Email: carstens@vt.edu; *An Application of a Spatial Uncertainty Tool to Automate and Enhance Data Fusion for Points, Lines, and Polygons*

This project was developed in response to a 2005 Broad Agency Announcement research objective from the National Geospatial Intelligence Agency on the topic of research "Next Generation Data Fusion". The process of combining information from multiple sources for a given location to enhance information extracted is data fusion. In Geographic Information Systems data fusion processes and concerns are inherent because multiple layers of spatially defined data, varying in scale, date, acquisition and reliability are used for analysis, most notable in overlay functions. The goal of this research is to improve the state-of-the-art data fusion by developing tools that provide information on the spatial uncertainty. This paper discusses the problems associated with uncertainty, relevant literature, and it explores our newly developed tool. The tool works on points, lines and polygons. It manages and produces data on uncertainty in an analysis environment, using methods associated with Fuzzy Logic and Bayesian statistics. We wanted to allow individual features and individual data types to have specific uncertainty data, producing outputs with a quantitative estimate on the degree of uncertainty. This tool is unique because typical methods of managing uncertainty are raster based and absent in ESRI software. Our ESRI based tool automates large, statistical calculations and presents them in a vector format. Practical applications and potential implications of this tool are also discussed in this paper.

Keywords: Spatial Uncertainty, GIS, Raster Models, Fuzzy Logic, Data Fusion

Mark Fram, B Arch, MA, PhD (abd), University of Toronto. Email: mark.fram@utoronto.ca; *Good Places, Bad Pictures*

This is an examination of the photograph in urban studies and in its multiple relations to urban places: the photograph as document, representation, artwork and commodity, all roles that may both support or impede the photograph's usefulness as a device for the transmission and understanding of knowledge about places, and about their politics. Urban places themselves seldom reveal their significance (their "secrets") without intercession or interpretation. Any given place is not only a place, but is a representation of place (or placeness): that is, a representation of itself. Photographs are frequent props for geographical explanations, yet the geographer's photographs themselves are seldom as effective as the presenter would have them be. Frankly, planners and geographers are often terrible photographers, and terrible abusers of others' images as well. While photographs are endemic in urban studies, their appearance, function and comprehensibility are astonishingly inconsistent, and perhaps most distressingly, undependable. And the use of photographs as instruments to

promote (or oppose) urban projects has received scant attention. Theoretical issues around the subject of place-pictures seem to coalesce around two key issues. One is the matter of memory, primarily shared memory, and the role of historical and contemporary photographs as supports for certain shared values. The other is the matter of objectivity, and the relation of what's visible in a photograph to the real place (and time) it purports to represent. But there is as well a third topic to consider: how these theoretical issues are (and might be) attended to in practice.

Keywords: visual studies, history, photographs, photography, cities, places, urban planning, communication

Derek France, Dr, University of Chester. Email: d.france@chester.ac.uk; John P Smith, Dr, University Of Wolverhampton. Email: jpsandas@yahoo.co.uk; Faculty Based Field Meetings: An Opportunity to Enhance Fieldwork Practice within Higher Education Geoscience and Geographic Curricula

The paper evaluates the participants response to a faculty based field meeting held in South East Spain. This was designed to share and reflect upon the teaching opportunities offered by a defined field location to practitioners from diverse branches of the Geoscience and Geographic disciplines. In particular, we evaluate whether practitioners positively gained from: a) the field experience and b) interaction and networking with others familiar with the field location. We review the possibilities for change in field practice and whether this regional meeting was an efficient method to reflect upon delivery and organization of an undergraduate or graduate field programme for their own institution. We also evaluate if faculty field practice would be enhanced through the use of future field meetings to different locations and whether this is an effective platform for continued professional development related to their to own field programmes.

Keywords: Fieldwork, Geography Education, Professional Development

Benjamin Franek, A.S., B.S., M.A., University of Connecticut. Email: benjamin.franek@uconn.edu; Impacts of Flow Variability on Reference Reach Selection for Stream Restoration

This research will examine how variations in flow stages of streams affect the spatial distribution of geomorphic/hydrologic habitat types with the aim of understanding how these changes may affect reference reach selection/delineation for river restoration. Included will be development of a conceptual model that depicts how stage changes might influence reference reach description/definition based on river data collected in Connecticut. Testing of the model will be conducted through a case study application to a selected Pennsylvania stream, first via selection of a reference reach using traditional methods, and second, via selection of a reference reach using the conceptual model. A product of the research would be a refined conceptual model that can be utilized to account for river flow stage influences when determining reference reaches for river restoration.

Keywords: Flow Stage, Reference Reach Selection, River Restoration, Hydrogeomorphic Unit

Aliette Frank, University of British Columbia. Email: afrank@ires.ubc.ca; Dreaming Our Places: (Re)Constructing the Land "Out There/In Here" with Aboriginal Dreaming

This paper seeks to explore the ways in which an Aboriginal Dreaming-based ontology of place can theoretically and practically challenge Eurocentric analyses of sustainability. First, this paper examines an Aboriginal Dreaming-based ontology of place via theories of narrativity (hermeneutics and archetypes), phenomenology, and social construction of nature/culture. Second, this paper presents the Medicine Wheel (of Wabanaki tradition) as a narrative lense to map the 'Dreaming'. Case study investigations then suggest how Aboriginal Dreamers transact the mental, physical, emotional and spiritual bodies with the land, to materially co-construct "place". Case studies of place-based struggles that have been revisioned through the use of Dreaming-based ontologies of place include but are not limited to the preservation of sacred sites, reforestation of logging regions, and resolving of political disputes in beachfront property. These studies provide an entry to discuss the ways in which an Aboriginal Dreaming-based ontology of place can practically challenge wider Eurocentric understandings of sustainability. Reflection centers on both place-based struggles in the cultural history of the conceptual evolution of sustainability as well as in contemporary and emerging schools of thought. To conclude, this paper articulates some potential challenges and opportunities for applying an Aboriginal Dreaming-based ontology of place in sustainability planning in both Indigenous and European communities.

Keywords: Places, Landscapes, Dreaming, Dreamtime, Indigenous Knowledge, Imaginative Geography, Phenomenology, Narratives, Storytelling, Consciousness

Rebecca S. Franklin, University of Arizona. Email: rebecca@lrr.arizona.edu; Roots in the Rocks: an Application of Herbchronology above Treeline at Barney Rock Glacier, Sierra Nevada, California, USA

Herbchronology, a technique adapted from dendrochronology, is the study of the annual growth rings in roots of certain perennial dicotyledonous plants. The presence of annual growth increments in plants in alpine and above-treeline environments is significant as it highlights the importance of herbchronology for climatic and geomorphologic applications in alpine and above-treeline ecology. I am presenting the preliminary results from a herbchronology analysis of the plants colonizing Barney Rock Glacier. This site, at 3200 meters elevation on the northeast side of the valley wall is located below Duck Lake Pass in the eastern Sierra Nevada mountain range. Upon analysis of the secondary root xylem of these plants I discovered the presence of annual growth rings in virtually all species present (especially in members of the Asteraceae, Brassicaceae, Lamiaceae and Polemoniaceae families). Knowledge of the year of establishment of plants on the surface of rock glaciers can give important clues about disturbance on and movement of these rock-ice features. I show the age distribution of plants by species and location on the rock glacier along with climate data covering the span of these age distributions. Comparison can potentially determine whether or not plant establishment and growth in the root rings of these plants is controlled by regional climate, microclimate, position on the rock glacier, rock glacier movement or perhaps other factors. Although herbchronology has been tested and used extensively in Europe, this is the first formal description of the annual rings of a community of non-tree plants in the eastern Sierra.

Keywords: herbchronology, rock glaciers, alpine

James C. Fraser, University Of North Carolina. Email: pavement@unc.edu; Matt Reilly, University of North Carolina. Email: mjreilly@email.unc.edu; Catch Me If You Can: Urban Governance As Open System

A strand of recent treatments of urban governance have focused on state-market-civil society configurations that are guided by neoliberal ideology seeking to privatize social welfare and expand market logic into domains of civil society. An emerging area of interest has been on the ways in which civil society has been hailed by public and private sectors as a way of working towards urban revitalization. This labor to promote place-making simultaneously intensifies the need for civil society to organize, carry out redevelopment tasks, and be recognized as having legitimate 'rights to the city.' This has been framed by some as part of a larger shift in how people access citizenship rights from being a given status to being a performative act. What has been less studied are the potential openings that are created for citizens and non-governmental organizations (NGOs) to insert themselves into processes of city building. This paper theorizes these openings through a case study of the Arts and Business Coalition of Downtown (ABCD) and its role in redeveloping downtown Durham, North Carolina. Started by a small group of citizens that desired to create non-hierarchical and fluid scaffolding for citizens to come together, we find that ABCD has provided a wide range of actors the ability to transcend the putative categories of state-market-civil society that are associated with theorization on neoliberal urban governance.

Keywords: urban governance, civil society, neoliberalism

Oliver W. Frauenfeld, Ph.D., University of Colorado. Email: oliverf@colorado.edu; Tingjun Zhang, Ph.D., National Snow and Ice Data Center. Email: tzhang@nsidc.org; Andrew J. Etringer, M.Sc., National Snow and Ice Data Center. Email: etringer@nsidc.org; Haiyan Teng, Ph.D., National Center for Atmospheric Research. Email: hteng@ucar.edu; 21st Century Projections of the Northern Hemisphere Freezing/Thawing Index

Variations in the ground thermal regime in high-latitude areas have important ramifications for the surface energy and moisture balance, surface and subsurface hydrology, carbon exchange, and ecosystem diversity and productivity. Assessing these variations, however, particularly in light of reported widespread atmospheric and terrestrial changes in recent decades, remains a challenge due to the sparse observing networks in high latitudes. The annual freezing/thawing (F/T) index can be used to predict and map the distribution of permafrost and seasonally frozen ground, active layer and seasonal freeze depths, and has important engineering applications. The F/T index thus provides important information on climate variability in cold regions. While generally defined as the cumulative number of degree-days below/above 0°C for a given time period, we have established that long-term monthly air temperature measurements can be used reliably to approximate the annual F/T index over the last century. Here we employ the model output of surface air temperatures from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) to provide an estimate of 21st century F/T index changes. We first compare the "20th

Century Climate in Coupled Models" (20c3m) output to historical observations for an assessment of the models' reliability. Next, we apply four emission storylines (commit, SRES-A2, SRES-A1B, and SRES-B1) and calculate the 21st century F/T index for these scenarios. These projections can be used to estimate future distributions of frozen ground, as well as active layer and seasonal freeze depths.

Keywords: permafrost, seasonally frozen ground, model projections

Ryan Frazier, Clark University. Email: rfrazier@clarku.edu; Mapping Land Cover On Vancouver Island, Canada Using Machine Learning Algorithms And Generalization

Satellite remote sensing has many strengths, the strongest being the ability to capture data over large areas and remote locations. The nascent interest in large area, fine detail (i.e. 30 meters) land-cover mapping and monitoring is expressed by a variety of national and regional resource monitoring programs (e.g., Earth Observation for Sustainable Development of Forests (EOSD), The California Land Cover Mapping and Monitoring Program (LCMMP), Coastal Change Analysis Program (C-CAP) and others). Despite reported progress, these monitoring programs still face two key challenges: (1) low map accuracy and consistency over large heterogeneous landscapes; and (2) high programmatic costs caused by image processing, field data collection and manual image interpretation by humans. However, we argue that large area monitoring programs can overcome these difficulties by taking advantage of recent advances in remote sensing methods, specifically machine learning (Rogan et al. 2003) and generalization (also known as signature extension) (Woodcock et al. 2001). Thus, the objectives of this study were to apply machine learning classification algorithms to map land cover in British Columbia, Canada using Landsat ETM+ 7 and ancillary data and to determine the impact of these ancillary variables on classification accuracy, across different Landsat scenes using signature extension.

Keywords: Land Cover, Machine Learning, Generalization, Landsat, British Columbia, EOSD

Bettina Natalie Fredrich, Department of Geography, University of Bern. Email: fredrich@giub.unibe.ch; The security discourse in Switzerland from a gendered geographical perspective

In my presentation I focus the security discourse in Switzerland, paying special attention to the gendered dimension of localizing security and danger. Recently a variety of initiatives on different levels have been taken in Switzerland to reconceptualise security in terms of gendered security. With the end of the Cold War and the terrorist attacks against the Western world the security discourse has shifted and broadened in at least two ways: First, the concept of security itself is contested by politicians and scientists. And second, due to political and historical changes an increased number of organizations and experts take part in the discourse. For almost two decades critical geopolitics has asked crucial questions on how 'we' and 'the others' are localized in political discourse and how these processes discursively generate identity and nationality. The gendered character of these processes however has only marginally been negotiated. Based on my first findings, I will emphasize the gendered dimension of localizing 'we' and 'the others' in the security discourse in Switzerland. Referring to Foucault I identify various subject positions in the security discourse. Furthermore I highlight what difference gender makes in the process of localizing 'we' and 'the others' as well as discuss to what extent the discursively constructed 'other' is gendered itself. My findings rely on expert interviews with representatives of governmental and non-governmental organizations in the fields of national defense, foreign policy and peace building ranging from the head of the Swiss army to representatives of feminist peace organizations in Switzerland.

Keywords: Security, Discourse, Critical Geopolitics, Gender Geography, Switzerland

James P. Freeman, PhD, Concordia University. Email: jfreeman@alcor.concordia.ca; Ipanema in the 1960s: Global bohemia in a Latin American metropolis

Ipanema, in Rio de Janeiro, Brazil, is a post 1960s counter-culture neighborhood, comparable to the Haight-Ashbury in San Francisco or Kreuzberg in Berlin. In the 1960s and 1970s, Ipanema was cosmopolitan and represented a little piece of the wider world. Ipanema was also a node in a network of neighborhoods around the world where inhabitants produced and consumed a powerful set of ideas, aesthetics, lifestyles, and cultural products. Through an analysis of accounts of Ipanema during its golden age and ethnographic data on the post counter-culture neighborhood, I identify the generic characteristics of bohemia and 1960s counter-culture neighborhood in Ipanema, and discuss the incredible cultural productivity of the time and place that had everything to do with the interface between global trends and local traditions. I argue that Ipanema was only possible in the context of a modern urban way of life that involved a certain dissolution of social ties, anonymity and heterogeneity, but that this modern urban veneer overlays a fundamentally divided, hierarchical and

personalistic society.

Keywords: Brazil, Rio de Janeiro, bohemia

Lisa M Freeman, PhD Candidate, University of Toronto. Email: lisa.freeman@utoronto.ca; A Criminal Threat? Community Responses to Homelessness and Resistance in the City

Provincial legislation and municipal by-laws that target aggressive panhandling are not the only forms of regulation criminalizing and marginalizing the space of homelessness in Canadian cities. Community responses, most notably Not-In-My-Backyard (NIMBY) sentiments, play a significant role in regulating urban space. Neighbourhood conflict over the construction of homeless shelters and urban squats is by now a phenomenon in Canada, yet it led me to question how community responses to municipal by-laws and squats regulate urban space in the city. If community responses do indeed constitute an informal mode of urban regulation, then this proposed paper, utilizing work of Lefebvre, Soja, Foucault and Agamben will ask: how are informal modes of urban governance constructed and how do they gain power? How do homeless (and marginally housed) persons come to be viewed as criminal and/or a moral threat to notions of community? What type of effect does this form of social control have on the organization of urban space? Exploring community conflict in relations to homelessness in two Canadian cities (Ottawa and Toronto) will further develop an understanding of how different forms of community mobilization and activism create differing yet powerful forms of urban governance that challenge legal spaces in the city.

Keywords: law, geography, resistance, theory, governance, urban, homelessness, by-laws

Sara Fregonese, Newcastle University. Email: sara.fregonese@ncl.ac.uk; Colonial Laboratories, Overlapping Territories: the Lebanese Civil War and the Colonial Past.

Despite tendencies to consider them as timeless, discrete entities, the Lebanese religious sects and their political expressions can be interpreted as products of Lebanon's colonial past. As a result of earlier affiliations between local religious groups and colonial powers in the end of the Ottoman era, the French Mandate's main tool of governmentality on Lebanon was the idea of "religious community" and its territorialisation, through population censuses based on religious belonging, and by officially declaring 17 religious communities as "historic". Sectarianism characterized the electoral system, the division of parliament seats and of the State powers in post-independence Lebanon. Before the Lebanese turbulent political panorama had seen the sectarian polarization of the civil war, public order, electoral and political power were structured around that colonial idea of "historic religious community". I draw mainly from Foucault's conception of power as a dialectic process between hegemony and resistance rather than as complete domination, and from critical geopolitics' vision of geography as militant spatial practice and rhetoric that physically delimits and discursively defines territory. I then analyze how, during the Lebanese civil war, the colonial legacy of governmentality via territorialized religious communities was present in the violent territorialisation of identity - such as ID killings? and in the ways the militias used and represented Beirut's built space through street fight and propaganda. In these spaces of resistance, the colonial and the militia spatial ontologies often overlap.

Keywords: Power; critical geopolitics; geo-graphing; French colonialism; civil war; Lebanon

Allan Frei, Associate Professor, Hunter College. Email: afrei@hunter.cuny.edu; Gavin Gong, Assistant Professor, Columbia University. Email: gg2138@columbia.edu; Yan Ge, Ms., Columbia University. Email: yg2124@columbia.edu; David A. Robinson, Professor, Rutgers University. Email: drobins@rci.rutgers.edu; Gwanyong Choi, Mr., Rutgers University. Email: tribute7@hotmail.com; Debjani Ghatak, Ms., City University of New York Graduate Center. Email: tinna_ghatak@yahoo.com; Decadal, continental-scale variations in North American snow extent: links to circulation and implications for climate change detection and attribution

Observations of continental scale North American snow extent (NA SCE), along with ancillary observations of snow depth, surface climate, atmospheric circulation, and sea ice concentration, are evaluated to test the hypothesis that decadal scale variations of NA SCE can be explained by atmospheric circulation, without need to invoke additional explanatory factors such as anthropogenic climate change. We show that decadal scale NA SCE variations are driven largely by the locations of the polar front and jet stream. A portion of that variability can be explained by dominant modes of Northern Hemisphere atmospheric variability, including the Arctic Oscillation and the Pacific North American pattern; and a portion is attributable to circulation variations not captured by dominant modes. Both modeling and empirical results suggest that decadal, continental-scale NA SCE variations during the last century are of sufficient magnitude to preclude the identification of a climate change signal outside of the

natural variability at this time. Such attribution will require either (a) greater confidence in our ability to attribute circulation modes linked to NA SCE variability to anthropogenic climate change; or (b) more detailed analyses (e.g. at regional scales) that provide sufficient evidence for anthropogenic influence. However, a continental scale NA SCE anthropogenic climate change signal is expected to emerge in the coming decades.

Keywords: climate change detection, snow, cryosphere

Susanne Freidberg, Dartmouth College. Email: freidberg@dartmouth.edu; *The Spoils of Virtue*

As part of an ongoing project on the history of freshness, this paper focuses on the industries devoted to those most "protective" of perishables: fresh vegetables. On one hand, these industries have promoted racialized norms of virtuous consumption; on the other, their very mantle of virtue obscures production processes dependent on violence and racialized forms of vulnerability. The paper draws on cases in and beyond California.

Keywords: food, race, historical geography, agriculture

Kenny French, PhD Candidate, University of Nebraska-Lincoln. Email: kfrench@unlnotes.unl.edu; *The Globalization of Rap: From Da South Bronx to Da World*

The globalization of rap music represents the adoption of a popular culture medium to convey societal concerns by marginalized groups. As an expression of oppression, rap provides a voice to those groups who feel isolated from the larger society. This paper will first map and analyze the diffusion of hip hop from the South Bronx in New York City to other inner cities in America. Distinctive rap regions can be constructed in America distinguished by rap styles and local slang usages. Another aspect of this study is to investigate the diffusion and meaning of rap throughout the world. This paper will analyze rap lyrics from around the world for common themes of social awareness. Understood through the processes of reterritorialization and indigenization (Lull, 2000), rap music is an imported cultural element that takes on local features in other countries. Rappers from France, Italy, Germany, and New Zealand illustrate how rap popularly conveys their messages of social injustices. Overall, the globalization of rap across the world is another example of how the global mixes with the local.

Keywords: rap, globalization, cultural geography

Bryan Girard Frenz, University of Wisconsin-Eau Claire. Email: frenzbg@uwec.edu; *Soccer in Milwaukee: A Wave of Immigration*

As much as religion and food is an identifying feature of a culture, ethnicity is also trapped in the world's favorite sport. The emergence of soccer in the United States came only as an influx of European immigrants flooded to major US cities. Soccer is a sport different from any US sport and using sport is a way ethnic immigrant groups tried to remain individuals in a new home and a foreign nation. The names of soccer clubs, also known as football clubs, relate the sport to its ethnicity. The Bavarians, Croatians, Serbians, and Polonia clubs all identify an ethnicity to soccer. Today the attempt to hold onto ethnicity has evolved into community functions for all local residents. Multi-ethnic players are joining the soccer clubs and creating competitive soccer teams which compete in leagues and tournaments gaining recognition for the club. Still rooted in each club is the history of a people but has recently transferred into a business with sponsorships and corporate interests labeled by an ethnic trademark. This study evaluates how the city of Milwaukee established a rich history of soccer through immigrant settlement.

Keywords: Sports Geography, Historical Geography, Soccer, Milwaukee, Settlement

Claire Frew, Queen Mary, University of London. Email: c.frew@qmul.ac.uk; *Direct Payments: What will an increased 'choice' mean for home care workers and service users?*

Issues of consumerism and choice are at the centre of the UK government's public sector reform agenda. Public services in the UK are under increasing pressure to develop and expand their response to the 'customer' and their need for 'choice'. Direct Payments have altered the relationship(s) between social care providers and users, demonstrating the changing nature of the welfare state. Under this system, clients are given money, in proportion to their assessed needs, to directly purchase the care they need. This paper seeks to examine the impact of Direct Payments on workers and service users. Local Authorities, currently the main purchasers of care, will increasingly be required to regulate provision for users, while users will buy their own care. Where Direct Payments are already in use, employer and employee relationships have altered dramatically (Ungerson, 1999). The user becomes the direct employer of the care/personal assistant and through this control, they are argued to have increased rights and independence, which will ultimately empower the individual (Ungerson, 1997). Users also have to 'manage' their own risk, by employing people they already know or someone through recommendation. While research has explored the importance of user

influence on the determination of provision, workers' perspectives and the consequences for employment are often neglected. This paper examines the changing nature of employment in the sector and the consequences carers and personal assistants are experiencing. The paper will draw primarily on empirical research conducted with users and workers in the London Borough of Tower Hamlets.

Keywords: The welfare state, public service reform, choice, Direct Payments, care services and employment.

Laurent Frideres, University of Cambridge. Email: laf25@cam.ac.uk; *The competitive advantages of firms inside and outside industry clusters*

The spatial clustering of firms is seen as having significant benefits for individual firms and regions. Little cluster research has been aimed at evaluating the relative importance of spatial proximity and scale in clusters, in particular with reference to assessing the competitive advantages of firms over space. The spatial scales at which clustering occurs are often only scantily defined and a clear definition of geographical boundaries is generally lacking. This paper focuses on the software industry in a trans-national region covering parts of Belgium, France, Germany and Luxembourg. It makes use of geocoded point-level firm data and spatial cluster detection techniques to explore spatial industrial clustering at different geographical scales. A survey conducted among software companies in the region provides firm-level data on networking and cooperation, which are used as proxy-variables to measure relational proximity and interaction between firms. A combined index of spatial and relational proximity is used to map clusters of software firms in the region and to identify firms located inside and outside those clusters. A comparative analysis of innovation capabilities, knowledge development and performance between firms located inside and those located outside industry clusters is undertaken. This paper puts to the test the common assumption that being located in a cluster enhances knowledge development within and knowledge transfers between firms and thus promotes the innovative capacity and economic performance of firms.

Keywords: Clusters, performance, innovation, spatial data analysis

Roxane Fridirici, California State University, Sacramento. Email: rmf8dfa@inreach.com; *Floods of People: Migration and Opportunity Versus Flood Risk in San Joaquin County, California*

Since the disastrous 1997 Central Valley floods, local San Joaquin County governments have approved 30,800 new houses in flood-prone areas, including land that was underwater in 1997. Some houses are in new subdivisions, tucked behind "super levees", some are in older, expanding subdivisions, some are proposed for Sacramento-San Joaquin Delta islands below sea level. Migration for more affordable housing along the Interstate-5 corridor near Stockton, Lathrop, and Tracy is driven by San Francisco Bay prices. The opportunity is greater than the perceived flood hazard, supported by ignorance of the local environment. In San Joaquin County, odds are greater that a home protected by a levee will flood rather than burn, yet only about 2% of San Joaquin single-family home owners have flood insurance. Comparison of the area flooded in 1997 and the new development which might now be affected is startling. Flooding is a reoccurring part of this region's environment. While well-constructed and maintained levees will probably protect inhabitants within their immediate vicinity, they may create greater problems along less well-protected side-streams and sloughs, causing failures where prior floods were minor. When small levees fail, flooding may do an end-run around or undermine new levees. Finally, raised ground water levels during wet periods may result in unexpected flooding of some recently developed areas. Research suggests new inhabitants require education about flood hazard and disaster preparedness, while local governments must balance costs and problems when the levees break with the opportunity of tax revenues from lucrative developments.

Keywords: Floods, hazards, California-Central Valley, housing, migration

Mark Friedl, Boston University. Email: friedl@bu.edu; Navin Ramankutty, McGill University. Email: navin.ramankutty@mcgill.ca; *Mapping Cropland Over Large Areas by Fusing Remote Sensing and Inventory Data*

In the last 300 years, agricultural ecosystems have transformed vast areas of the Earth's surface. Currently, nearly 40 percent of land areas are used for agriculture. In addition to their obvious importance for food production and security, agricultural ecosystems also have significant impacts on local to global environmental processes. These processes include biogeochemical cycles, water supply and quality, and deforestation and other forms of land cover conversion. However, despite the obvious societal importance and environmental effects of agricultural land use, global information regarding the spatial distribution and dynamics in croplands remains quite poor, especially in developing nations. Here we describe research to improve this information using a combination remote sensing and global inventory data. Specifically, we describe ongoing efforts to map agricultural land use by fusing information from sub-national cropland

inventory data with data from the Moderate Resolution Imaging Spectroradiometer. These efforts include several key activities. First, we are using MODIS data in association with national agricultural inventory data to test the ability of MODIS for mapping both crop areas and crop types over large areas. Second, we are exploring the utility of phenological metrics derived from time series of MODIS to differentiate cropland and crop types. Third, we are using 500-m MODIS data to “downscale” an existing global map at 5-minute spatial resolution, thereby providing more detailed spatial information regarding global croplands.

Keywords: agriculture, remote sensing, inventory data

William H. Friedland, University of California - Santa Cruz. Email: friedla@cats.ucsc.edu; *Mysteries of the Church of Wine: Epiphanies*

Wine, for some consumers, is akin to religion. As with other supernatural thought systems, wine has a number of “mysteries,” phenomena that have little or no rational or scientific explanation. This paper explores the wine epiphany, the “revelation” of a moment. Utilizing examples of epiphanies generally, and wine in particular social and locational factors are seen as critical to the epiphany experience even though, as in the case of wine, it is wine that is subjectively viewed as causal.

Keywords: wine, epiphanies, social factors, locational factors

Wardlow Friesen, Dr., University Of Auckland. Email: w.friesen@auckland.ac.nz; *The layered identities of the Indian diaspora in New Zealand*

Within the “Indian diaspora” there is a great deal of diversity, and issues of belonging and identity vary between different migrant destinations and between different groups. Imperatives towards pan-Indian identity among diasporic groups include nationalistic sentiments arising from the history of the independence struggle, perceived threats from neighbouring countries, and the rising economic and political profile of India on the global stage. Another factor is the globalisation of “Indian” culture through Bollywood, diasporic novels, Indian fusion cuisine, festivals, and other forms. Beneath this pan-Indian layer of identity are the identities of particular cultural and linguistic groups, as well as identities resulting from variables including gender, education and occupation. This paper considers the ways in which issues of identity and belonging have been manifest in a relatively small country with high levels of Indian immigration in recent years. It is based on interviews with leaders of a number of cultural/linguistic Indian communities in New Zealand, and considers their divergent and convergent experiences of identity, belonging, integration and nationality.

Keywords: belonging, identity, Indian, diaspora, New Zealand

Joy A. Fritschle, University of Connecticut. Email: joy.fritschle@uconn.edu; *Identifying representative old-growth for second-growth forest restoration*

Old-growth forests in the American West typically represent fragments of former, more extensive forests that were subjected to nineteenth and twentieth century land-clearing activities, such as logging. These present-day forest fragments are thought to be representative of the former landscape, and thus are capable of serving as living references for restoration of logged-over lands. Yet how do we determine how well existing old-growth stands represent the former forest, especially when little of the vegetation remains after intensive logging activities such as clearcutting? Historic land surveys conducted prior to significant logging can reconstruct the former forest at the stand level, thus allowing an analysis of old-growth patches within the larger historic landscape. This study utilized original Public Land Survey field notes to assess the applicability of old-growth stands in Redwood National Park as reference ecosystems. A GIS and statistical analysis of the nineteenth century forest found that the vegetation communities, woody species composition, and ratios of dominant canopy species in unlogged patches were highly representative of the forests that were logged. The results of this study suggest that the national park should increase efforts to protect old-growth reference ecosystems from further human impacts, and minimize on-going degradation from edge effects by prioritizing restoration of adjoining second-growth forest.

Keywords: ecological restoration, vegetation change, Public Land Surveys

Patricia Frontiera, Ph.D., GISC, UC Berkeley. Email: pattyf@berkeley.edu; Howard Foster, Ph.D., GISC, UC Berkeley. Email: hfooster@gisc.berkeley.edu; *Spatial Approaches to Representation and Ranking for Geographic Information Retrieval*

Geographic information retrieval (GIR) concerns the retrieval of geographically and thematically relevant information resources in response to a query of the form: theme - spatial relationship - location (e.g., wetlands near San Diego). GIR distinguishes itself from traditional IR in that one or more system components are based on spatial methods, where such methods are either placename based, coordinate-based (geometric), or some hybrid of these two. The develop-

ment of online environmental information catalogs and spatial data clearinghouses in the 1990s pioneered GIR research, especially with regards to coordinate-based spatial methods and the development of richer gazetteers to support placename to geographic location disambiguation. More recently with the growth of internet search engines, the desire to find information by geographic location has driven the development of GIR, particularly in terms of placename approaches to retrieving georeferenced web pages. In this presentation we provide an overview of current research on geometric and hybrid placename/geometric methods for GIR. In particular, we focus on geometric methods for representing the geographic content of information resources, matching query and document representations and ranking retrieved results that can improve retrieval performance yet remain simple enough to be applicable to both spatial data libraries and more general geographically-enabled search engines. These topics are discussed in the context of current digital library projects being developed at the UC Berkeley Geographic Information Science Center (GISC).

Keywords: geographic information retrieval, geographic relevance, spatial similarity, spatial indexing, spatial representation, spatial ranking, geographic digital libraries, spatial data clearinghouses

Heather Frost, PhD Candidate University of British Columbia, University of British Columbia. Email: frost_heather@hotmail.com; *Punjabi Youth in Vancouver: Identities of Segregation?*

For the thousands of children born into Canadian immigrant households, the process of identity construction is complicated by family histories and memories of relocation and resettlement, continuing attachments to the ‘homeland,’ questions of religion, race and ethnicity, and their position within and between cultures. Such that in addition to confronting the fundamental question faced by all young people, “Who Am I?,” the sons and daughters of immigrants must also ask “Who am I ethnically?,” “Who am I racially?” Although researchers have convincingly demonstrated that the identities adopted by second generation youth are multifaceted, multiply determined, temporally dynamic, situational and contextual, the nuanced processes by which youth arrive at their self-definitions are still not well understood. In this paper, I discuss the extent to which the social identities of high school aged offspring of Punjabi immigrants residing in Surrey, British Columbia (BC) are articulated out of their everyday spaces and places. Canada’s sizeable Punjabi population is highly concentrated at both the provincial and urban scales. In 2001, close to 45% of Canadians who reported Punjabi as their mother tongue resided in B.C.; and of those individuals, 72% lived in the Vancouver region - almost half of them in the municipality of Surrey. By exploring the relationships between where these young people live and are schooled and their social identities, I will consider in particular the significance of Surrey’s ethno-cultural and racial composition/concentration for identity construction.

Keywords: youth, identity, ethnic concentration

Carolyn Fryberger, University of North Carolina at Asheville. Email: cfryberger@gmail.com; *Measuring Rapid Change: A Cadastral-based Analysis of Land Use Change in the French Broad River Basin, Western North Carolina*

North Carolina is the 6th fastest growing state in the country; Western North Carolina specifically experienced population growth of up to 9% between 2000 and 2005 according to census data. These changes and their spatial effects have previously not been tracked in a consistent manner; there is no readily available data with which to explore year-to-year development trends. The objective of this work is to develop a much-needed baseline of data to quantify and mitigate the effects of rapid development in western North Carolina’s French Broad river basin. The analysis uses readily available, frequently updated, and highly accurate cadastral data to quantify development in the region. Parcel size statistics are used as a proxy for development; smaller parcels are likely to have existing roads and infrastructure, which would facilitate build-out. By nature of their size, small parcels are most productive when built on, whereas larger parcels still have potential for conservation and rural land uses. A GIS-based analysis of the pattern and density of small parcels in the French Broad River basin shows that the region has experienced substantial development, especially between 2004 and 2005. Further Overlay analysis using this change data shows areas of urban sprawl around city centers like Asheville, and the increasing development of sensitive lands such as steep mountain slopes. Such analysis provides crucial but previously neglected information for the land use decision-making process of local governments, and can help conservation-minded groups protect water quality, species habitat and prioritize management areas.

Keywords: North Carolina, Appalachians, Development, Cadastral data, Land-use intensification, Watershed management, Suburban sprawl, Soil erosion, Water quality

John Dale Frye, Department of Geography, University of Georgia. Email: jdfrye@uga.edu; **Thomas W Hodler, Department of Geography, University of Georgia.** Email: twhodler@uga.edu; *Cartographic Uncertainty in Georgia's Tornado Climatology*

Data collection and cartographic procedures can lead to visualization uncertainty in many fields. Using Georgia as an example, the current research focuses on the uncertainty in data collection procedures and thus climatological records of tornadoes as well as uncertainty in the typically cartographic procedures for visualizing those records. Three components of uncertainty are examined with the tornado climatology of Georgia: 1) percentage of weak tornadoes, 2) compactness of the enumeration unit (in the present research, Georgia counties), and 3) variations in the classification during different commonly used cartographic procedures. Research has shown that there is less accuracy in reports of weaker tornadoes as compared to stronger tornadoes, thus leading to more uncertainty in counties that have only experienced weak tornadoes. The compactness of the counties in Georgia is also investigated for uncertainty (i.e., more compact counties have a lower level of uncertainty). Uncertainty can also be found based on the cartographic procedures used to visualize the data. Tornado reports are typically visualized as raw values or standardized by population or enumeration unit size. However, it was found that these procedures produce maps that have very dissimilar views of the tornado occurrences in Georgia. An uncertainty metric for cartographic procedures was developed to show the locations where these maps vary and thus have a higher level of uncertainty based on the cartographic methods utilized.

Keywords: cartography, uncertainty, tornado, climatology, Georgia

Stephan Fuchs, University of Kansas. Email: stephan2240@yahoo.com; *Migration Routes and Settlement Patterns of 19th-Century German Immigrants: A Case Study of Douglas County, Kansas 1860-1880*

The location of Kansas at the settlement frontier in the 1850s and 1860s and its subsequent demographic development over the following years made it a likely destination for new immigrants and western settlers throughout the second half of the nineteenth century. Using the framework for the entire Midwestern frontier population provided in 1988 by John Hudson I explore Douglas County, Kansas, as a destination and new homeland for German settlers. The goal is reconstruction of the migration routes German families took to Douglas County and then explanation of their settlement patterns and distribution within this territory. My data comes from federal and state censuses, plat atlases, and deed books. This study works on two spatial levels - a national and county scale? and discusses the changes and developments for a period of roughly twenty years. German families predominantly migrated through states of the American Northeast and Midwest to Douglas County. Depending on the local conditions German families both clustered and lived scattered among other groups in the townships and towns of the county.

Keywords: Historical Geography, Germans, Kansas, Settlement, Migration

Kurt Fuellhart, Shippensburg University. Email: kgfuel@ship.edu; **Catherine Ryan, Shippensburg University.** Email: cr4077@ship.edu; **Sharon Sarmiento, UCG Associates.** Email: SSarmiento@ucgassociates.com; *An Analysis of the Air Transport Environment in the Middle Atlantic Region, U.S.A.*

The air travel market is somewhat unique within the Middle-Atlantic region of the United States because a number of airport choices are available to consumers. These airports - including Baltimore, Philadelphia, Washington-Dulles, Washington-National, Harrisburg and others? vary significantly in the degree to which they function as hubs or spokes, volume of traffic, number of airline competitors, availability of non-stop service, and fares, among other things. Examining the market environment in multi-airport regions is critical not only to understand the geographic nature of consumer airport choice, but also to improve airport planning and to shed light on the dynamics of commercial air transportation generally. This paper examines air transport and airport "competition" in the Middle-Atlantic region with a specific focus on airfares, airport market areas and future traffic trends. Airfares to/from the region's airports relative to hundreds of cities around the world are examined using a longitudinal data set collected over eight months. Using this data set and others, as well as a variety of analytical methods, patterns in airfares are illuminated, regional catchment areas are mapped and future trends in airport traffic and market areas are forecast. The paper contributes to the expanding volume of research on the air transportation industry in multi-airport regions, consumer airport choice, and the geographic implications of both.

Keywords: Air Transport, Airport, Airfare

Pablo Fuentenebro, University of California - Los Angeles. Email: pfuentenebro@ucla.edu; *Nationalism at the scale of 1:50,000. Maps, mapping and materiality in Contemporary Catalonia*

Over the last twenty years there has been increasing critical interest in cartography. From pure objects of science and reason to instruments of knowledge and power, maps are now seen as a major tool in the construction of nationhood discourse. But beyond its physical authority, the stories behind a map's making can prove to be as revealing as its existence. In this paper I trace the history of two maps of Catalonia, Spain, and the conflict emerging between the institutions responsible for their making. A judicial ruling opens the door for epistemological interpretations over the meaning and significance of maps in society, adding them to the present debate on agency and materiality in social and cultural geography.

Keywords: mapping, nationalism, Catalonia, Spain, material culture, objects

Bernhard Fuhrer, University of Berne. Email: fuhrer@giub.unibe.ch; *Geographical dimensions of clusters - An evolutionary approach to change agency in technological and institutional transformation*

In economic development policy the cluster 'concept' has established itself as a standard for enhancing growth performance of cities, regions and even nations. Martin and Sunley have argued that the geographical fuzziness disavows any analytical claims of Michael Porter's pseudo-concept and warned economic geographers against following a prescriptive fad (2003). In a more recent contribution the same authors continue to warn us, this time cautioning the insouciant use of evolutionary terminology and concepts. In an attempt at a combined reply to these warnings this paper suggests that only an evolutionary understanding of the cluster phenomenon can finally free the concept of its geographical fuzziness and turn it into a theoretically solid multi scale model. Such a model is construed in a two step procedure. In a first part recent evolutionary theorizing from economic geography and economics is drawn upon to define the conceptual framework for investigating the technological and institutional changes relevant for cluster development. Particular emphasis is given to the question of agency in change. In a second step this new framework is applied to a well known empirical example namely that of biotechnology clusters in the U.S. It is shown that in the evolutionary perspective these high-tech clusters can only be understood as a co-evolution of technological and institutional enabling processes mainly associated with agency on the national level and a concurrent competition of institutional configurations linked to agency on the regional level. In an evolutionary view, therefore, geographical fuzziness disappears and becomes a multi-scalar interpretation of change-agency.

Keywords: evolution, institutions, cluster, biotechnology, scales

Christopher M Fuhrmann, The University of North Carolina at Chapel Hill. Email: fuhrman1@email.unc.edu; **Joshua D Durkee, The University of Georgia.** Email: jdurkee@uga.edu; **John A Knox, The University of Georgia.** Email: jknox@engr.uga.edu; **John D Frye, The University of Georgia.** Email: ; **Sarah M Dillingham, The University of Georgia.** Email: ; **Sam Urban, The University of Georgia.** Email: ; **Alan E Stewart, The University of Georgia.** Email: ; **Matthew C Lacke, The University of Georgia.** Email: ; *Insights into the Relationships Between High Winds and Mid-latitude Cyclones: A Case Study of the 12-13 November 2003 Great Lakes Cyclone Windstorm*

On 12-13 November 2003 an intensifying mid-latitude cyclone tracked across the Midwest and Great Lakes regions. Non-convective high winds up to 76 knots caused \$36 million in damages, eight deaths, and 23 injuries from Iowa to Pennsylvania as well as a major seiche on Lake Erie. The most outstanding destruction from this storm occurred in Lower Michigan where a utility company called it the worst storm since the Edmund Fitzgerald storm in 1975. Despite the extent of the wind damage, there was little consensus among forecasters at the regional National Weather Service offices as to the origin of the high winds or the mechanisms responsible for them. Storm event summaries from offices across the Great Lakes cited the following possibilities: a fast-moving cold front, strong cold air advection, isallobaric winds, and a deep tropopause fold. To help mitigate the hazards associated with non-convective windstorms, it is necessary to develop a comprehensive, multi-scale conceptual model of these events. This presentation provides a detailed account of the synoptic and subsynoptic dynamical features that contributed to the high winds across the Great Lakes region. Using both observational and remote sensing platforms, we focus primarily on the role of the tropopause fold and stratospheric intrusion in the development of high surface winds. Specifically, we present two original hypotheses for the transport of high winds to the surface. These involve the "coupling" of stratospheric air and planetary boundary layer heights and the contribution of Kelvin-Helmholtz instabilities to momentum mix-down.

Keywords: high winds, Great Lakes, case study, synoptic meteorology

Brian Fulfrost, University of California. Email: fulfrost@ucsc.edu; Mapping Food Environments: Using GIS to Identify "Food Deserts" on the Central Coast of California

Research in the United Kingdom and more recently in the United States has found geographic differences in access to affordable, nutritious food. In some cases more limited access has been associated with a higher proportion of residents in ethnic minority groups. Using Geographic Information Systems (GIS), we explored the potential existence of "food deserts" and their relationship with ethnicity in Santa Cruz, Monterey and San Benito Counties. Relative to the region as a whole, there were few clusters of census blocks with less access to retail food outlets with fresh produce (grocery stores, supermarkets and fruitierias) after adjusting for population density. In addition, access to these retail food outlets was not associated with the percentage of the population that was Latino. However, we identified some areas that would benefit from further investigation, and that may be suitable locations for locating new fruit and vegetable markets. Such markets may benefit local residents, as well as new, limited-resource, and minority farmers who often have inadequate access to distribution networks for their produce.

Keywords: Food Deserts, Food Environments, GIS, population density

Boyd Fuller, LKY School of Public Policy, National University of Singapore. Email: boyd.fuller@nus.edu.sg; Reconsidering the "local" in local knowledge: consensus building, joint fact-finding, and water management in California and Florida

Local knowledge has often been defined as knowledge that is practical, collective, and place-centred. Advocates of local knowledge believe that local knowledge is often essential for public policy-making, because it introduces location- and culture-specific questions and data that experts might miss in their more generalized approach. However, experts and sceptics often have concerns about legitimacy and usefulness of local knowledge. This paper looks at this interaction of "local" and "expert" knowledges from another angle, the creation of new, problem- and place-specific facts, frameworks, and analyses in consensus building processes convened to solve water and ecosystem management problems. The question that this paper then asks are: does joint fact-finding provide a useful means for legitimizing and integrating local knowledge in official problem-solving? And can the concept of "local knowledge" be expanded to include the often problem- and location-specific facts and analyses produced by joint fact-finding? To look at this question, the author draws upon two case studies in California and Florida. In both states, stakeholders from conflicting groups met and, to everyone's surprise, develop consensus recommendations which decision-makers incorporated into multi-billion dollars programs for restoring local and regional ecosystems and improving water management. In both cases, the local knowledge of farmers, hunters, and other stakeholders was integrated actively into the science produced. Even more interesting, however, is that place-based stakeholders also agreed upon what counted as "good science," so that "good" was measured not only by the scientific method, but also local norms and values.

Keywords: local knowledge, consensus building, joint fact-finding, water management, ecosystem management

Trevor Fuller, Indiana State University. Email: tfuller4@mymail.indstate.edu; Jay D Gatrell, Indiana State University. Email: jgatrell@indstate.edu; Thomas Steiger, Indiana State University. Email: tsteiger@indstate.edu; Eric W LaFary, University of Auckland. Email: ; "Dumb Farmers": The Case for Agricultural Entrepreneurs as Drivers of Economic Development in Northwest Ohio

For over three years, a team of researchers from Indiana State University, The University of Toledo, Bowling Green State University, and The Ohio State University has been investigating the structure and geography of the Ohio greenhouse industry. Three surveys of industry members provided critical insight into the dynamics of the industry and revealed key policy concerns. In 2005-2006, the research team expanded its investigation to include focus groups composed of survey participants in order to understand their perspectives on key issues and to determine how the "Ohio Greenhouse Project" can be tailored to meet the needs of growers and aid the development of this strategic industrial cluster. Based on results from the focus groups, it is evident that growers are ready to transcend traditional perceptions of their industry, transform traditional production and marketing strategies, and identify areas of collaboration that will improve the overall competitiveness of the industry. The poster will present the 2005-2006 survey findings, examine points of departure from previous findings (as appropriate), and contextualize the results using the 2006 focus group data.

Keywords: greenhouse, economic development, agriculture, Ohio

Henning Füller, Institut für Humangeographie, University of Frankfurt. Email: fueller@em.uni-frankfurt.de; 'Production of space' as a technology of power in the neoliberal city: the current ideals of urban dwelling in Europe compared to the U.S.

Driven by ongoing trends of social polarization, the question of guaranteeing social order in a complex environment is becoming urgent. As has been noted, the search for answers is increasingly taking place at the local level. Especially striking in this regard is the process of exclusion and privatization of public space materialized in so-called Gated Communities. But the fact that this bald form of segregated living is hardly found in a European context surely does not deny the existence of underlying structural similarities. Overarching trends do exist in the current housing market, in planning not only of the building and its surroundings but also of an entire lifestyle and a homogenous community; a trend that can be seen rather openly in the master planned communities in the United States but also in the boarding-house types of condominiums being built in German cities recently. Seen from the viewpoint of power theory, these overarching trends in the housing sector of western societies provide a heuristic device to better understand general tendencies of existing neoliberalism. As we can see here, the production of space currently has the underlying impetus of segregating society, naturalizing social relations and governing through the establishment of effective as well as conforming subjects. Drawing on examples from recently built condominiums in the United States and Europe, the grounding rationalities of space as a power technology are explored in this paper.

Keywords: Space, neoliberalism, governance, power

Sit Victor Funghuen, . Email: hragvis@hkucc.hku.hk; Yanting Zheng, . Email: zhengyt@hkusua.hku.hk; A New Global Region-based Urban Pattern- Formation of Extended Metropolitan Regions in China, 1990-2000

Along with the worldwide rapid increase of urban agglomerations since 1980s, a new territorial type or development pattern, i.e. continuous regional extended development and urbanization, has also emerged in the coastal regions in China. This study investigates economic restructuring and spatial transformation in two urban regions, the Yangzi Delta and the Pearl River Delta, to highlight the specific characteristics of this territorial type which make it distinct from its surrounding neighborhoods and from the traditional urban transformation. Our results suggest that not only the traditional urban areas, but also the towns, even the rural areas within the urban regions have priorities to concentrate population (especially migrants), investment (especially FDI) and various things, so the whole regions show more dramatic economic restructuring and development (especially in the rural areas), and being considered as platforms of global production and marketization. The swift transformation endows those original rural places a juxtaposition of urban and rural features, in terms of activities, land use, ways of life which are distinct from the Western experience. So this new regions of fast economic growth are called Extended Metropolitan Regions (EMRs) after McGee. These processes were owed to the process of rural industrialization, especially the development of TVEs. We argue that the concentrated region-based urban pattern is a response of globalization both by firms and by local governments to take advantage of the state-of-the-art in the major port cities after the bankruptcy and reorganization of TVEs since 1990s.

Keywords: City region, Extended Metropolitan Regions, urbanization, regional development, globalization

Jason Funk, Stanford University. Email: jfunk@stanford.edu; Climate policy as a driver of land-use change in New Zealand: barriers and opportunities for indigenous communities.

New Zealand climate policy allows private landowners to earn tradable carbon credits for establishing and maintaining Kyoto-eligible forests. Some estimates suggest that reforestation could offset nearly half of New Zealand's projected excess emissions for the first Kyoto commitment period. Indigenous Maori landowners are a key group of stakeholders, because in many cases they have been unable to utilize other development opportunities, and they hold a great deal of Kyoto-eligible land now reverting to forest. We focused on the Gisborne District, an area of the country containing nearly one-quarter of all Maori land. Using a spatial biophysical model, we mapped the potential above-ground carbon sequestration in marginal pasture and scrub. We compared the economic benefit of carbon farming to other systems for landowners at the parcel level, under several price scenarios. In conjunction with spatial modeling, we also conducted ethnographic work among landowners in the Gisborne District. Using semi-structured interviews, we collected data on land-use decision processes, institutions, and constraints. We found that profit-seeking strategies varied widely, especially among Maori landowners. These strategies were related to the structures for communal governance of land blocks. We evaluated the implications of these strategies for carbon farming uptake in the region in an agent-based framework, building upon the spatial and economic variation captured in our earlier models. Results provide a means for interpreting uptake levels and locations which differ from the expectations of profit-maximizing

behavior. We discuss the implications for these outcomes, in terms of local land use, economy, and national-scale policy design.

Keywords: carbon sequestration, reforestation, indigenous people, land management

Jayson Funke, Clark University. Email: jfunke@clarku.edu; *The Development of Emerging Markets*

This paper will examine the historical and geographic origins of the so-called "emerging market" investment funds and financial markets by exploring their origins in the International Finance Corporation, the private sector arm of the World Bank, and in the financial services industry. It will also situate these emerging markets within existing economic geography and development studies literature. It will conclude by arguing that emerging markets should be understood as an integral component of neoliberal development strategies and discourse, which function to reshape economic relations between core and peripheral economies.

Keywords: Emerging Markets, Development, Neoliberal, Financial Services

Kathryn Furlong, PhD Candidate, UBC. Email: kathrynf@interchange.ubc.ca; *Coalitions and the status quo: resisting neoliberal water sector reform in Ontario*

Resistance to neoliberalization in the water sector has a rather unique ability to act as an umbrella issue under which otherwise disparate groups coalesce. In Ontario, and across Canada, environmental and labour groups have worked together with churches and other activists groups to fight private sector involvement in municipal water supply. The effect of such coalitions is two-fold: (1) they enable activists to garner a broader range of the public trust, thereby realizing more 'successful' campaigns; and (2) they tend to reinforce the status quo for governance (a municipal department in Canada). Regarding the first, their remarkable monopoly over the public trust is not realized simply through idealized 'speaking truth to power'. Their campaign is nuanced and, at times, strategically misleading, and contradictory. This stems most significantly from a mistrust of government-led management, while being caught in a paradigm that presupposes no alternative to [local] state or market led governance. This speaks to the second point: in bolstering the status quo, the 'green' part of the coalition campaigns for a model of which they themselves are quite critical. In their critique of government-led water governance as well as calls for demand-led management including full-cost unsubsidized water pricing, the coalition demonstrates affinity with common tenets of the neoliberal position. As such, 'successful' campaigns may require taking water sector restructuring as a phenomenon that flows from more than neoliberalization, but also from broader social changes that can have moments of accord - among the many moments of discord - with neoliberalization.

Keywords: water-supply, governance, Canada-Ontario, resistance, neoliberalism

Shelagh Furness, University of Newcastle Upon Tyne, UK. Email: Shelagh.Furness@newcastle.ac.uk; *Conceptualizing the 'new' Europe: a role for territoriality?*

This paper will explore how the formulation of political space is undergoing fundamental change in the EU. It is suggested that in order to realise its aims and objectives, the EU has necessarily had to adopt a territorial strategy, one that is qualitatively different to the familiar and dominant modern formulation of the sovereign, territorial state. This EU territory and territoriality is evident in the constitution, construction and realisation of the Area of Freedom, Security and Justice which encompasses the Single Market and the Area of Freedom of Movement of People, and it overarches, co-exists and operates simultaneously with member states' territory and territoriality. It is understood as an instance of scalar structuration, a novel formulation of political space at a supranational scale that challenges the taken-for-granted, fixed-point perspective of modern political spatial ordering. Consideration of the 'new' Europe in the light of this research invites reflection on the assumptions underlying the very conceptualization of different 'Europes', on the many issues and concerns such as identity and 'othering', security and future trajectories, which are identified as being associated with EU enlargement and particularly with the eastern expansion of the EU. It is suggested that an important initial step for the study of any aspect of the 'new', or indeed 'old' Europe is consideration of the territorial frame of reference to which the study relates; since as empirical evidence from my research is demonstrating, this factor could be of major significance to the outcomes and conclusions of such study.

Keywords: European Union, territoriality, Area of Freedom, Security and Justice

Owen J. Furuse, University of North Carolina - Charlotte. Email: ojfuruse@email.uncc.edu; *Immigration Reception and Incorporation: Challenges Facing Latinos in a Pre-Emerging Immigrant Gateway*

Over the past 15 years, Charlotte, NC has developed as a pre-emerging immigrant gateway. A diversified service economy has fueled economic prosperity and accompanying population growth. During this period, the national and transnational Latino immigration stream has been particularly sizable, earning the city designation as a Hispanic hyper-growth metro. Latinos settling in Charlotte have made myriad contributions to the urban community and are recognized to be a critical labor base, upon which components of the city's success rest. However, as their numbers grow, Latinos have become increasingly economically disadvantaged and socially marginalized, raising significant questions about Latino reception, incorporation, and the adequacy of service provision. This paper draws on the research findings from a community-based needs assessment for new Latino residents in Charlotte. Using a multi-faceted methodology, the research finds a broad consensus about the key challenges and barriers facing these newcomers. Indeed, community leaders and low income Latinos share common visions and assessments of the most pressing needs facing Charlotte's Latinos. In addition to presenting the assessment's findings, the paper offers commentary surrounding the potential policy responses to the issues raised.

Keywords: Latino immigrant incorporation, social service provision, public policy

Allison Gabby, Stephen F. Austin State University. Email: gabbyam@titan.sfasu.edu; Aaron Scott, Stephen F. Austin State University. Email: ascott21a@yahoo.com; Stephen Hogue, Stephen F. Austin State University. Email: hoguesn@titan.sfasu.edu; Chris Litherland, Stephen F. Austin State University. Email: photolitherland@hotmail.com; Lily Kate Mathenia, Stephen F. Austin State University. Email: mathenialk@titan.sfasu.edu; Kelly McClinton, Stephen F. Austin State University. Email: ; Karla Parker, Stephen F. Austin State University. Email: ; Thom Ervin, Stephen F. Austin State University. Email: ; Dustin L. Helton, Stephen F. Austin State University. Email: z_heltondl@titan.sfasu.edu; *Sustaining local cultural and natural heritage in the schools through geography*

Caddo Native Americans were the primary inhabitants of the Nacogdoches area when European and other cultures (Spanish, French, American Anglo, African-Americans) first settled here. They relied on bottomland forest sites, home to some of the highest biodiversity in Texas, and clearings in upland pine sites, where they performed sustainable intercropping agriculture for over one thousand years. However, the Caddo population is no longer concentrated in East Texas to provide a regular, primary source of cultural heritage. Caddo Mounds State Historical Park has mounds and exhibits. A Caddo mound site also exists within the Washington Square National Register Historical District in Nacogdoches. More materials and activities are needed to bring this important, ancient, and unique culture to life and sustain it in the minds of local inhabitants. The project links local schools with local cultural and natural heritage through: 1) Development and hosting of activities for schoolchildren at an annual Caddo Days event, including Native American crafts and other hands-on activities; 2) Development and distribution of school teacher kits with materials on local Caddo Native American heritage such as sustainable intercropping agriculture, folklore stories from other local cultures, and surrounding natural heritage such as local pine forest and bottomland hardwood forest - materials will include coloring books, maps, and CDs with slide presentations; 3) Surveys of local state park visitor registers to assess and map the origin of visitors to Caddo Mounds State Historical Park, with subsequent analysis of niche marketing opportunities and estimation of the dollar value of visitors to local communities.

Keywords: sustainability, indigenous people, Caddo

Rita Gaber, UC Berkeley. Email: rgaber@berkeley.edu; *The Biopolitics of Neo-liberal Bodies: Some Reflections on Blood and Knowledge*

In September 2006, Governor Arnold Schwarzenegger signed into law the California Environmental Contaminant Biomonitoring Program, the first state-wide program of its type in the U.S. Authored by several non-profit advocacy and education groups concerned with the links between human and environmental health, the legislation sets in place provisions for gathering biospecimens (e.g., blood, urine, tissue) and therefore data on 'pollution in people' or 'body burdens'. While gathering these data is undoubtedly a welcomed development for those tracing environmental causes of disease, the case of biomonitoring also calls for critical examination of the construction and representation of human bodies as polluted. As such, this paper will outline some implications of framing 'pollution in people' as a problem, the solutions this frame suggests under a neo-liberal order, and some consequences of this form of knowledge for an embodied politics.

Keywords: biomonitoring, health, the body, blood politics

Joan Marie Gabig, . Email: jgabig@iupui.edu; *Geovisualization of Volcanic Islands in the Lesser Antilles, Caribbean*

In recent years, several new geospatial data sources have emerged that enhance potential for visualization of Earth's topography and its relationship to land use and land cover. One such data source is the Shuttle Radar Topography Mission (SRTM) digital elevation model, provided by the National Geospatial-Intelligence Agency (NGA) and the National Aeronautics and Space Administration (NASA). The SRTM project resulted in the most accurate digital elevation data available with near-global coverage. Methods presented in this poster utilize 90m SRTM data available for the Caribbean to develop visualizations of the landscape and terrain for volcanic islands of the Lesser Antilles, including St. Kitts and Nevis. Topographic shading and surface transformations are applied to the SRTM elevation data and integrated with remotely sensed imagery (astronaut photography, Landsat and ASTER imagery) to develop both thematic and pseudo-realistic landscape visualizations in a GIS environment. Using the SRTM data in conjunction with remotely sensed imagery creates an enhanced perspective and understanding of island topography and its effect on land use and land cover patterns.

Keywords: geovisualization, shuttle radar topography mission (SRTM), cartography, remote sensing

Nathaniel Gabriel, Rutgers University. Email: nategabriel@gmail.com; *Non-timber Forest Products, Restoration, and the Urban Forest*

Native species restoration is an increasingly common focus for managers of urban forests. To undertake such projects effectively, engagement of the myriad interests of users of the urban forest is often necessary. Yet, despite this engagement, efforts to restore native landscapes can severely limit how urban people use public land. Even as inclusion of a multiplicity of uses of these spaces increases, non-timber forest products use continues to be overlooked. This paper examines potential effects of restoration on non-timber forest product collectors. It is based on recent research in Philadelphia, in which collectors were engaged in open-ended interviews. Its findings suggest that native species restoration can have a significant negative impact on collectors, who often rely on invasive species for cultural and spiritual fulfillment, recreation, and in rare cases, livelihood. Conversely, the paper also examines ways that non-timber forest product collectors and forest managers can collaborate to achieve mutually beneficial goals.

Keywords: urban forest, non-timber forest products, restoration, political ecology

Mary Gagen, University Of Wales Swansea. Email: m.h.gagen@swansea.ac.uk; Iain Robertson, University of Swansea. Email: I.robertson@swansea.ac.uk; Neil Loader, University of Swansea. Email: n.j.loader@swansea.ac.uk; *Developing high-resolution palaeoclimate records from tropical trees using stable isotope dendroclimatology*

The detection and attribution of anthropogenic climate changes requires fundamental knowledge about the low-frequency variability of tropical climate including large-scale modes such as the El Niño-Southern Oscillation system (ENSO). In the tropics, a lack of instrumental climate records is compounded by a lack of high-resolution terrestrial climate proxies in regions where large populations are vulnerable to climate change. In addition, because the tropics have the energy to influence the entire climate system, extending high-resolution terrestrial proxy records is critical for understanding climate dynamics at a global scale. We combine two pioneering stable isotope dendroclimatology methodologies to develop long palaeoclimatic records using oxygen isotopes in trees, from the Danum Valley, Malaysian Borneo. Rhythmical signals in oxygen isotope records from trees are combined with radiocarbon dating to develop chronological control in non-annual ring forming trees and enable us to extract high-resolution palaeoclimatic information. Distinct atmospheric circulation associated with different precipitation seasons at Danum imprints trees with the necessary information about the climate systems for both chronological control and palaeoenvironmental information.

Keywords: Palaeoclimate, tree rings, Isotopes

Michael Gainor, Los Angeles Unified School District. Email: michael.gainor@lausd.net; *Terrestrial Altitude and Coronary Heart Disease*

Cardiovascular disease is, and has been, the leading cause of mortality in the United States since 1900. While the incidence rate has decreased somewhat since the 1950's and 1960's, and with the development of new medical treatments such as cholesterol lowering drugs and advanced surgical procedures like, diseases of the heart were still the causes of 29.4 percent of all mortality in this country in 2001. The Center for Disease Control and Prevention (CDC) recently released the ranking of 50 states and the District of Columbia on heart disease incidence per 100,000 people over age 35. It was interesting to note that the states of Utah, Colorado, New Mexico, Montana, Idaho, and Wyoming all ranked among the top 10. The expected correlation of heart disease with socioeconomic status

does not seem to correspond to this ranking. This paper will focus on the issue of human health as it relates to the geography of the physical landscape, in particular, the response of the cardiovascular system to increased terrestrial altitude. To seek explanations for this unanticipated spatial distribution of cardiovascular disease incidence, this paper seeks to define the extent to which this correlation between terrestrial elevation and coronary artery disease exists in higher altitude human settlements in the United States and around the world. The paper will also explore possible explanations for this phenomenon, using medical and physiological literature on the subject of cardiovascular disease, with particular emphasis on the effects of decreased oxygen levels and barometric pressure on human metabolism.

Keywords: medical geography, cardiovascular disease, high altitude

Francis A. Galgano, Ph.D., United States Military Academy. Email: bf6360@usma.edu; *The Exploitation of Ungoverned Space in South America's Tri-Zonal Region by Terrorist Organizations*

Instability in failed states is having a debilitating effect on regional security. The new security menace is transnational in nature, characterized by enemies without territory or borders and has adroitly exploited regions of the world where government control is absent or weak. This situation cultivates growing threats to global and regional security, which are being nurtured in the world's ungoverned regions where violent non-state actors (VNSA) seek new havens from which to operate. Territories of Competing Authority are regions in which a sovereign state is unwilling to exercise authority over part of a country. In some cases, a state lacks resources to exert control over a province, thus, the region remains selectively uncontrolled and consequently becomes susceptible to humanitarian disasters and/or exploitation by VNSAs. The rapid exploitation of a lawless area by VNSAs is occurring the tri-border area (TBA) of Brazil, Argentina, and Paraguay. Evidence indicates that this area is being exploited by terror groups with connections to extremist movements in the Middle East. This is an area of competing authority, which includes three cities (Foz do Iguacu, Iguazu, and Ciudad del Este), and a sizable population of about 1 million people. The area is now generating billions of dollars from illicit activities to include money laundering, arms trade, piracy, and drug trafficking. Thus, the TBA presents a terror organization with a near ideal base of operations: a source of finance, a sympathetic population; access to modern weapons; and the infrastructure and communications advantages of three lawless cities.

Keywords: ungoverned space, non-state actors, military geography

Megan Gall, University of Denver. Email: megan.gall@du.edu; *The Relationship Between Panhandling and Crime and a Public Policy Assessment*

The "Broken Windows" idea has been at the forefront of criminological thought and policing strategies since it was articulated by James Wilson and George Kelling in 1982 in *The Atlantic Monthly*. Broken windows is a metaphor for community disorder that states minor disorder left unattended will escalate cyclically. As disorder increases citizens withdraw due to fear which invites a further increase in disorder and more serious crime. The Broken Windows idea translates into a police strategy known as community policing and utilizes the order maintenance approach which is applied as a no tolerance policy for community disorder. These policies have been adopted by a number of major cities, most notably in New York City's Quality of Life Initiative. The city and county of Denver, Colorado is incorporating these practices and ideas in the police department. In January 2006, new ordinances were passed detailing regulations for panhandling, a sign of disorder specifically mentioned in Broken Windows. Research was conducted to investigate the relationship between high panhandling areas and crime, the effectiveness of the strategy in lowering crime, and the potential geographic displacement of crime. Analysis was accomplished using geographic information science (GIS) crime mapping and analysis techniques, the weighted displacement quotient (WDQ), and traditional statistical techniques. Conclusions shed light on the effectiveness of the panhandling strategies and the theoretical relationship between crime and disorder.

Keywords: GIS-crime, Broken Windows, displacement-crime

Melanie Gall, University of South Carolina. Email: melanie.gall@sc.edu; *Social Vulnerability Indices to Natural Hazards*

Over recent years, numerous approaches emerged that attempt to quantify social vulnerability to natural hazards at the nation state level of analysis. Their intended purpose is to provide globally comparable vulnerability assessments, benchmark baseline vulnerability, identify trends and inform policies. The development of an index though, poses many challenges and requires crucial decisions regarding the choice of indicators, normalization procedures, weighting, and aggregation schemes. Since there is no agreed upon set of vulnerability indicators or aggregation methodology, vulnerability indices vary distinctly in their approaches. This raises questions concerning index validity and best practices, i.e. do all of these indices possess the ability to actually capture the phenomenon of social vulnerability or do some perform better than others? This

paper compares selected indices (Predictive Indicators of Vulnerability, Disaster Risk Index, and Environmental Sustainability Index) to assess how comparable they are in determining social vulnerability. This is done by sensitivity analyses, comparisons with proxy measures (e.g. life expectancy), and evaluations of spatial trends in the output measure. The findings suggest that despite their different approaches, the Predictive Indicators of Vulnerability and the Environmental Sustainability Index show strong spatial parallels, whereas the Disaster Risk Index does not.

Keywords: index, social vulnerability, hazards, vulnerability science, ranking

Sarah Irene Gall, Griffith University. Email: s.gall@griffith.edu.au; Exploring Articulations of Everyday Life in Brisbane's Inner-Urban West End: Emerging Spaces of Flexibility

Recent research has revisited the small-scale case-study in order to focus on embodied practices at minute scales (for example within households, neighbourhoods and particular social groupings). These types of 'everyday life' research often consider how different social agents shape space and place, understanding actors as adaptable, flexible and fluid. The approach implies a methodological openness to interactions that occur at multiple and complex scales, exploring the ways everyday actions re-make ecological, discursive, economic, social and power relations. Yet when working in urban contexts, this approach finds itself limited by existing urban research agendas. City residents (or "bodies in space") are often rendered invisible by research which describes the world-historical process of urbanization. The response of many urban 'everyday life' enquiries has been to define peoples' activities as resistances against some sort of prevailing world order, whether this be a hegemonic "capitalism" or even "housing market". What if we were to move away from this idea of everyday resistances to instead consider and explore emerging spaces of flexibility within city landscapes? Drawing on case-study research in Queensland, Australia, this paper considers the ways human (and non-human) agents in the inner-city respond to changed external circumstances, and how these actions are articulated. The paper also considers what themes or lenses help us as researchers to step outside the power/resistance binary to explore a range of flexibilities within urban life. Drawing richly on resident's articulations of their everyday practice, this research seeks to challenge, defamiliarise and rework existing ideas of life in city-spaces.

Keywords: Flexibility, Everyday Life, Diary-Interview, Brisbane, West End, Urban

Lesley-Anne Gallacher, University of Edinburgh. Email: lesley.gallacher@ed.ac.uk; Unruly monsters? Imaginative play in the nursery

Most young children are passionate therianthropes. In 'imaginative' and 'fantasy' play they en-gage in all kinds of shapeshifting, inventing new worlds and creating new possibilities as they do so. Early childhood educators are also keen on fantasy play, but only under very particular circumstances. Preschool educators do not seem to share children's passion for monsters. Monsters are tolerated in the nursery so long as they stay within the story books, contained within allegory. When they are rampaging across the classrooms, however, it is another story altogether (so to speak). Monstrous play is disruptive; it is noisy, difficult to control and sometimes violent. To engage with monstrosity is to invite disorder into the nursery. Of course, potential disorder always lurks within the the nursery order, but actually inviting monsters in seems all too likely to tip the balance. For many educators, then, it seems far easier, and safer, to simply ban monsters outright and get on with 'se-rious' play instead. I do not share this view. I view monstrous play as a creative practice through which children might invent new possibilities, and even new selves. In this paper, I will use video recordings of preschool children at play to think through their passion for becoming-monstrous, and consider what 'we' lose when 'we' eradicate them.

Keywords: monsters, passion, preschool, imagination

John Galloway, Union of Concerned Scientists. Email: ; Renewing California's Electricity: A Status Report on the RPS Program

The California Renewables Portfolio Standard (RPS) is the most aggressive policy of its kind in the U.S., requiring that most of the state's utilities obtain 20% of their electricity from renewable resources by 2010. Utilities now face the enormous challenge of nearly doubling the amount of renewable generation in their portfolios in only four years. The RPS program got off to a slow start in 2002, and while utilities have contracted for substantial new capacity since 2003, policymakers expect some of those projects to be delayed or not materialize, and transmission constraints will hamper the timely delivery of many projects. Less than ten percent of the capacity needed to achieve the RPS has come online. The presentation will report on the state's progress in achieving this goal, and explore the policy and technology complexities and challenges that utilities and regulators must overcome to ensure the program's success. The presentation also provides an update on recent developments at the state's regulatory agencies and legislature, and explains the implications for reaching the 20% renewable

mandate and illustrate the vital role of the RPS in meeting California's recently adopted greenhouse gas reduction targets.

Keywords: RPS, California, Renewable Energy

Ryan E. Galt, Ph.D., Cornell University. Email: reg29@cornell.edu; Structure, Agency, and Agroecology in the Explanation of Agrochemical Use Intensity

Agroecologists and agricultural economists have separately attempted explanations of variation in farmers' pesticide use intensity, yet research in each of these areas typically leaves out key socioeconomic or biophysical relationships, respectively. The econometric analysis presented in this paper merges the concerns brought together by cultural and political ecology?variables related to agency, political economic structure, and agroecology?to explain differences in pesticide use intensity by Costa Rican vegetable farmers. Farmer's personal characteristics?age, education, propensity to seek out information, and knowledge of pesticides?negative effects on others?are very important. Household characteristics?whether the farm is an incorporated business, use of family labor, composition of the spraying team, farm resources, and off-farm income?matter greatly. Political economy is important through tenure arrangements, contract farming, and pesticide residue enforcement. Crop specificities and agroecological relationships?parcel size, fallow periods, years of consecutive vegetable production, fertilizer and foliar nutrient use, use of integrated pest management, and spraying of biopesticides composed of antagonistic fungi?have important effects on pesticide intensity. Environmental advantage also plays a role since farmers' commuting distance, strongly related to farming in agricultural environments better suited to the specific crop in question, is negatively associated with pesticide intensity. Coupled with understandings from qualitative methods employed in fieldwork, the econometric analysis shows the joint importance of agency, structure, and agroecology and the problems of explaining pesticide intensity without considering each of these important facets of human-society fusions.

Keywords: econometrics, cultural and political ecology, agroecology, pesticide intensity

Juan Pablo Galvis, University of Washington. Email: jgalvis@u.washington.edu; The state and the construction of territorial marginality: the case of the 1961 land reform in Colombia

This paper explores the ways in which the 1961 land reform policy in Colombia constructed as marginal particular territories and the landless settlers occupying them, through an analysis of both its discourse and the outcomes of its implementation. I privilege the role of the state as an actor historically producing such marginality. However, while focusing on these discursive constructions by the state, I acknowledge that the production of marginality cannot be understood isolated from the political economic factors creating conditions for the existence of a landless peasantry. Also, I take into account that there are multiple ways in which the state as an actor is itself a field of contestation and struggle, rather than a monolithic structure. Agricultural policy has been seen as an attempt to control and make legible rural territories outside the realm of the state, running the risk of idealizing marginal places as venues of localized resistance. This paper illustrates the other side of the coin of this vision by analyzing how land reform worked to construct marginality and thus render subjects and populations illegible. Contestation and resistance, under this analysis, are located inside the operation of the state rather than in its absence.

Keywords: development, marginality, land reform, Colombia

Julia Andrea Gamas, Ph.D., US EPA. Email: gamas.julia@epa.gov; Evaluation of the Input-Output Framework to Assess Resource Scarcity

Energy models use information about primary energy resource supplies as inputs. However, short term prices in energy markets can mask true scarcity because they depend on expectations about finding and developing future reserves. This issue makes it difficult to construct conventional long term supply curves for energy markets because price estimates may not be meaningful. The goal of this study is to evaluate the input-output modeling framework as a tool to determine whether a resource is becoming more scarce. This information can assist energy modelers in the characterization of the supply of primary energy in their models. If it is determined that a resource is scarce, then the modeler can make a determination about its future supply. This information can complement observed price and quantity information; whether a backstop technology or alternative source of energy will become feasible (such as unconventional sources of oil, or ethanol, for example). Coefficients for different mining industries were analyzed to see if it was possible to observe a trend in the use of inputs to those industries, and whether any changes could be attributed to scarcity alone. A comparison with coefficients with other extractive or mining industries with known scarcities was conducted. Preliminary results together with directions for future research will be discussed at length.

Keywords: energy, input-output, resource, scarcity

Matthew Gandy, Dr, University College London. Email: m.gandy@ucl.ac.uk; *Bio-political contestations in the urban arena*

This paper explores the idea of “bio-politics” in relation to the modern city. The concept of bio-politics is traced through its original Foucauldian formulation to more recent explorations of the relationship between the body and the city. We explore the idea through the emergence of discourses on hygiene, public health and differing conceptions of “urban order”. We find that the bio-political dynamics of urban space encompass both juridical and dispersed sources of power in modern societies. It is concluded that existing conceptions of power in urban space need to take account of those diffuse sources of power that enable the modern city to function in spite of its contradictory dynamics. We also need to contend with those “zones of indistinction” which appear to lie outside of conventional urban discourse yet reveal much about the hidden dimensions of urban modernity.

Keywords: cities landscape modernity bio-politics urban infrastructure

Bharath Ganesh Babu, Valparaiso University. Email: bganeshb@valpo.edu; *Variation in leaf area measurements at multiple spatial scales*

Monitoring the tropical forests of the Brazilian Amazon is ever more reliant on remotely sensed observations. However, remote sensing observations are merely cell based radiation measurements that require extensive processing to extract meaningful information. The accuracy of information relies on a combination factors such as pixel size, spectral resolution, underlying land cover, and information extraction techniques. In order to study the effects of pixel resolution on leaf area measurements in a heterogeneous tropical landscape, a study area in north central Amazon was selected. Multi-spectral satellite data at 4m, 30m, and 250m resolutions were used to extract leaf area indices, and the results were compared. Pronounced distortions occurred in both low and high resolution datasets. A multi scale integrated approach has been explored to improve accuracy of these measurements.

Keywords: Remote sensing, Amazon, Leaf area, Spatial resolution

Auroop R Ganguly, Oak Ridge National Laboratory. Email: gangulyar@ornl.gov; Budhendra Bhaduri, Oak Ridge National Laboratory. Email: bhaduribl@ornl.gov; *A Framework for Geospatial-Temporal Knowledge Discovery*

The ability to discover actionable insights from massive and disparate geographic data has often been highlighted as an important challenge in multiple domains. The research community has responded to the challenge through breakthrough science and technologies in spatial databases and integration of semantic information, spatial statistics and spatial data mining, modeling of spatial processes based on domain knowledge and/or data-dictated insights, as well as geographic information systems for visualization and decision-making. In recent years, remote and/or in-situ sensors, including wireless sensor networks and large-scale sensor infrastructures, as well as RFIDs, satellites and GPS systems, are becoming ubiquitous and useful for high priority applications like disaster management and climate change. In addition, the need for faster and more reliable decisions exists in domains ranging from disaster mitigation to security analysis. These challenges have led to emerging requirements for dynamic knowledge discovery from geospatial-temporal data, and real-time, or near real-time, decisions. We describe recent research within our group in areas like spatio-temporal databases, ontologies and real-time systems, spatio-temporal statistics and data mining, spatio-temporal process modeling, and space-time geographic information systems combined with real-time decision support. One of our emphases is on rare events and abrupt change for domains ranging from security or intelligence analysis to climate change and impacts. We describe non-traditional and novel algorithms, methodologies or technologies which have been developed, or are being utilized, to solve these challenges. We propose a conceptual framework for geospatial-temporal knowledge discovery, which brings together disparate capabilities within an overarching solution for specific application domains.

Keywords: geospatial-temporal knowledge discovery

Sarah Ganley, Macalester College. Email: sganley@macalester.edu; *American Indian Urban Migration and Population Trends: 1950-2000*

According to the United States Census, the American Indian population has increased tenfold in the past fifty years, and the percentage of American Indians living in urban areas has increased from 13 to 64 percent in the same time period. Starting with the federal urban relocation program in the 1950s, the American Indian population has seen large shifts in demographics. Although some of these trends can be attributed to changes in the U.S. Census, other factors, such as changes in ethnic classification and a shifting political and social environment that encourages the expression of Indian identity, have also contributed to the significant increase in population. The data provided by the federal relocation program and the subsequent research done by social scientists

until the 1970s forms a significant body of work that has yet to be paralleled in recent years. This paper examines American Indian urban migration and seeks to explain the population trends of the last decade, with a focus on urban Indian populations and the borders between reservations and cities. Using the state of Minnesota, as it has an Indian population that is distributed in both urban centers and rurally, Census data are used to express the migration and demographic trends both numerically and spatially.

Keywords: American Indian, urban geography

Jin Cheng Gao, Kansas State University. Email: jcgao@ksu.edu; Douglas G Goodin, Kansas State University. Email: dgoodin@ksu.edu; *Canopy Chlorophyll Estimation with Hyperspectral Remote Sensing*

In this research, proximal measurements of hyperspectral reflectance were used to develop models for estimating chlorophyll content in tallgrass prairie at leaf and canopy scales. Models were generated at the leaf scale and then extended to the canopy scale. Three chlorophyll estimation models were developed, one based on reflectance spectra and two derived from derivative transformations of the reflectance spectra. The triangle chlorophyll index (TCI) model was derived from the reflectance spectrum, whereas the first and second derivative indices (FDI and SDI) models were developed from the derivative transformed spectra. In each case, indices were developed from observed features in the reflectance and derivative spectra. The three models were found to be well-correlated with the chlorophyll content measured with solvent extraction. The result indicated that the three models were effective for the leaf scale estimates of chlorophyll content. The three chlorophyll models developed at the leaf scale were further extended to the canopy scale. The three models were found to be conditionally effective for estimating canopy chlorophyll content. The TCI model was more effective in dense vegetation, and the FDI and SDI models were better in sparser vegetation. This research suggests that the extension of chlorophyll models from the leaf scale to canopy scale is complex and affected not only by soil background, but also by canopy structure and components.

Keywords: Hyperspectral, remote sensing, chlorophyll

Karina - Garbesi, Professor, California State University - East Bay. Email: karina.garbesi@csueastbay.edu; *Are Rail-Sited Transit-Oriented Developments in the San Francisco Bay Area Achieving Sustainable Cities Goals?*

Stimulated by a regional Smart Growth strategy that advocates broad environmental and social justice goals, transit oriented developments (TODs) are rapidly multiplying in the San Francisco Bay Area. Using field observations in and around BART-sited TODs, interviews, and existing data, this guided field study conducted by a Cal State East Bay Geography and Environmental Studies class, investigated the extent to which these TODs are facilitating those environmental and social goals, and why. Metrics included green-building and landscape design, density, pedestrian and bike friendliness, community oriented design, architectural diversity, and affordability. In general, these TODs are facilitating only the narrow goals of placing housing near transit and reinvigorating mixed-use development, while ignoring the significant environmental potential of green building design, in particular solar electric, solar hot water, and passive solar design. While there are some exciting examples of architectural diversity and ecological design, most BART-sited TODs follow a relatively mundane pattern: moderate density buildings using a modest palette of repeated design elements in ‘California neutral’ colors with layouts poorly designed for pedestrians and children and common land devoted primarily to automobiles. While some TODs integrate well with their existing communities and enhance their urban environments, others are so poorly integrated they feel isolated and appear destined for problems. Again, with a few notable exceptions, TODs are contributing only modestly to affordable housing in the Bay Area. While having limitations, Berkeley area TODs achieved the highest environmental and social rankings.

Keywords: transit oriented developments, sustainable cities, green buildings, San Francisco Bay Area

Ricardo Alexandrino Garcia, IGC/UFMG/BRAZIL. Email: alexandrinogarcia@gmail.com; Ralf Matos, IGC/UFMG/BRAZIL. Email: ralfmatos@yahoo.com.br; *Geographic Dimensions of the Peripheralization Process in Brazilian Metropolitan Regions*

This study proposes a socio-demographic and economic-geographic characterization of the central and peripheral areas of the main Brazilian metropolitan areas (MA), based on the 1991 and 2000 censuses data and IDH (Human Development Index) indicators. Methodologically, there are three kinds of geographical concentric areas: the first one embodies the central metropolis surface; the second one contains the nearest adjacent periphery; and the third one agglutinates the remaining metropolitan area municipal districts. The municipal districts that do not belong to the metropolitan areas are aggregated, for each state, what allows comparative analysis among the three metropolitan and non-metropolitan areas. The socioeconomic indexes initially focus the

population growth, total fertility rates, life expectation, mean family per capita income, and the IDH indicators. In the final analysis, classifications that contemplate social, demographic and economic differentials, taking into account house location (rural and urban), migration condition, sex, life cycle insertion and schooling are presented.

Keywords: metropolitan process, geographic dimensions, demographic and economic differentials

Juan Carlos Garcia-Ellin, JD, MA, University of California - Los Angeles. Email: jcgarcia@ucla.edu; Educational attainment of domestic Hispanic migrants: the case of California

This paper will deal with particularities of Hispanic domestic migration and the possible effects it is having in the amounts of the skilled population within the state of California. As a major recipient of Hispanic migrants from abroad, California has the largest number of Hispanics residing in the state. According to the US Census Bureau, the domestic migration patterns indicate that California has a negative flow of domestic Hispanic migrants. Does the negative domestic migration patterns are synonym to negative flow of college educated Hispanics? According to this study, it may not be necessarily so. Many have speculated about the lack of college educated people in California and the loss of people from that group on the state's population. This paper will show that Hispanics are not necessarily part of the loss of the college educated population in California. When the statistics are analyzed, the rates of college educated domestic Hispanic in-migrants are higher than the rates of college educated Hispanic out-migrants. California may be losing less educated Hispanics, not college educated ones.

Keywords: population, Hispanics, Latinos, migration, California

Hector Garcia-Escobar, CICIMAR-IPN Becario COFAA-EDI. Email: capitanhge@yahoo.com; Luis Chias-Becerril, UNAM Instituto de Geografía. Email: lchias@yahoo.com; Mexican Sea Ports Of Call For Cruisers

Cruisers' data registered at Mexican Sea Ports of call define a constant increment of passengers flow for last 12 years, this paper analyses main maritime tourist destinations of Cruisers. As a whole, Mexican Sea Ports System, is integrated by 90 sea ports, with different activities, but statistics (from 1993 to 2005) show that there are 25 sea port destinations, but in some of them, tourism is not main activity. In a general analysis, there are six main destinations which covered 84 percent in number of passengers added by each series. Then, there are two groups of sea ports concerning to Cruisers, major (those six) and minor one, analyzed each one. Major group includes Cozumel, Ensenada, Cabo San Lucas, Puerto Vallarta and Acapulco. It is important to say that Cozumel is the greatest port of call which operates 45 percent of all passengers transported by cruisers at Mexican Sea Ports of call. It is to say that other 5 ports are located on Mexican Pacific Riviera. As a result of analysis, it suggests there are two main reasons which explain increasing demand: 1) origin/destination (which includes geographical localization, time consumed, and prices) and 2) infrastructure (berths, commodities, access, and attractions). A comparison between two sea ports of call (Cozumel and Cabo San Lucas) it is evident the reasons of superiority from the first port: closest to main origin, time and prices of cruiser are lower, but better on infrastructure, which includes berths, second coral barrier, archaeological sites, among others.

Keywords: Mexican sea Ports of call, geographical location, Cruisers, attractions, infrastructure

Bradley S Gardener, CUNY The Graduate Center. Email: bgardener@gc.cuny.edu; A Quantitative Analysis of Black populations in Fairfax County, Virginia

Using 2000 Census data, Black populations in Fairfax County are broadly examined. The degree of heterogeneity that exists among the Black population in this area is measured. This project explores the Black population in terms of ethnicity and socio economic status. The spatial patterns of West Indians and other Black ethnic groups are empirically tested against paradigms of Triple Layering and Heterolocalism. These are the general purposes of this research. Furthermore, this project attempts to elucidate the spatiality of Black ethnic groups in hope that more exhaustive research can be conducted at a smaller scale.

Keywords: Triple Layering, Heterolocalism, Census 2000, Black Geographies

Alexander Gardner, Ph.D., Tibetan Buddhist Resouce Center. Email: alex@tbrc.org; Regional Geographic Identity Formation in Nineteenth Century Eastern Tibet

This paper examines the geographical activity of a well-known triad of Tibetan religious leaders active in the Sino-Tibetan border region of Khams the second half of the nineteenth century. I argue that they contributed to a lasting regional identity that has survived the political divisions of the territory. The three lamas - Jamgon Kongtrul, Khyentse Ongpo, and Chogyur Lingpa - each contributed substantially to the sanctification of particular sites across Khams,

primary through the composition of religious gazetteers and the performance of ritual activities at the sites. Both types of activities served to root specific religious traditions and customs in the soil of the region, staking the particularities of the Khams culture firmly to Khams space. Khams had long had an ambiguous geographical identity. Its many polities enjoyed centuries of both de facto and de jure independence from Tibet, China, and from each other. In the nineteenth century the region was a primary theater for the struggle between the Qing Empire and a nascent Tibetan state to establish their relationship and border. Both sides claimed Khams as their own and sought to formally integrate its territory into their own. As a result Khams itself threatened to disappear as a place. In the absence of any nationalist movement that could resist the Tibetans and the Chinese in the political sphere, the geographic activity of the region's religious leaders gave Khams the geographic foundation on which to establish and preserve its identity as a place.

Keywords: religious geography, Tibet

James Gardner, University of Manitoba. Email: gardner@cc.umanitoba.ca; Anthropogenic Factors in Increasing Risk from Natural Hazards in the Indian Himalaya

Natural hazards pose a significant risk to people, property and infrastructure in the Indian Himalaya. There has been speculation and increasing evidence that risks posed by natural hazards have increased over time as a result of biogeophysical changes and changes in social-ecological systems. In this paper, anthropogenic factors in increasing risk are described and discussed using empirical evidence from three areas: the Kullu District in Himachal Pradesh, the Garhwal region in Uttaranchal, and the Darjeeling District of West Bengal. The hazardous processes of significance include floods of all types, debris flows and landslides of all types. The evidence suggests that the single most significant factor in increasing risk results from population growth and increased building in hazard prone areas. A secondary factor, especially at the local level, is disturbance of the existing bio-geophysical system by anthropogenic causes. Of lesser importance but of significance locally are disturbances caused by deforestation and agriculture. Finally, the effects of climate variability and change must be considered but remain speculative at this time. Evidence to date suggests that measures to reduce risk from natural hazards in the Indian Himalaya must, in the first instance, be addressed through appropriate land use planning and management and secondarily through structural and other physical means.

Keywords: Himalaya, hazards, landslides

Brian J. Gareau, MS; MA; PhD Candidate, University of California - Santa Cruz. Email: bgareau@ucsc.edu; Methyl Bromide, the Protected Counterpart of the Carbon Economy: Neoliberal Discourse, Nation-State Protectionism, Science, and Civil Society in the Montreal Protocol

Despite the successes of the Montreal Protocol on Substances that Deplete the Ozone Layer, ozone layer destruction is still a serious global environmental issue. Moreover, recent research shows that ozone layer destruction and global climate change are intimately linked. Yet, thousands of tons of ozone-depleting methyl bromide (MeBr) remain in use in the U.S. and in other parts of the world. The continued use of MeBr is largely due to political economic concerns. Here, evidence of U.S. protectionism found in the carbon economy is also found in chemicals that work synergistically with heat-trapping particles to alter myriad ecological processes. Thus, MeBr and remaining chlorofluorocarbons (CFCs) can be considered counterparts of the carbon economy, protected by the U.S. from annihilation. This paper explores how the Montreal Protocol is currently undermined by U.S. political economic positions of protectionism, driven largely by California's agro-industry. Using empirical data gathered at Montreal Protocol meetings from 2003-2006, the paper shows how, through neoliberal discourse, U.S. policy undermines the Montreal Protocol's mandate to phase out MeBr. Building on the literature in critical geography that demonstrates how environmental concerns are undermined by corporate protectionism, and the newer literature on neoliberal governmentality, the case study illustrates how science, nation-state protectionism, and neoliberalism can become articulated uneasily and in sometimes unexpected ways at the global level. Civil society groups have had little success in reversing the Montreal Protocol's leniency toward U.S. claims, due to the fact that their interventions are incompatible with the neoliberal discourse of international environmental regulation.

Keywords: Governmentality; international environmental governance; methyl bromide; Montreal Protocol; neoliberal discourse; neoliberalism

Paul A. Gares, East Carolina University. Email: garesp@ecu.edu; Patrick Pease, Northern Iowa University. Email: patrick.pease@uni.edu; The influence of topography and approach angles on local wind speed in a coastal blowout, Jockey's Ridge State Park, North Carolina, USA

This study examines the wind field and associated sediment transport through a 3-5 m deep blowout at Jockey's Ridge, North Carolina. The blowout has an orientation of 240°. Thirteen wind vane/anemometers were placed 0.5 m

above the surface throughout the blowout. A 4-meter mast, located upwind of the blowout, provided a reference for the blowout sensors. Wind speed records at each sampling location were grouped according to the mast wind direction. Wind direction data were classified into 100 groups ranging from 250 to 310°. Wind speed varied significantly with wind direction. In the blowout, wind speed increased gradually (100-120%) relative to the mast speed as the direction aligned with the blowout axis. However, locations on the blowout floor generally showed a reduction in wind speed relative to the reference. This reduction was greatest (50-80%) for winds approaching the blowout from azimuths of 300° and greater. Significant acceleration (100-150%) relative to the reference was recorded at locations at the landward ends of the blowout. On the dune crest north of the blowout, acceleration was very high and consistent (160%) regardless of direction, whereas on the dune crest to the south, wind speeds were lower than the reference (60-110%) except when wind approach was nearly normal to the crest. Sand transport patterns mimicked the wind speed patterns. The most effective sand transport occurred when wind direction was oriented along the blowout axis. Winds from other angles were largely disrupted by upwind dune features and were more likely to cause deposition.

Keywords: : Air flow; sediment transport; blowout; coastal dunes

Gregg Garfin, Climas/University of Arizona. Email: gmgarfin@email.arizona.edu; Preparation, Serendipity, Persistence: Developing and Implementing Arizona's Drought Plan

In spring 2003, following the most severe and pervasive drought impacts in recent memory, Arizona Governor Janet Napolitano enacted Executive Order 2003-12 directing the Arizona Department of Water Resources (ADWR) to convene a Drought Task Force and develop a drought plan - the arid state's first! The Governor's Drought Task Force consisted of heads of state and federal agencies, as well as two state Legislators; however, a small army of agency personnel, academics, and volunteer consultants conducted the real work of researching, drafting, and implementing the drought plan. As the drought plan was being developed, the Climate Assessment for the Southwest project at The University of Arizona (CLIMAS), with its mission to develop usable research products and processes by fostering connections between scientists and stakeholders, was poised to contribute to the effort. CLIMAS played a key role in bridging the gap between researchers and policy makers, including development of drought monitoring protocols, background documents, drought mitigation and response options, and local drought impact groups (LDIGs) — a unique mechanism for citizen stewardship and county-level drought preparedness. At present, CLIMAS, in partnership with Arizona Cooperative Extension and ADWR continues work to implement the LDIGs and to improve Arizona drought monitoring and policy. The success of our drought planning work depends on anticipating decision-maker needs, forging solid long-term relationships with cooperating agencies, playing off project strengths and finding partners to fill-in weaknesses, and inviting adequate public participation. These lessons form the basis for developing and delivering effective regional climate services to decision-makers.

Keywords: drought, stakeholders, integrated assessment, climate services

Jeff Garmany, University of Arizona. Email: garmany@email.arizona.edu; Beyond the Right to the City: New understandings of urban democracy and social practice in Fortaleza, Brazil

Within the discipline of geography, numerous scholars concerned with urbanization and its social effects have turned to Lefebvre and his ideas pertaining to the "Right to the City". Mark Purcell notes that while this theoretic may have its drawbacks, he also suggests that perhaps "a more explicit debate on what the right to the city should entail? might contribute to greater urban democracy" (Purcell 2002, 107). Stated differently, if current understandings regarding the right to urban space were centered more around the everyday use of space rather than ownership, then perhaps the politics of space would be more open to the input and needs of all inhabitants. In this paper I take up Purcell's challenge to more critically interrogate Lefebvre's "Right to the City" to see if this notion may indeed potentially "contribute to greater urban democracy," or at least provide better understandings of it. Working from my own fieldwork in the favela community of Pirambu (Fortaleza, Brazil), I question how residents are contesting the use of space in their neighborhood. I ask whether their efforts resemble a push for greater participation in democratic processes, and, if so, are their arguments based in any way upon their own rights to the city. Ultimately, I consider whether residents in Pirambu see the usage of urban space as a stronger claim than exchange value in the right to the city, and how different conceptualizations of space are affecting local issues of democracy, governance, and neighborhood citizenship.

Keywords: Use value, exchange value, urban development, flows

Steven M Garrett, MS, MA, RD, University of Washington. Email: geografood@yahoo.com; A Chain and Network Approach to Identifying Social Justice and Environmental Sustainability Issues in an Urban Food System

The focus of this paper is on the theory and methodology of urban food system assessments and how policy directions in creating new urban forms and policies can be identified using commodity chain and network analysis techniques. Most previous descriptions of food systems focus on commodity chain analysis, which does not provide the deeper understanding of institutional structures and relationships that network analysis can. By combining the two methodological approaches, problems and opportunities for solving them can become more apparent. Examples are drawn from a study of Seattle, Washington's food system, which provided the practical impetus for this epistemological advancement. The food system model developed in this project was especially useful in locating alternatives to the status quo of the industrial food network. It also revealed leverage spots for various food system actors to engage concerns amenable at the local level. The goal of the project was to create a food system that is more socially just and environmentally sustainable. Thus, this model will be of use for academics in urban planning, geography and other disciplines with an interest in the multiple facets of the urban food system and for practitioners who wish to integrate food systems into their community planning work at various scales.

Keywords: urban food systems, alternative food, actor network theory, commodity chain

Dustin Garrick, University of Arizona. Email: dgarrick@email.arizona.edu; Amy McCoy, University of Arizona. Email: amccoy@email.arizona.edu; Flowing Uphill toward Conservation: Property Rights and Water Governance in the Santa Cruz River Valley

Despite a pattern of high public land ownership in the Western US, over 90% of the land along the Upper Santa Cruz River is privately owned. Fragmented and contested property claims have challenged collective efforts to govern the river sustainably. The Santa Cruz River therefore provides an opportunity to analyze water governance and community-based conservation at the intersection of property rights, institutions, and ecohydrological conditions. A proposed community water rights agreement has prompted consideration of environmental water marketing tools to meet river conservation objectives, placing this case within the paradigm shift toward market environmentalism as a mode of natural resource governance. This trend toward market-driven solutions has unfolded against a backdrop of rural economic transition and changing institutional dynamics among communities, the state, and freshwater resources. The paper begins by defining market-based approaches to reallocate water for conservation (instream) purposes by highlighting how the Pacific Northwest model has influenced freshwater protection throughout the West. While the economic aspects of environmental water marketing have been examined in detail, the institutional and ecohydrological dimensions have received limited attention. This case study articulates the obstacles and opportunities of applying transactional tools in differing regulatory and ecological contexts, specifically in the US Southwest and the Upper Santa Cruz River. Following from the work of Karen Bakker and others on neoliberal nature, the debates in the Santa Cruz over private property, water rights and riparian protection illuminate how water's physical geography influences its governance.

Keywords: Property rights, Community-based Conservation, Water Markets, Institutions, Environmental Policy

William L. Garrison, Institute/Transportation Studies. Email: garrison@newton.berkeley.edu; Increasing Flexibility in Legacy Systems

Priority for flexibility is a no-brainer. Flexibility is what we seek when striving to increase or expand economic and social choices, equity, technological innovations, and other desirable things. Flexibility provides the robustness we need to adjust to changes such as those arising from a warmer/colder world, and the actions required when managing threats from and results of social strife, economic downturns, environmental catastrophes, infrastructure disruptions, and war. Flexibility is easy to praise at the level of principle, if we allow that a bit of stability and resistance to change does have merit here and there. However, at the level of practice or operations the concept is most illusive, and explaining what flexibility means, why it is thwarted, and how it might be obtained is a very challenging task. My remarks begin by contrasting views of systems and their behaviors. Alternative explanations for behaviors thwarting flexibility are identified. Consequences of inflexible, locked-in development paths are illustrated using examples from transportation and similar systems. Suggestions for increasing flexibility are made after examining system behaviors in dynamic contexts. Academic, government, and industry experiences inform and color my interpretations.

Keywords: flexibility, research design, systems, behaviors, transportation, applied

Georg Gartner, TU Vienna, Department of Geoinformation and Cartography. Email: georg.gartner@tuwien.ac.at; *Ubiquitous Cartography as new means of supporting wayfinding*

This presentation deals with current efforts at the Technical University of Vienna to analyze methods of wayfinding support for pedestrians in mixed indoor and outdoor environments. It is assumed, that methods of ubiquitous cartography in terms of a combination of active and passive systems with various presentation forms can support the wayfinding process. In this context the term ubiquitous cartography follows the definition of Ota (2004), who stated "ubiquitous mapping is that people can access any map at anywhere and anytime through the information network", incorporating also Morita's perspective (2004): "includes not only map making but also map use and map communication considering the interaction between map, spatial image, and the real world". The main research question include the modelling of the behaviour of pedestrians and the possibility of meeting the needs/behaviour by a combination of active and passive systems. The use case includes therefore the usage of mobile devices in combination with short-range sensors and public displays. The main aim is to make the environment "smart", so that adaptively the "smart" environment delivers customised and location-dependent information for a particular user, instead of trying to permanently track and send information from centralized systems.

Keywords: Ubiquitous Cartography, Wayfinding, Location Based Services

Mike J. Gasher, Concordia University. Email: gashmj8590@yahoo.ca; *Journalism as a Practice of Cartography: Mapping the News Geography of Three U.S. On-line Dailies*

This paper posits journalism as a practice of cartography, arguing that through their daily news coverage, journalists make maps which outline the contours of community, establish that community's borders and membership criteria, identify centers of power, explain the extent and nature of the community's relations to the larger world, in sum, sketch a picture of who and where "we" are. In so doing, journalists put particular events, people, institutions, concerns and solutions on the map, marginalizing, even excluding others. They define the ways in which events are newsworthy - i.e., as things that matter to "us" ? and thereby create categories of inclusion and exclusion, relevant and irrelevant, we and they. Journalists, in other words, produce a news geography, a representational space in which they situate their community and its people. Each news organization draws its own particular map, providing an editorial content package that brings together audiences and advertisers in a shared geographical space, or market. This paper reports on a 2004 news-flow study of the on-line editions of three U.S. daily newspapers — the New York Times, Chicago Tribune and Los Angeles Times ? and draws a detailed portrait of each paper's news geography. The news world these newspapers depict is highly circumscribed, and points to the need to expand the notion of news value beyond conventional criteria and include the criteria by which journalists distinguish between "us" and "them," as well as the commercial value of particular groups of news consumers.

Keywords: journalism, cartography, news geography, on-line news

Greg Gaston, PhD, Univ. of North Alabama. Email: gggaston@una.edu; *Investigating Ice-Cored Moraines in the Cascades of Oregon using Electrical Resistance Imaging Equipment and Aerial Photography*

Globally glacial ice in both alpine and continental glaciers is retreating. In addition to the melting ice, supraglacial features such as ice-cored moraines are rapidly retreating (melting). "Ice Cored" moraines are common features of many alpine glaciers. These moraines, both recessional and lateral, are believed to be indicated by slopes steeper than would be expected from the normal angle of repose of unconsolidated glacial debris. The 'ice core' probably takes the form of discontinuous ice lenses that serve as structure holding the otherwise unconsolidated material in an oversteepened state. In recently deglaciated areas in the Cascade Range, hundreds of lakes have formed; at least 30 are dammed by unconsolidated moraines that are susceptible to failure as the ice core of the moraines melts creating unstable unconsolidated debris. Failure of ice cored dams could represent a hazard for areas of the Cascades. Research undertaken in 2006 documented changes in ice surface and ice-cored moraines on two glaciers in the High Cascades of the Pacific Northwest. Electrical Resistance Imaging equipment was used to confirm the presence of subsurface ice lenses in glacial moraines. The presence of what are believed to be discontinuous ice lenses in a lateral moraine is supported by the electrical resistance images. In addition, historical and current aerial photography were examined to identify changes in glacial lakes on the Sisters peaks in the Oregon Cascades.

Keywords: climate change, glaciers, electrical resistance imaging

Stefan Paul Gaston, Department of Geography - University of California, Santa Barbara. Email: gaston@geog.ucsb.edu; Kerry Halligan, Department of Geography - University of California, Santa Barbara. Email: halligan@geog.ucsb.edu; Dar Roberts, PhD, Department of Geography - University of California, Santa Barbara. Email: dar@geog.ucsb.edu; Kristopher Kuzera, Department of Geography - San Diego State University. Email: kuzera@rohan.sdsu.edu; *Combining Topographic Normalization with Spectral Mixture Analysis for Improved Forest Structure Classification*

Forest brightness has been shown to be well correlated to forest structural parameters including stand age. Brightness differences between observed image reflectance and reference spectra, or endmembers, can be caused by shadow, shade, and component brightness. Shade is the result of topographic affects, while shadow is the result of the blocking of direct radiation by an object, including trees, rocks or terrain features. Spectral Mixture Analysis (SMA) is a powerful method for decomposing a reflectance spectrum into the proportion of its component surface materials. The three sources of brightness differences are generally treated collectively as 'shade' in SMA. Many SMA studies have modeled vegetation using green vegetation, non-photosynthetic vegetation, soil, and shade. To estimate forest structural parameters it is advantageous to decouple the brightness effects of shade and shadows. By separating and removing the topographic shade component, we focus our analysis on the relationship between canopy shadow and forest structure. We hypothesize that removal of the topographic shade component will increase the accuracy of forest structure classification. We present a theoretical and an empirical approach to removal of topographic shade, and demonstrate their application to conifer forest structure classification. Furthermore, we test the geographic portability of this approach by applying the same methodology to two distinct ecoregions in the Western US.

Keywords: remote sensing, spectral mixture analysis (SMA), forest, topography, topographic correction, biogeography, model, endmember, visualization, ecology

Andrea Gaughan, PhD Student, University of Florida, Land Use and Environmental Change Institute. Email: aeb416@yahoo.com; Michael Binford, PhD, University of Florida, Land Use and Environmental Change Institute. Email: mbinford@geog.ufl.edu; Jane Southworth, PhD, University of Florida, Land Use and Environmental Change Institute. Email: jsouthwo@geog.ufl.edu; *Spatio-temporal patterns of land-use/land-cover change: analysis of landscape dynamics in Siem Reap, Cambodia*

This study examines spatial and temporal dynamics of land-cover change in different topographic zones in the Angkor basin (1989-2005). Region-specific land-cover shifts were quantified using multiple change detection methods. Supervised classifications for three Landsat Thematic Mapper (TM) image dates, 2005, 1995, and 1989 were combined to create one multi-temporal, multi-spectral, change-trajectory composite of forest/non-forest change. A principal components analysis (PCA) was conducted on the original Landsat TM three-date stacked image of eighteen bands (TM reflective bands 1-5 and 7 for each year) to highlight spatial and temporal changes within the basin. Normalized Difference Vegetation Index (NDVI) time-series was used to measure the magnitude of vegetation change and these results were compared to the principal components analysis to identify consistent patterns of vegetation change. In addition, fragmentation analysis was performed to characterize different land-cover patterns using selected landscape indices. Observed changes indicate that local vs. regional controls have different influences in different topographic positions in the landscape. More forest to non-forest conversion occurred in mid-elevation areas, which are influenced by local factors, while more complex patterns of vegetation change occurred in the floodplain region, which are influenced by Mekong River hydrology. The large shift in mid-elevation forest areas occurred since 1995 which corresponds to political stabilization and increasing development in Cambodia. Protected upland areas remained mostly forested despite small areas of swidden agriculture. This study emphasizes the importance of understanding effects of landscape position on land-use/land-cover change and the need to further explore underlying processes of change in different elevation zones.

Keywords: land-cover change, remote sensing, fragmentation, Southeast Asia

Laura C Gauron, USGS. Email: lgauron@usgs.gov; Ellen A Raabe, USGS. Email: eraabe@usgs.gov; *Suwannee Information Gateway: a Web-based Tool for Management and Research*

Increasing population and escalating pressure on water resources in the Suwannee River watershed pose an environmental threat to resources in the basin and its estuary in the eastern Gulf of Mexico. Available data is held by multiple Federal, State and local authorities, by universities and private concerns in a variety of formats. The Suwannee Information Gateway (SIG) was developed to bridge jurisdictional limitations in developing access and inquiry tools for

modeling natural and anthropogenic changes in the basin. The Gateway is a user-friendly web portal for scientists, government agencies, and the general public. It provides users the ability to view and explore basin-related data from a variety of sources. Users have access to mapping, data inquiry, and visualization tools. Preliminary land use change analysis shows growth of urbanized areas and fragmentation of forest with intensified agricultural activity. Demographic data shows a general increase in population throughout the basin in the last twenty years with the greatest increase in counties along the Lower Apalachee River in Georgia and the Lower Suwannee in Florida. Greatest population change coincided with areas of greatest land use change. An assessment of habitat vulnerability and fragmentation was also developed with the Suwannee Information Gateway. The Suwannee Information Gateway brings together previously un-related data sets, facilitating multi-agency watershed management, protection of natural resources, and identification of research gaps.

Keywords: Suwannee, land use change, demographics, habitat change, web portal

Catherine Gautier, Professor, University of California Santa Barbara. Email: gautier@icess.ucsb.edu; Relationships Between Knowledge, Misconceptions And Attitudes Regarding Climate Change

Undergraduate students come to climate change classes with limited knowledge and usually have a number of misconceptions about the physical processes involved in climate and climate change. To investigate the relationships between knowledge, misconceptions and attitudes, we have studied the evolution of knowledge, misconceptions and attitudes of a group of juniors and seniors as they were progressing through a university course simulating a climate summit. Preliminary results from this investigation will be presented and discussed.

Keywords: Climate change, education, attitudes, misconceptions

Daniel G. Gavin, University of Oregon. Email: dgavin@uoregon.edu; Brian Beckage, University of Vermont. Email: Brian.Beckage@uvm.edu; Severity And Persistence Of Sugar Maple And Red Spruce Decline: The Roles Of Climate, Acid Deposition, And Stand Dynamics

Montane forests in the northeastern United States have experienced episodes of declining growth and increased mortality over the last half-century. Attributing observed declines to specific causes has been problematic because multiple environmental changes have occurred concurrently, including acid deposition ('acid rain'), regional climate change, and natural stand dynamics. We distinguish among these explanations using tree-ring records of red spruce and sugar maple from multiple elevations. We analyzed the tree-ring records using a statistical method that selectively removes the effect of tree age and size, and then minimizes the effect of canopy disturbances by censoring smaller trees. We show that the remaining variation in growth can be explained by climate, but episodic growth declines followed disturbances at certain elevations. In high-elevation spruce, growth declines follow winter thaw-freeze events in a pattern consistent with observed winter foliar injury. In low-elevation sugar maple, growth declines occur as incomplete recovery following insect defoliation events. The persistence of decline episodes have increased since the 1960's, especially for maple, consistent with a progressive impact of acid rain on tree vigor. Spruce and maple co-occurring at the deciduous-conifer ecotone show less severe decline. A recensus of 40-yr old forest plots at the same site shows an upward range shift of maple and an overall decrease of spruce. These results indicate that forest decline is a disturbance-incited process mediated by the predisposing factors of acid rain and climate, resulting in strong elevation gradients in decline symptoms and shifting species distributions.

Keywords: dendrochronology, acid rain, climate change

J. A. Gavinha, Texas A&M University. Email: gavinha@geog.tamu.edu; Spatio-temporal trends in economic globalization - what we can learn from top corporations' sales (1984-2004)

Top corporation lists from Fortune and Forbes have been used as attribute data to discuss existing world city hierarchies. Existing studies tend to use a single annual list, providing us a snapshot from one point in time. Lists of Top 500 corporation sales for the period 1984-2004 were consolidated and analyzed in order to identify major trends by economic sector, and how cities were moving within relative rankings. Data confirmed that globalization is neither a single nor an uniform process, and world cities have diverse and changeable roles over time.

Keywords: globalization, world cities, large corporations, economic sectors

Hugh J. Gayler, Brock University. Email: hjayler@brocku.ca; Canada's emerging wine culture and conflicts in the new countryside

The last 30 years have seen a dramatic shift in the Canadian wine industry from a product that one didn't talk about in polite society, and never admitted to drinking, to an award-winning product in international competition. The key to this success has been the switch from the local *Vitis lambrusca* to the European

Vitis vinifera, the development of smaller estate and boutique wineries, government and business intervention, and the promotion of a wine-drinking public. Meanwhile, measures to protect the small land base from urban sprawl and the farmer from financial exigencies are aimed at securing the long-term future of the industry. The development of over 70 wineries in Niagara, Canada's most important wine region, and a growing agritourism industry are testaments to the new countryside as a place of consumption as well as production. However, behind the bucolic landscapes, media hype and middle-class consumerism lay a troubled industry. This paper will explore the reasons for, and possible solutions to, the many conflict areas involving grape growers, the small wineries, the two large wine corporations, and the various arms of government.

Keywords: Agritourism, wine industry, new countryside, Niagara, Canada

Katherine Geddie, University of Toronto. Email: kate.geddie@utoronto.ca; Shifting subjectivities and labour market boundaries: post-graduation plans of international students in Toronto, Canada

Within the knowledge-based economy, increasing attention is being placed on "talent," or highly skilled and creative individuals, as the key input for local innovation and economic dynamism. As a result, there have been strategic policy changes in the spheres of higher education and immigration as cities and countries seek to attract and retain international students and young researchers. Yet while the policy rhetoric is clear on its intentions to encourage the desired "talent" to remain post-graduation, little is known about the effect of these regulatory and discursive changes from the perspective of the student. Previous research has shown that the reasons students seek an overseas education is culturally embedded, and range from household spatial strategies for social reproduction to the individual desire for cultural or personal experiences, or seeking credentials to launch a transnational career. This paper examines the link between the original intentions to study abroad and their future work and mobility plans upon graduation under the evolving policy context of cities competing for skills. Preliminary findings will be presented from interviews with international students from multiple national backgrounds in Toronto, Canada that explore changes to personal career motivations and imaginations, shifting subjectivities, and perceived geographic labour market boundaries.

Keywords: talent-based economic development, international students, labour mobility

Dawn Gedenberg, Clark University. Email: dgedenberg@clarku.edu; Nagraj Rao, Undergraduate Student, Clark University. Email: nrao@clarku.edu; Exploring Suburban Drought in Metropolitan Boston

An increasing number of metropolitan Boston towns not on the Boston water supply system are experiencing summer water shortages despite abundant precipitation. Residential development patterns and the associated lawn irrigation habits are hypothesized causes of this emergent "suburban drought" phenomenon. Clark University's HERO program has been investigating the links between suburban residential water consumption and land development patterns in suburban areas, controlling for climate. Both qualitative and quantitative data, such as information from in-person interviews and multivariate regressions, can be important for identifying factors contributing to water shortages. Interviews with officials at various levels of authority (town to regional to state) in the areas of development, planning, and water system management suggest that these regular water-use restrictions are not sufficient to restrict or modify development patterns and associated water consumption patterns. Yet new and existing challenges to suburban development, such as the state's per-capita water consumption cap and affordable housing mandate, suggest that this suburban drought phenomenon may be exacerbated in the coming years, rather than mitigated. Future research directions include constructing a spatial regression model to explain water consumption including a ratio of lawn size to lot size independent variable to reflect the potential for water shortages as significantly attributable to lawn irrigation.

Keywords: suburban drought, Massachusetts, residential development, mixed-methods

Shannon Geegan, . Email: geegan@uiuc.edu

Meghan Gemma, . Email: meghan.gemma@umontana.edu; A Biocentric Approach to Sustainable Agriculture and Community Design: Crystal Waters Permaculture Village, Queensland, Australia

In 1986, the world's first permaculture village was established - Crystal Waters Permaculture Village - in Queensland, Australia. Permaculture, a design approach whose practices are based on the imitation of natural processes, is a relatively new and evolving vision of sustainability. In order to understand the significance of this community, my research addressed three questions: 1) What were the social and ecological contexts of the community's historical development?; 2) How has the implementation of permaculture contributed to morphology of the local landscape?; and 3) What is the future significance and potential

for Crystal Waters? To provide a framework for this research, an analysis of the contributions of both utopian thought and intentional communities to society was conducted. This study was based on ethnographic and qualitative research methods. Data was gathered over a one month period at Crystal Waters. I lived with a host family, participated in the WWOOFer program, reviewed archived community documents, and spoke at length with community residents, planners, and visitors. The conclusions of this study are based on my experience at Crystal Waters and on my analysis of utopian thought and intentional communities. Generally, Crystal Waters presents a serious alternative to mainstream culture, whose major role in social betterment is education. Crystal Waters provides amazing examples of ecosystem rehabilitation and self-sufficiency at the community level. Its most significant contribution will likely be its historical legacy; a record of a serious attempt to live responsibly and sustainably - both socially and ecologically.

Keywords: agriculture - sustainable, intentional community

Christopher M. Gentry, Indiana State University. Email: cgentry2@indstate.edu; James H. Speer, Ph.D., Indiana State University. Email: jspeer3@isugw.indstate.edu; *Analysis of the Relationship Between Disturbance and Forest Structure in Southeast Texas, USA*

In 2005, Hurricane Rita destroyed vast amounts of forested areas throughout southeast Texas. Hurricanes are a relatively common occurrence in this area and may be particularly important in maintaining these forests and their diversity. This project will analyze how disturbance has helped to shape the structure of forests within the Big Thicket National Preserve and the surrounding area. Increment cores and cross-sections were taken from all standing and dead trees within three plots in the Neches Bottom Unit (NBU) of the Big Thicket National Preserve and two plots in the Weir Woods Preserve (WWP). Each sample was sanded with progressively finer grit sandpaper until the cellular structure was visible at 10-50X magnification. All tree-rings were then dated to their exact year of formation using standard cross dating techniques. Stand-age structures were developed to determine the effect of disturbance on forest structure. The results of this research will help to examine long-term trends in forest succession and how disturbance changes forest composition through time in these highly diverse forests.

Keywords: dendrochronology, disturbance, succession, hurricane, southeast Texas

Glenn White Gentry, Syracuse University. Email: gwgentry@gmail.com; *Memory Ink*

In New Orleans, talk of memorializing Hurricane Katrina is impossible, or at least grossly premature, because the after affects are still omnipresent. It is not that the memory is too fresh, but rather, the event is not yet over. There has been no return to a (new) normal. Yet some people have marked in time and on skin the transition from event to recovery. Importantly, the iconography used in the tattoos is readable for the individual, the local community and to a larger community, especially those who paid attention to the disaster. When viewed collectively, these tattoos provide a type of memorial previously overlooked by geographers. Utilizing place images, these tattoos mark the trauma permanently on those who participated, those who have returned, those who have left, and those who have just tried to help save lives. Not place bound, but very much place specific, these recognizable tattoos act as memorials to the individual and to society at large. This paper investigates the Katrina tattoo phenomenon and how it acts as a form of memorialization, communicating the trauma, loss, hope, and pride associated with the disaster.

Keywords: Memory, New Orleans, Hurricane Katrina, tattoos

Peter Geoghegan, University of Edinburgh. Email: p.geoghegan@sms.ed.ac.uk; *From Community Relations to Good Relations: the politics and policy of anti-racism and multiculturalism in Northern Ireland.*

While most geographical and sociological engagements with anti-racism have focused on its expression in social movement politics, anti-racism operates at a variety of levels and in a range of discourses and practices (Lloyd, 2002). Based on interviews with civil servants and an analysis of institutional structure, public policy and governmental statements this paper seeks to interrogate the emergent anti-racist and multiculturalist rhetoric within the political institutions of post-Good Friday Northern Ireland. Throughout 'the Troubles' the existence of minority ethnic communities in Northern Ireland was seldom acknowledged (Hainsworth, 1998) and the dominant discourse on identity and multiculturalism, Community Relations, was based solely on Protestant/Catholic difference. Although a consociational agreement between Nationalists and Unionists, the Good Friday Agreement expresses a desire to promote Good Relations between all groups. Since the Good Friday Agreement political institutions charged with addressing race relations and racial equality have been formed and racial equality policy produced in Northern Ireland for the first time. Drawing on an analysis of institutional structure, and specific examples of institutional discourse and

practice, this paper shall argue that the politics and policy of anti-racism and multiculturalism in Northern Ireland is undermined by a fundamental tension between a consociational structure which privileges sectarian identities and anti-racist and multiculturalist rhetoric which stresses equality and difference. In conclusion this discursive shift from Community Relations to Good Relations shall be considered as a facet of the post-conflict discourse of 'normalisation' in Northern Ireland.

Keywords: anti-racism, multiculturalism, Northern Ireland, consociationalism

Melissa Danielle George, Ph.D., middle school science teacher, Tecumseh Middle School/Purdue University. Email: mgeorge@lsc.k12.in.us; Enrico Nino Manes, GK-12 Graduate Fellow, Purdue University. Email: nino@purdue.edu; Deborah Bennett, Associate Professor, Educational Psychology, Purdue University. Email: bennett@purdue.edu; *Evolution of Earthquake Theories in a Classroom Community*

As part of a GK-12 project (National Science Foundation, 2006), an interdisciplinary team examined the evolution of student ideas about the cause of earthquakes during a unit on plate tectonics. The design and enactment of this teaching and learning unit were shaped by the situated learning model (Harrington & Oliver, 2000) which views science classrooms as scientific communities where "enculturation and personal knowledge construction are intertwined" (Hogan, Nastasi, & Pressley, 2000). The study focused on the evolution of the ideas of 12 students as they engage in discourse with teachers, peers, and members of the GK-12 team. Prior to instruction students engaged in three pre-assessment tasks: 1) open-ended questions regarding knowledge of the cause of earthquakes, 2) concept maps constructed during interviews, and 3) a survey and interview analysis of adults' ideas about earthquake phenomena. Following the initial assessment, students read earthquake myths from several cultures and formulated their own earthquake myth (Thier & Knott, 1998). Students also worked in groups of four and engaged in inquiry-based activities and discussions focusing on the cause and effects of earthquakes. As a culminating project, the small groups created new myths reflecting their reconstructed understandings regarding earthquakes. Final interviews provided a means for student to reflect and reconcile their initial and final understandings. Changes in student concept development as a result of instruction and dynamic assessment activities will be discussed.

Keywords: GK-12, earthquake, plate tectonics, education, science classroom

Sunita George, Alabama State University. Email: sunigeorge_99@yahoo.com; Raymond R Greene, Western Illinois University. Email: R-Greene@wiu.edu; *Obesity in Alabama's Black Belt: A Geographical Investigation*

According to a recent survey estimating obesity in the U.S., six of the ten most obese states are in the southern region of the country. Alabama has ranked among the five most obese states in the U.S. during the last couple of years. The Behavior Risk Factor Surveillance System (BRFSS) data for 2003 show that the counties in Alabama with highest estimated proportion of obese adults were in the lower third of the state, an area roughly coincident with the so-called "Black Belt". This is a region with a high concentration of African Americans. This paper examines obesity and its correlates in the Black Belt counties of Alabama, and compares them with the other counties in the state. The capital, Montgomery, is also examined with a view to discerning whether food deserts exist and what role they play in determining obesity rates.

Keywords: Obesity, Alabama, African Americans

Hannes Gerhardt, University of Arizona. Email: hannes9.geo@yahoo.com; *Christian Advocacy for Sudan: Ethical-Geographic Imaginaries and Foreign Policy*

This research is a contribution to the moral turn in geography, particularly the issue of caring at a distance, but it combines this growing field with the now somewhat more established field of critical geopolitics. The case that I explore is that of Christian activism regarding the political-humanitarian crises that have plagued the Sudan over the last decade. I consider how mainline and evangelical Protestant churches, NGOs, and Think Tanks have constructed the spaces of the Sudan and the United States in their formulation of responsibility and care as well as their subsequent actions and calls for action. Beyond getting a better sense of how an internal "here" and an external "there" are constructed and intertwined with mappings of belonging and ethical reasoning, I also intend to consider the implications of such imaginaries for the execution of U.S. foreign policy. The mainline and evangelical branches of American Protestantism will here be compared and contrasted to show the various ways that religion, ethics and geography may coalesce to influence the implementation of global politics.

Keywords: ethics, geographical imaginaries, Sudan, critical geopolitics

Matthew J Gerike, Kansas State University. Email: mjpg3383@ksu.edu;
Michael Dulin, Kansas State University. Email: mdulin@ksu.edu;
Thomas Vought, Kansas State University. Email: tvought@ksu.edu;
Rhett Mohler, Kansas State University. Email: rlmohler@ksu.edu; *Line in the Sand: Boundary as Variable in Southeast Kansas and Northeast Oklahoma*

Environmental phenomena are continuous data, reflecting no natural variety across a landscape. Yet different human factors, including the history of the people living there, the laws and policy they create, and how they use the land, vary across space and interrupt natural continuity. These differences are most salient at border regions where different people and policy meet, and at times of extreme conditions. We seek to understand and explain the differences between nine counties in southeast Kansas and eleven counties in northeast Oklahoma, split by the 37th parallel, that are made apparent by recent drought in the area. In February 2006, the drought affecting southeast Kansas and northeast Oklahoma ranked as abnormally dry to severe. Certain places within the study area have received less than ten inches of precipitation since September 1, 2005. NOAA predicts that the drought will be ongoing with little improvement throughout the study area. Employing historical, political, and spatial analytic geographic perspectives, our aim is to consider and understand the differential impact of people, policy, and land use on neighboring landscapes affected by the same drought. Historical perspectives consider the settlement and cultural groups of the study area. Political perspectives consider policy differences between both the states and the individual counties. Spatial analytic perspectives consider the existing land cover and the potential differential impact of the drought in the study area. Does the boundary appear in how people, policy, land use, and land cover interact with the drought?

Keywords: political geography, historical geography, spatial analysis, drought

Alexandre Germain, McGill University, Department of Geography. Email: agermain@intercime.qc.ca; *Parks and Politics on the Ungava-Labrador Peninsula, Arctic Canada*

National parks are the most outstanding features of environmental protection. This naturally leads to the idea that environmental protection is the main motivation for park establishment. I will challenge this idea by looking at a specific case of federal versus provincial park establishment in the Canadian Arctic, in Inuit country. Canada's newest national park was recently established on the northern tip of Newfoundland-and-Labrador as a result of the successful Labrador Inuit Land Claims Agreement with Ottawa. Also, the government of Quebec is planning a park that would be contiguous with the federal one. Through an actor-oriented analysis of the parks establishment processes, I interpret the values attributed to both new and future parks, thus suggesting what motivations lead these "conservation" projects in the Canadian north. The analysis suggests that Canada's approach is more sophisticated than Quebec's, while the latter gives, somehow paradoxically, more independence to the Inuit organizations. The analysis also exposes an intricate set of motivations that the federal, Quebec provincial, Nunavut and Nunatsiavut regional, and local governments do not always share with each other. The geopolitical, societal, identity, cultural, and economic values of these parks are interpreted and anticipated in different ways by the various actors. These values, it is argued, are more likely to generate interest for park establishment than the sole ideal of ecological integrity.

Keywords: Political Geography, National Parks, Park Values, Inuit, Canada-Arctic

Alexander Gershunov, Scripps Institution of Oceanography. Email: sasha@ucsd.edu; *Extensive Summer Heat Waves Under Current and Possible Future Climates*

People should perceive changes in climatic extremes more vividly than changes in mean climate, because individuals and society are directly and adversely impacted by extreme climate events. The spatial scale of a heat wave is an important determinant of its impacts. Extensive summer heat waves are considered over Europe and North America in observations and model projections. Recent trends towards more frequent and extensive hot spells follow global warming trends, but are regionally modulated on decadal timescales. Model projections reflect these influences. Europe, warming continuously, had an early warning in 2003 of conditions projected for the second half of the 21st century. Until summer 2006, North America has not seen the extent of heat consistent with model projections. Regional precipitation anomalies together with global anthropogenic influences can explain the atypical pattern of North American summer warming. Last summer's widespread heat waves were consistent with drier conditions over the Eastern US. People's perception of climate change may be effected by such events depending on whether scientists are able to correctly and clearly explain their occurrence. A key requirement is that Nature should act consistently with climate projections. Projections must be reasonably accurate, or the science should be perceived as inadequate. Drought would seriously exacerbate the recent warming over North America to levels in line with the

warmest projections. Assuming realistic warming scenarios, a long-term anthropogenic increase in the frequency and spatial extent of regional hot spells is projected to be strong and strongly modulated by decadal-scale variability throughout the 21st century.

Keywords: climate, extremes, heat waves, change

Carol A. Gersmehl, Hunter College, CUNY. Email: carol.gersmehl@gmail.com; Adrienne Ottenberg-Hartman, Hunter College - City University. Email: adrienne.ottenberg@gmail.com; *Spatial Thinking Activities for Primary Grades (K-1)*

This poster will describe and illustrate the design and production of spatial thinking activities appropriate for 5- and 6-year-old students in seven kindergarten and first grade classrooms in Harlem, NY. Most activities center around use of maps designed for this age level; the poster will include several illustrations of map-design decisions. Preliminary classroom observation suggests that entire classes of young students can be guided to perform a number of different types of spatial thinking, as described in recent child development research. Our young students seem especially eager to work with activities that are tailored to environments that they experience (e.g., their classroom, their school, their neighborhood).

Keywords: geography education, maps, spatial thinking, young children

Phil Gersmehl, New York Center for Geographic Learning. Email: gersmehl@umn.edu; *Making Big Applesauce: Teaching about Hurricanes in New York City*

North Atlantic hurricanes move much faster than Gulf hurricanes. Lower crime rates help make some formerly unattractive neighborhoods trendy in New York City. Large numbers of Russian-speaking people moved to New Brighton. Long Island City has spectacular views of the Manhattan skyline. Subway maintenance has been deferred. The last major hurricane was a human lifetime ago. These factors, and many others, converge to make New York uniquely vulnerable to catastrophic hurricane damage. This presentation deals with strategies and tactics that are being used to educate New York teachers (and, ultimately, students) about the hurricane hazard.

Keywords: education hurricane hazard GIS

Meric S. Gertler, University of Toronto. Email: meric.gertler@utoronto.ca; *Buzz Without Being There? Communities of Practice in Context*

A core idea emerging from the recent geographical literature on communities of practice is the insight that geographical proximity should not be confused with relational proximity. This means that the former need not imply the latter. Equally intriguing for economic geographers, it also presents the possibility that relational proximity can be achieved at a distance. While this argument makes sense conceptually, its limits - both theoretical and empirical - have not yet been fully explored. Under what conditions should we expect relational proximity to be achieved effectively at a distance? In this paper, I suggest that the evidence accumulated thus far is still underdeveloped, drawing on a small sample of sectors and empirical settings. It is also somewhat undertheorized, lacking any systematic attempt to identify critical determinants of relational proximity. I then review recent findings from a number of case studies in which distributed teams participating in joint problem-solving projects have attempted to engage in long-distance learning and knowledge translation, with varying degrees of success. Deterrents to effective distanced learning are both logistical and institutional in nature. The frictional effects of distance are shown to depend to some extent on the types of knowledge base supporting innovation in each case. I argue that it is through this kind of analysis that we might begin to develop more compelling answers to questions like: under what circumstances will relational proximity be stronger or weaker? What are the conditions that facilitate long-distance circulation of knowledge, or its joint production by distanced actors?

Keywords: distributed teams, relational proximity, knowledge flows

Dean Gesch, U.S. Geological Survey. Email: gesch@usgs.gov; *An Inventory and Assessment of Significant Topographic Changes in the United States*

Within the collection of studies that have documented the effects of human actions upon the environment, some studies have estimated the total effects of human activity on the landforms and shape of the Earth's surface, but these studies have not emphasized the spatial component of the changes. The primary issue addressed by the research reported here is the need for more comprehensive information on the nature and extent of recent human geomorphic activity. The National Elevation Dataset and the Shuttle Radar Topography Mission dataset form a unique pair of multi-temporal elevation datasets that were used to detect and analyze 20th century topographic surface changes in the United States. The primary types of topographic changes resulting from human geomorphic activity include surface mining, road construction, urban development, dam construction,

and landfills. Notable concentrations of topographic changes are found in the mining areas of central Appalachia, northern Minnesota, eastern Wyoming, and southern Arizona, and in the expanding urban areas in southern California. Summary statistics of the distribution of changes were accumulated and tabulated for states, counties, watersheds, and ecoregions. The environmental effects of topographic changes can be quantified in a number of ways, including hydrologic effects, visual impacts, and comparisons among regions for the effects of mining on topographic relief. Although some unique dataset characteristics and data quality issues presented a challenge to development of reliable topographic change maps, the inventory was successfully completed, and it represents a first ever detailed spatial accounting of topographic change across the United States.

Keywords: geomorphology, topography, digital elevation model, change detection, land use change, mining, geospatial data, United States

Daniel J Getman, DOE ORNL Geographic Information Science & Technology Group. Email: getmandj@ornl.gov; Aaron Myers, DOE ORNL Geographic Information Science & Technology Group. Email: myersat@ornl.gov; Making Usable Data Available and Available Data Usable: The Application of Geospatial Standards in Near Real-Time Sensor Networks

The benefits associated with the use of geospatial standards in application development, including vendor neutrality and application interoperability, are often gained at the expense of system performance and the integration of existing proprietary applications that users have already invested in and are familiar with. Determining an appropriate balance of these two strategies can be a difficult calculation. Efforts to effectively bring these concepts together within the same system design can be hampered by issues associated with latency, scalability, conflicting software requirements, and demanding processing requirements. A research effort to design near real time sensor networks in which GML based web feature services are utilized along with proprietary GIS software applications is presented. This research culminated in the development of two prototype systems. The process of designing, implementing, and deploying these systems will be described while outlining the issues, balancing the pros and cons, and providing insight into the pitfalls of attempting to combine the two goals of making usable data available and available data usable.

Keywords: gis, wfs, gml, standards, sensors

Christy Getz, PhD, UC Berkeley, Department of Environmental Science, Policy and Management. Email: cgetz@nature.berkeley.edu; Sandra Brown, UC Berkeley, Department of Geography. Email: sandybrown@berkeley.edu; Privatizing Farm Worker Justice: Regulating Labor through Voluntary Certification and Labeling

This paper assesses the possibilities and limits of efforts to incorporate social accountability into California agriculture through voluntary certification and labeling in the context of neoliberal governance. Based on participation in two pilot social audits on a California farm, participant observation in sustainable agriculture meetings, and interviews conducted with actors in the social justice in agriculture arena, we explore the contradictory motivations of actors involved in the social certification “movement” in the agricultural arena. Unlike more traditional forms of social justice organizing, which have historically sought to alter power relations between labor, capital, and the state, social certification assumes that production conditions can be regulated through voluntary standards and monitoring. As such, it embraces two key neoliberal principles: 1) the primacy of the market as a mechanism for addressing environmental and social ills and 2) the privatization of regulatory functions previously reserved for the public sphere. Our interviews suggest that the rise of the social certification strategy is at once shaped by the current political possibilities of the neoliberal era, a reaction to the substantive impacts of the neoliberal turn, and a reinforcement of neoliberal ideology. We conclude that certification both reflects and reproduces particular subjectivities, which may create political openings for future resistance to neoliberal rollback but which may also further destabilize collective action efforts and rationalize state withdrawal from regulating farm labor conditions. Significantly, many of the activists suggested that collective bargaining and state regulatory campaigns were “polarizing,” citing a preference for consumption-based approaches to social change.

Keywords: Agriculture, California, Certification, Farm Labor, Governance, Neoliberalism

Lisa L. Gezon, Ph.D., University of West Georgia. Email: lgezon@westga.edu; Khat in Madagascar: Political Ecology and the Culture of Drugs in a Postcolonial State

Khat, a leafy drug with amphetamine-like properties, arrived in Madagascar with Muslim Yemeni dock workers in the early twentieth century. Its growing popularity within Madagascar over the past fifteen years has followed a trend throughout the Indian Ocean, where khat leaves are increasingly chewed along the East coast of Africa and on several Indian Ocean islands. While its popularity in Madagascar has allowed farmers and traders in the northern region to earn

considerable profits (leading some to identify it as the “green gold” of the north), khat falls outside of the purview of the formal political economy and is ignored in official discourse. This paper explores this conundrum, merging critical medical theory with an analysis of postcolonial state politics in an era of global governance. It argues that the popularity of khat and its simultaneous silencing cannot be understood without reference to the global wars on drugs and terror, growing animosity toward Islam, and the conditionalities of Western-financed economic development.

Keywords: political ecology, Madagascar, drugs, postcolonial states, khat

Debjani Ghatak, Graduate Center, City University of New York. Email: tinna_ghatak@yahoo.com; Allan Frei, Hunter College. Email: afrei@hunter.cuny.edu; Julianne Stroeve, CIRES, University of Colorado, Boulder, CO. Email: stroeve@kryos.colorado.edu; James McCreight, CIRES, University of Colorado, Boulder, CO. Email: mccreigh@nsidc.org; Detecting and Attributing a Climate Change Signal to the Arctic Sea Ice Extent

The purpose of this study is to analyze the spatial pattern of changes in the Arctic sea ice extent over time, and to attribute those changes to specific causes. Using the satellite record of Arctic sea ice extent based on passive microwave observations, empirical orthogonal function analysis (EOF) is employed to identify the spatial pattern of changes in sea ice for two main seasons (summer and winter). The leading EOF pattern of winter (Jan-Feb-March) sea ice reveals a spatial pattern which suggests a link to the dominant atmospheric teleconnection pattern (AO). The second dominant winter EOF pattern indicates an influence of increasing air temperatures over the Arctic. The leading EOF pattern for summer (July-Aug-Sep) sea ice offers a different spatial pattern which reflects the influence of an atmospheric warming signal. It appears that a signal from arctic-wide increasing temperature over the last two decades may have emerged in the record of sea ice variations.

Keywords: Arctic, Sea ice, Climate Change

Geoff S Ghitler, MS, University of Calgary. Email: gghitter@ucalgary.ca; Sustainable Cities as Complex Adaptive Systems: A returned theory of systems for geography

Systems thinking in geography has always been befuddled by complexity. Inspired, as it has been, by a long descent from Newton and Descartes through Darwin, the Chicago School of Sociology, logical positivism and the quantitative turn, systems thinking in geography has relied on mathematical generalization as a fundamental tool. Complexity, in the form of raw data, is smoothed so that mathematical operations can be performed, models constructed, and predictions made. But this approach had mostly failed and, by the mid 1980s, explicit references to a theory of systems as the underlying logic for geographic research had all but vanished. More than two decades of quantitative research had failed to produce a systems methodology that could be generally applied. Yet the need and desire to understand the world as a system of systems has not disappeared. Thus, although muted with reference to an explicit theory, research in geography continues to rely on representation of systems. This paper tentatively forwards a new way to think about systems in geography that is particularly appropriate for the study of sustainable development. In this formulation sustainability is conceived of as the passage of a system through time in a way that conserves the elements that comprise it. Drawing on new techniques from conservation biology and ecological economics, complexity is managed by shifting the purpose of research from prediction-making to analyzing the consequences of systemic processes (such as path dependency) for the system’s long term viability.

Keywords: sustainability, urban geography, complex adaptive systems

Rina Ghose, Associate Professor, University Of Wisconsin Milwaukee. Email: rghose@uwm.edu; Scalar Politics and Scaled Networks in Collaborative Urban Governance

Urban governance in the western capitalist world is increasingly marked by a shift to a collaborative governance model, strongly shaped by neoliberal ideology, which emphasizes free market capitalism, reduced public funding, the devolution of state’s responsibilities, and the foisting of state-led priorities upon citizen groups. In such a model, the state is actively creating partnerships with not only citizen groups, but also with various private sector actors, foundations and quasi-state organizations in order to create market led economic growth in sites of deindustrialization and disinvestment. As such, the lines separating the state, market and civil society are increasingly blurred. This paper contends that such a collaborative governance is multi-scalar and multi-institutional, involving actors that form associations through networks. Such networks transcend political boundaries and are both territorial and thematic in natures. These networks can contain structural inequities, hierarchical dominance and fluctuating resources. But these networks are also dynamic and flexible, enabling actors to manipulate and modify them. Using the case of Milwaukee’s collaborative governance models, I intend to examine how multi-scalar and multi-institutional urban

governance takes place through alliances between various actors in public and private sector. In trying to control the revitalization agendas and the material resources required for it, these various actors and community organizations try to construct politics of scale. For some community organizations, such scalar politics and creative alliances with critical actors allow them to gain a voice in decision-making activities. But other community organizations lag behind, and are unable to secure their urban space.

Keywords: Politics of Scale, neoliberalism, networks

Debarchana Ghosh, University of Minnesota. Email: ghos0033@umn.edu; Robust Principal Component Analysis and Geographically Weighted Regression: Urbanization in the Twin Cities Metropolitan Area of Minnesota

An emerging challenge in spatial analysis is modeling and understanding land change at fine spatial scales. In this paper, we present a hybrid approach, robust principal component geographically weighted regression (RPCGWR), in examining the problem of land change as a function of both extant urban land use and the effect of social and environmental factors in the Twin Cities Metropolitan Area (TCMA) of Minnesota. We used newly available remotely sensed data to treat urban land use via the proxy of impervious surfaces. We then integrated two different methods to create an innovative approach to modeling urban land use. We first applied robust principal component analysis via the projection pursuit algorithm to a number of explanatory variables in order to reduce their complexity and the influence of outliers. We then used the resultant robust principal components (RPCs) in a geographically weighted regression to capture spatial heterogeneity in the urban landscape. The first three RPCs account for 93 percent of the total variation in the explanatory variables and described three underlying dimensions: cost-distance to cities, market centers and highways; income; and infrastructure factors. The RPCGWR results show significant spatial heterogeneity in the relationships between proportion of impervious surface and these factors in TCMA. We link this heterogeneity to the 'sprawling' nature of land change that has moved outward from the core Twin Cities through to their suburbs and exurbs.

Keywords: Land use, robust principal component analysis, geographically weighted regression, TCMA

Jayati Ghosh, Dominican University of California. Email: jghosh@dominican.edu; Ezekiel Kalipeni, University of Illinois. Email: kalipeni@uiuc.edu; Vandana Wadhwa, University of Akron. Email: vandanaw@comcast.net; Vulnerability of Next Generation to HIV/AIDS in India: A Research Agenda

In India, 5.7 million people are infected with HIV/AIDS, and women comprise 37% of this population. According to the Center for Reproductive Rights, 0.7% of HIV+ people aged 15 to 24 were females, outnumbering males who made up 0.3%. However, the relatively low HIV prevalence rate (0.98% among 15-49 age group) leads to false perceptions of low levels of risk to the disease, particularly in women and youth. This creates a vulnerability to HIV infection, which in turn provides a conduit for infections to the next generation via MTCT. Moreover, throughout the developing world adolescent reproductive health is often affected by socio-cultural and economic factors. In India, several socioeconomic factors such as feminization of poverty, conformity to tradition and low status in society make women unable to protect themselves against HIV infections. On the other hand young men often begin sexual activity earlier and have more sexual partners than young women. In this paper we argue that there needs to be a greater understanding of the sexual and reproductive health of the youth in an era of escalating HIV/AIDS rates in India. Understanding of Indian youth's own perception of their reproductive and sexual health and rights (RSHR), particularly in reference to their perception of risk for HIV/AIDS, and to their decision-making status in the area of RSHR is critical. In addition, we argue that increased levels of awareness regarding RSHR, and particularly HIV/AIDS among Indian youth will promote a greater sense and level of autonomy regarding RSHR decision-making.

Keywords: HIV/AIDS, India, youth, reproductive health, reproductive rights

Sutama Ghosh, PhD, Urban Studies, York University. Email: sutama@yorku.ca; Transnational Ties and Intra-Immigrant Group Settlement Experiences: A Case Study of Indian Bengalis and Bangladeshis in Toronto

Transnational theories have established that, after migrating to a new country, migrants often maintain their pre-existing social, economic, and political ties to their home country. The extent to which however, transnational institutional and social connections may affect the residential location and housing experiences of immigrant and refugee groups, and why and how these experiences differ within broadly defined immigrant groups such as the 'South Asians' remains unexplored. Building on transnational theory and previous research on the housing trajectories of new Canadians this paper examines the housing experiences of two recently arrived South Asian subgroups in Toronto—

Indian Bengalis and Bangladeshis. By highlighting important intra-immigrant group differences, the study reveals how diverse transnational ties affect the migrants' neighbourhood choice and the type, tenure, and quality of housing they live in.

Keywords: Transnationalis, Housing, Transnational Habitus

Cerian Gibbes, University of Florida. Email: gibbes@gmail.com; Jane Southworth, PhD, University of Florida. Email: jsouthwo@geog.ufl.edu; Turning up the heat

Remote Sensing has become an integral tool to geographers, especially those concerned with land cover change. Land change science research has traditionally emphasized the use land cover classifications, often with the creation of discrete maps of land cover change. While some other sub-areas, such as landscape ecology and more ecologically based studies have used more continuous representations of the landscapes, such as NDVI and other vegetation indices, even these are limited in terms of applications. The use of such continuous variables contrasts with more traditional classification schemes, and in general, the incorporation of both spatial and spectral information into land-cover change analyses greatly improves the amount of information that is obtained. Satellite based thermal data measures the emission of energy from the Earth's surface and thus can be linked to land cover types. The use of surface temperatures as a source of data for land cover change analyses provides a continuous dataset that is a physical manifestation of energy transfers and can be compared to discrete classifications of land cover. While other research areas within the discipline (e.g. urban studies, climatology), have embraced the use of satellite based thermal analyses (e.g. surface temperatures), the land change science community has not maximized the use of thermal data. This paper will highlight the advantages, limitations and additional information to be extracted when using thermal data to examine land cover change, incorporating specific examples from a complex transitional zone, savanna landscape in Botswana.

Keywords: remote sensing, thermal data, land cover change

Ann E. Gibbs, U.S. Geological Survey. Email: agibbs@usgs.gov; Susan A. Cochran, U.S. Geological Survey. Email: scochran@usgs.gov; Seafloor Habitat Mapping in Hawaiian National Parks

The U.S. Geological Survey, in cooperation with the National Park Service, has completed high-resolution maps and habitat characterization of selected coral reefs in Hawai'i. The detailed benthic habitat maps document the underwater geological and biological resources in and adjacent to three National Parks located along the Kona coast of the island of Hawai'i. The maps were developed using a combination of aerial photography (ranging from ~0.2 to 1.0 m/pixel resolution), SHOALS bathymetric lidar data (~4.0 m/pixel resolution), georeferenced ship-towed video, and SCUBA. The classification scheme used for the maps is based on one established by NOAA's biogeography program in 2002, and subsequently revised in 2004. A minimum mapping unit (MMU) of 100 square meters was used, yet smaller features were mapped if they contained significant habitat. Each of the three parks has a unique offshore environment, ranging from well-defined spur and grooves, platforms, sea cliffs, and pinnacles. Integration of the aerial imagery, SHOALS bathymetry data, and field observations made it possible to create detailed benthic habitat maps from the shoreline to depths of 40 m, which is deeper than can be mapped with aerial multispectral, or hyperspectral imagery alone. The resulting habitat maps are of higher-resolution than currently available through other sources. The use of SHOALS bathymetric data allows for 3D visualization of the maps, assisting in both habitat interpretation and management decision-making. These maps can be used as stand-alone products or in a GIS, and provide useful baseline information to scientists, managers and the general public.

Keywords: coral, lidar, underwater video, Kona, benthic habitat

Holly Gibbs, Ph.D. Candidate, University of Wisconsin-Madison. Email: hkgibbs@wisc.edu; Jonathan Foley, Professor, University of Wisconsin-Madison. Email: jfoley@wisc.edu; Navin Ramankutty, Assistant Professor, McGill University. Email: navin.ramankutty@mcgill.ca; Frédéric Achard, Scientist, Joint Research Center for the European Commission. Email: ; Peter Holmgren, Scientist, Food and Agriculture Organization of the United Nations. Email: peter.holmgren@fao.org; Tracking the Fate of Deforested Land in the Tropics: Critical New Inputs for Ecosystem Service Evaluation

Tracking the fate of cleared land in the tropics is critical to reducing the uncertainty in estimates of deforestation rates and to fully evaluating ecosystem services such as carbon storage, biodiversity, and disease regulation. Land use following deforestation is highly dynamic and often rapidly cycles between classes following deforestation, allowing secondary forests to regrow for varying periods of time. We have tracked the changing fate of deforested land across the tropics using ~600 manually-classified Landsat scenes from the FAO and TREES projects. The land use following deforestation varies across the seven major

tropical regions and through time. We have identified statistically significant changes in the fate of deforested land between the 1980s and 1990s. Preliminary analysis indicates patterns of agricultural intensification in South America are reducing forest regrowth and fallow while simultaneously increasing the amount of mature forest cleared for permanent agriculture.

Keywords: Tropical deforestation, ecosystem services, land use

Chris Gibson, University of Wollongong, Australia. Email: cgibson@uow.edu.au; Chris Brennan-Horley, University of Wollongong, Australia. Email: chrisbh@uow.edu.au; Jim Walmsley, University of New England, Australia. Email: dwalmsle@pobox.une.edu.au; Mapping vernacular creativity: the extent and diversity of rural festivals in Australia

Although creativity is now taken more seriously by governments, it is often 'folded into' normative ideas of market-led place competition, with biases towards commodifiable creativity (producing copyright/content) and urban, middle class neighbourhoods and aesthetics. In reaction to this, our central research concerns are: 1. to expose such biases as embodied practices of knowledge-construction; 2. trace the manner in which such knowledges about creativity are produced and circulate; and 3. to problematise 'normative creativity' by exploring 'everyday' creative expressions in suburban, rural and remote settings where boundaries between 'amateur' and 'professional' creativity may be porous. This paper draws on a project which seeks to map the extent and diversity of festivals held in rural parts of three Australian states (Tasmania, New South Wales, Victoria). A database of 2,000 rural festivals has been compiled, evidence itself of the creativity embodied in staging festivals, from small community events celebrating migrant heritage, to quirky, specialist offerings (scarecrow festivals, pumpkin bakes, goanna-pulling contests, 'ute musters' and chocolate fairs). We discuss results of work with festival organisers, and briefly draw on ethnographic research conducted in two case studies (an Elvis Presley impersonator festival and the nation's largest rural gay and lesbian festival). Such events are rarely taken seriously by governments and development promoters, who instead favour 'traditional' industries (agriculture, mining); they are also often ignored by urban-based creative industries proponents. This paper accordingly seeks to show that rural creativity is widespread, and intimately connected to discourses about community sustainability and vitality.

Keywords: creativity, rural, festivals, Australia, community, diversity

Kristina Gibson, University Of Colorado at Boulder. Email: Kristina.gibson@colorado.edu; Freedom of movement or the right to mobility?

Homeless youth are a highly mobile segment of the overall homeless population in the United States. Recently, the diffusion of anti-homelessness laws and order maintenance policing in most major metropolitan areas is rewarding a kind of hyper-mobility amongst street kids. Homeless youth that stay moving provoke less attention from authorities than those who stay put and accumulate fewer tickets for loitering, illegal camping and panhandling. Highly mobile street youth have difficulty maintaining contact with social services, gaining government benefits, and forming strong networks of supportive individuals. Mobility may be interfering with less harmful ways of surviving on the streets, driving youth into progressively more dangerous occupations in less visible locales. Yet street kids discuss their mobility as a lifestyle of choice and as a right to be defended. How is mobility a right that is both enabling and disabling for street youth?

Keywords: Homeless youth, mobility, anti-homelessness laws

Vinay K. Gidwani, University of Minnesota. Email: vgidwani@geog.umn.edu; The Afterlives of 'Waste': Eviscerating Urbanism in Post-Development India

The neologism 'eviscerating urbanism' describes three overlapping forces that are transforming Indian metropolises: first, a parasitic urbanism that is colonizing the land and ecology of the surrounding countryside at accelerated rates; second, a speculative urbanism that is relentlessly deploying resources and violence to convert spaces of waste into spaces of value; and third a techno-ecological urbanism that is producing two different urban ecologies and sets of populations - one, the ecology-set of an urban bourgeoisie actively tied into global circuits of capital, whose lives are considered worthy of caring by the state; the other, the ecology-set of an urban underclass living off the commodity detritus of these global circuits, whose lives are of utter indifference to the state. I ask how the figure of 'waste' introduced into political and economic discourse by John Locke more than three centuries ago provides intellectual alibi to 'eviscerating urbanism'. Finally, I argue that contemporary urban India is emerging as a post-development social formation. How so? Because as the paradigmatic form of biopolitical power, 'development' has always presupposed nominal engagement with the subjects whose lives it seeks to manage and cultivate. But this is no longer a tenable assumption. Today, neither the apparatuses of the state nor an increasingly anti-poor urban bourgeoisie seek this

ethical engagement. The breach requires a combining of forces by the 'anti-bodies' of capital to lay claim to urban flows and spaces: in short, a subaltern cosmopolitanism.

Keywords: Development, subaltern, cosmopolitanism, urbanization, India

Jen Gieseke, CUNY - Graduate Center. Email: jgieseking@gc.cuny.edu; Mental/Cognitive Mapping Revisited: The Geographical Imagination in Methodology & Pedagogy

The work of Tolman (1948) defined cognitive mapping as the spatial representation of complex, selective, and generalized mental representations of personal and social spatial experiences. 'Mental maps' artistically represent the geographical imaginations of an individual or groups' 'long history,' the experience of a place over time, both real and imagined. The concept of the geographical imagination (Harvey 1973) argues that no geography is isolated from the social, political, and economic histories within its landscape. I argue that mental mapping offers cartographers and researchers the geographical imagination's "spatial consciousness" which can be used to peel away layers of social injustice towards geographies of justice through both academic research and teaching. I will first present a classroom exercise at a highly selective college where students created mental maps of their college and the surrounding area. These maps were then analyzed with faculty to demonstrate the various social (in)justice histories locked within their geography of the campus and their own identities. I then analyze the mental maps created during a research study regarding the same campus by students and alumnae to describe their experiences and identity development in the campus, and how these maps simultaneously depict efforts toward and identities based upon social justice and injustice.

Keywords: geographical imagination, cognitive mapping, methodology, pedagogy

Mark Giesken, University of Oklahoma. Email: chsmgl@yahoo.com; Using IMPLAN and JEDI modeling to analyze the economic benefit of wind power in Oklahoma.

The economic impact on local communities is a major driving force in the rapid expansion of the wind industry across the United States. Oklahoma has substantial amounts of wind resources available; the state is able to harness this resource. Wind farms can have many different effects on a local economy. They provide both short-term and long-term employment during different phases of development. This economic benefit, however, is not only limited to employment and tax payments. Depending on the local economy, the wind farm can provide long term ripple effects. IMPLAN (Impact Analysis and Planning) is an economic impact assessment modeling system. It is used by any number of different industries. IMPLAN allows the user to develop an analysis and actual economic impact assessment to look at economic changes from a broad geographic distinction like a state, down to the county level and even to a small specific governmental unit like a community. The JEDI model uses actual default data of wind plant construction costs, along with allowing the user to input project specific data to fully analysis what economic impacts may have occurred on a geographic area; such as a county, state, or even a regional area. The models were used in this study to show the significant impact thus far from Oklahoma's operating wind farms in the economic sectors of employment, tax base, and overall impact on the local communities.

Keywords: IMPLAN, JEDI, economic, wind power, oklahoma

Emily Gilbert, University Of Toronto. Email: emily.gilbert@utoronto.ca; Eye to Eye: Biometrics, the Observer, the Observed and the Body Politic

Biometrics have held out the promise of authenticating identity absolutely in a world beset by risk and violence. A number of body parts can be used, but retina and iris scans are said to be the most accurate, and are now used by the military, large corporations, airports, and by some ATMs. In what ways are social and disciplinary power exerted on and through the bodies subjected to biometric analysis? What are the implications of these techniques of observation on the constitution of the subject, particularly in light of increased modes of surveillance from CCTV to border watchtowers? In other words, how are the relations between observer and observed reconfigured when they see "eye to eye," so to speak? This paper addresses these questions and considers the implications of the reconstitution of vision, embodiment and subjectivity for rethinking territory and the body politic.

Keywords: biometrics, nation-states, the visual, subjectivity, sovereignty

Liette Gilbert, PhD, Faculty of Environmental Studies, York University. Email: gilbertl@yorku.ca; Sanctuary and vigilante cities: "borderless" pro- and anti-migration discourse

My presentation examines the role of municipal governments in immigration policy by examining pro- or anti-migration urban policies. Although immigration is primarily a federal responsibility, some local governments have adopted sanctuary policies that prohibit city personnel from reporting immigra-

tion violations, and resist cooperation with abusive Immigration and Customs Enforcement crackdowns. Others have passed restrictionist (vigilante) policies that give local police force access to federal databases, prohibit renting to undocumented migrants, revoke license of businesses hiring undocumented workers, shut down day laborer centers and sites, and declare English the official language. In this increasingly polarized debate, what are the rationale, development, implementation, representativity, and constitutionality challenges of such urban policies. To better understand these municipal ordinances, the research will also examine key elements of the larger legislative and popular discourses of immigration politics in the US. Finally, the research examines how the pro- and anti-migration debate in the US is influencing immigration politics and activism in Canadian cities through transnational networks for migrant rights and the expansion of punitive "national security" regimes for immigrants.

Keywords: urban policy, undocumented migrants, US and Canada

Melissa R. Gilbert, Temple University. Email: mgilbert@temple.edu; Place, Space, and Power: A Framework for Examining the Intersection of Digital Divides and Urban Inequalities

Research on the digital divide in the US has documented statistical disparities in access to and rates of use of information and communication technologies (ICTs) by race/ethnicity, socio-economic status, gender, and geographic location. A large-scale study recently found that "place effects" (i.e., high poverty urban census tracts) rather than "race" per se best explained African-Americans lack of access to and use of ICTs. Because this type of analysis rests on essentialist conceptualizations of "race" and place, it can contribute to the further racialization of inner-city neighborhoods by ignoring the intertwined nature of the processes creating digital divides and urban inequalities. In this paper, I present a framework for conceptualizing the intersection of digital divides and urban inequalities that requires analyses of 1. wider social, political and economic processes occurring at multiple scales (e.g., economic restructuring, occupational segregation), 2. the interconnections among multiple relations of power and inequality in particular place/context (e.g., labor market segmentation, residential segregation, state and non-profit policies) and 3. the embeddedness of ICTs in people's daily lives in particular places. This framework leads to a research agenda that explores how processes of gender, "race" and class shape the nature and acquisition of technological capital across multiple spaces/arenas (e.g., workplace, domestic, community). Furthermore, we need ask how technological capital shapes the nature and acquisition of knowledge related to jobs, education, public services, consumer spending, and political participation.

Keywords: digital divide, urban inequality, race/ethnicity, racism, US

Susan J. Gilbert, Ph.D., Montana State University-Billings. Email: sgilbertz@msubillings.edu; Yellowstone River Cultural Inventory—2006

As a provider, as a symbol of progress, as a shared resource, as a management challenge, and as a symbol of our American heritage, the Yellowstone River is important. Native Americans depended on its valley for hunting grounds. William Clark explored much of the river in the spring of 1806 and found it teaming with beaver. By 1906 the US Bureau of Reclamation was sponsoring diversion projects as a source of irrigation waters. The river enabled "twentieth-century progress," and today it supports many nearby agricultural, recreational and industrial activities, as well as many activities on the Missouri River. Management of the shared resources of the Yellowstone River is complicated work. Federal and State interests compete with one another, and they compete with local and private endeavors. Legal rights to the water are sometimes in conflict with newly-defined needs, and by State law the public is guaranteed access to the river even though eighty-four percent of the riverbank is privately owned. In spite of the many services it provides, the Yellowstone River in 2006 remains relatively free-flowing and seems to link contemporary life to the unspoiled landscapes of the Great American West. The Yellowstone River Cultural Inventory?2006 documents the variety and intensity of different perspectives and values held by people who share the Yellowstone River. Attention has been paid to the ways in which over 300 residents from diverse geographical settings and diverse interest groups view river management and uses. Implications for linking cultural investigations with management schemes are discussed.

Keywords: river, sense of place, Best Management Practices

Audrey R. Giles, Ph.D., University of Ottawa. Email: agiles@uottawa.ca; Heather Castleden, Ph.D. Candidate, University of Alberta. Email: heather.castleden@ualberta.ca; Swim at your own risk: Examining Aquatics Risk Communication in the North from a Postcolonial Perspective

The Northwest Territories (NWT) Aquatics Program, originally created to facilitate leadership development but later expanded to include drowning prevention, began in 1967. At its height, this program operated in 41 NWT (and now Nunavut) communities. Though drowning rates have decreased in recent years, the NWT still reports a drowning rate that varies between 5-10 times the

national drowning rate (Government of the NWT, 2004), Indigenous Northerners drown at a rate far greater than non-Indigenous Northerners, and drowning is one of the leading causes of accidental death (Government of the NWT, 2004). Certainly, these figures support the finding that the NWT is a risky place to maintain an active lifestyle (Helwig, 2000). This begs the question: Why does aquatics risk communication in northern communities continue to be particularly problematic? Exploring colonial/postcolonial factors may lead to not only a better understanding of northern/Indigenous risk perspectives, but also to the development of successful risk communication strategies. We thus argue that risk communication in the North can be improved by examining water safety from a postcolonial framework to better understand Indigenous risk perspectives. While various organizations have produced literature and programs in an attempt to educate all Canadians about water safety, these educational efforts are firmly rooted in non-Indigenous perceptions of risk. As a result, we argue that it is not so much a lack of education that is inhibiting drowning prevention strategies, but rather the failure to create regionally and culturally sensitive materials that engage with Indigenous and Northern understandings of risk.

Keywords: Indigenous research; qualitative research; health geography; cultural geography; risk research; environmental perception

Debbie A. Giles, University of California, Davis. Email: dagiles@ucdavis.edu; Potential Impacts of Vessel Characteristics and Traffic on the Behavior of Southern Resident Killer Whales (*Orcinus orca*)

This study addresses the hypothesis that the presence and/or activities of whale-watching vessels affect the behavior of the federally listed endangered Southern Resident killer whales (*Orcinus orca*) in their summer range between northwest Washington state and southern Vancouver Island, Canada. US and Canadian governmental agencies have identified vessel effects as a factor influencing the survivability of these genetically isolated whales yet we do not understand the extent to which vessels disturb them. Current voluntary distance guidelines of 100-yards/meters between whales and vessels may not provide the whales with enough buffer to engage in life sustaining behaviors such as communicating, hunting, traveling, and socializing. New technology allows for the collection of geographical, spatial, and behavioral data throughout the summer range. A global positioning system with built-in data recorder for collecting attribute data, a laser rangefinder for distance, and a compass for bearing were physically/electronically connected to generate geo-referenced offset latitude/longitude points for focal whales and vessels. This remote sensing equipment allows for data collection at distances greater than the guidelines suggest, and farther than whale-watching and private boaters. Therefore, research vessel effects are minimized and the quantity and quality of data are maximized, lessening the chances of affecting the natural habitat and/or behavior of the whales and vessels being recorded. Analyses using Geographic Information Systems software will determine if vessels are affecting whale behavior and evaluate vessel compliance with voluntary guideline. Results will inform managers charged with drafting and implementing the endangered species recovery plan.

Keywords: Biogeography, Animal Geography, Geographical Information Systems, killer whales, vessel interactions

Daniel A. Gilewitch, Ph.D., United States Military Academy, West Point, NY. Email: daniel.gilewitch@usma.edu; Graham Stullenbarger, Natural Environments Test Office, Yuma Proving Grounds, AZ. Email: graham.stullenbarger@yuma.army.mil; Transforming Army Equipment Testing to the Realities of the Post 9-11 World

Since the end of World War II through the mid 1990s, the US Army was trained, organized and equipped to defeat Soviet forces in a large scale conflict in Europe. This focus drove the Army's equipment acquisition, testing, and operational concepts. Today while engaged in the Global War on Terror, the Army is transforming from a heavy force to a more rapidly deployable organization that can fight successfully in any environment on short notice. This force is also quickly modernizing and this process requires incorporation of the latest technologies and high fidelity environmental data. However, the Army's materiel acquisition process, especially the guidelines for environmental testing of new equipment, reflects a Cold War focus. Equipment destined for combat is currently tested using outdated climatic categories that divide the entire world into 'basic' (temperate) or 'extreme' environments. Environmental testing is discouraged except in 'basic' environments. This paper argues that Army Transformation requires embracing a fundamental change in the Army Testing community. This change should take advantage of ever more complex, scientifically derived environmental data that reflect the complexity of the world well beyond 'basic' and 'extreme' environments. This change requires a rewrite of the fundamental Army Regulation that governs equipment testing.

Keywords: Transformation, Army, environment

Jacquelyn L. Gill, UW Madison Geography. Email: jlgill@wisc.edu; Investigating biotic drivers of Quaternary vegetation change: Late Glacial no-analog communities & the North American megafaunal extinction in northern Indiana

In Eastern North America, late Pleistocene and early Holocene lake sediments often yield pollen assemblages that lack a modern analog (so-called “no-analog vegetation communities”). This study investigates the impact that megaherbivores (i.e. mammoths and mastodons) may have had on vegetation, by creating herbivory regimes that are not present on the modern landscape. An 11.7m gap-overlapped sediment core was taken from Appleman Lake in LaGrange County, Indiana, and pollen and charcoal records were reconstructed across the Pleistocene-Holocene transition. Loss-on-ignition and magnetic susceptibility records have also been generated, and sediment stratigraphy consists of gyttja with increasing silt content down-core, shifting to silty clay at around 8m; the clays are punctuated with layers of fine sands and gravels. An AMS radiocarbon date from 8.2m yielded a calibrated mean age of 13,460 BP, placing the record within deglaciation, the Younger Dryas, and the period of peak vegetation dissimilarity. The regional disappearance of the no-analog vegetation coincides with the fossil-inferred timing of the megafaunal decline, but fossil scarcity limits the ability to time extinctions locally. This study uses the fossil spores of the dung fungus *Sporormiella*, and the timing of local megafaunal decline is compared with the vegetation record to assess the impact of Pleistocene herbivores on paleo-landscapes. Initial findings indicate that *Sporormiella* abundances declined and eventually disappeared at a time coincident with the previously reported interval of megafaunal extinction. Local megafaunal disappearance also corresponds with a decline in grasses and a shift to an oak-beech-elm complex.

Keywords: Indiana, paleoecology, extinction, vegetation change, paleobiogeography, fire, herbivores

Nicholas Gill, University of Wollongong, NSW. Email: ngill@uow.edu.au; Peter Klepeis, Colgate University. Email: pklepeis@mail.colgate.edu; Laurie Chisholm, University of Wollongong. Email: lauriec@uow.edu.au; Cultivating Obsession: Exurbanization, Land Subdivision, and Invasive Weeds in Rural Australia

A case study from New South Wales (NSW), Australia, explores the impact of the subdivision of fine wool sheep ranches on the management of the invasive alien species, serrated tussock (*Nassella trichotoma*). The perennial grass covers over 1.1 million ha in southeastern Australia, and the country counts it as one of its 20 worst weeds due to its invasiveness, potential to spread, and negative economic and environmental impacts. In Windellama, NSW, interviews with property owners, government officials, and members of the community-based conservation group, Landcare, expose cultural, institutional, and economic barriers to the control of the invasive grass. Results show that the intensification of the serrated tussock problem is exacerbating the effect of other human-environment conditions on the decline of the ranching sector. As the subdivision process leads to smaller properties and higher population densities it holds the potential to improve management of serrated tussock. However, roughly 65 % of the interviewees are part-time residents and absenteeism tends to result in weak efforts to manage noxious weeds. In addition, regardless of their full-time/part-time status, many of the new landholders embrace land uses that inhibit effective management of serrated tussock. In addition to information for landowners and the need for coordinated state and private efforts, a much greater appreciation for the diversity of perspectives about nature held by the new landholders is required. Given the dynamic change in rural Australia, however, the case shows measured cohabitation with invasives a likely and pragmatic necessity.

Keywords: invasive species; hobby farming; land-use change; political ecology; rangelands; sustainable development

Sukhjit (Lisa) K Gill, The Pennsylvania State University. Email: skg146@psu.edu; Alan H Taylor, The Pennsylvania State University. Email: aht1@psu.edu; Spatial and temporal variation in fire regimes along a ponderosa pine-mixed conifer forest gradient in the northern Sierra Nevada's, California, U.S.A

Fire is an ecologically significant process in the fire-prone ponderosa pine and mixed conifer forests in the northern Sierra Nevada's. Spatiotemporal variations in fire regimes are controlled by processes that operate over a range of scales and these can be broadly grouped as bottom-up (e.g. topography) or top-down (e.g. climate and human land use patterns) controls. We quantified spatial and temporal variability in fire regimes in ponderosa pine and mixed conifer forests in northeastern California to identify the relative influence of bottom-up versus top-down controls in this region. Dendroecological methods were used to quantify pre-suppression era fire regimes (i.e. frequency, return interval, season, and extent) from samples (n = 214) of fire scarred trees. Top-down controls, specifically interannual climate variability and human land use patterns, strongly influence fire regimes. Synchronization of fire across the landscape, and fire-free

years, were associated with interannual climate variability. Large-scale cessation of fire beginning in the mid 19th century and continuing through present was seen following Euro-American settlement and implementation of the 1905 U.S. fire exclusion policy. Fire regimes were also influenced by bottom-up controls, specifically elevation and forest composition. Fires return intervals were shorter and fire burned earlier in the season on pine-dominated low elevation forests than on high elevation fir-dominated mixed conifer forests.

Keywords: dendroecology, interannual climate variability, ponderosa pine, mixed conifer forests, fire exclusion

Jamie Gillen, University Of Colorado. Email: Michael.Gillen@colorado.edu; A Socialist city with an entrepreneurial spirit: Business practices among non-governmental actors in Ho Chi Minh City, Vietnam

The entrepreneurial city model of urban governance's currency lies in its ability to explain recent changes to urban cultural economies, where urban government financial speculation is primarily used as a means to promote place. The model and its many case studies conceptualize a progressive and risk-ridden urban political body that acts in coordination with a passive, all-willing private sector. In this paper I offer the Ho Chi Minh City, Vietnam (HCMC), government as a political body that has long been both a public regulatory body and a private, financially speculative enterprise. This presupposition blurs the lines between the public and private spheres in the city, thus rendering them inadequate conceptual tools to employ in this context. Under these conditions non-governmental companies continually explore ways to resist financial partnership with the HCMC government and its subsidiaries. These suggestions lead to the argument that HCMC's urban entrepreneurialism should best be scrutinized from the perspective of the non-governmental cultural sector, such as the tourism industry, for it creates the conditions by which new policies are discursively indoctrinated by the local government. Non-governmental companies also construct webs of informal networks to enhance their prospects for business opportunities outside of official bureaucratic oversight, mirroring some of the practices of urban government officials in entrepreneurial cities around the world. The argument carries implications for shifting business practices as Vietnam ascends into the World Trade Organization, and what it means to be an entrepreneurial actor in a rapidly developing, politically socialist city.

Keywords: entrepreneurialism, business practices, urban politics, Ho Chi Minh City

Thomas W Gillespie, Associate Professor, University of California, Los Angeles. Email: tg@geog.ucla.edu; Quantifying Species Richness and Structure of Tropical Forests from Space

Tropical forests are experiencing high rates of deforestation and there is a growing interest in quantifying and predicting plant species richness and structure in intact and degraded forest fragments and forest landscapes. This research uses remote sensing indices from passive (ASTER, Landsat ETM+) and active (AIRSAR, SRTM) sensors to quantify stand and patch level tree species richness and forest structure in tropical forests of South Florida, Venezuela, Panama, and Oceania. In dry forests of South Florida and Venezuela, NDVI from Landsat ETM+ was significantly associated with stand and patch species richness. NDVI was also significantly correlated with stand density, basal area, and mean tree height, while estimates of tree height from SRTM were correlated with maximum tree height. Remote sensing indices from ASTER and AIRSAR were significantly correlated with tree species richness and forest structure within a 50 ha plot on Barro Colorado, Panama. However, when examining 1 ha plots spread thought out the Panama Canal Zone, the predictive value of these remote sensing indices significantly improved. Results from this research support the species-energy theory at the level of a forest stand, patch, and landscape and suggest that a first order approximation of woody plant species richness and structure is possible in biodiversity hotspots.

Keywords: remote sensing, species richness, forest structure, tropical forests

Jason A Gilliland, PhD, University Of Western Ontario. Email: jgillila@uwo.ca; Kathy Tang, MSc, University of Western Ontario. Email: ktang28@uwo.ca; Neighbourhood Characteristics Associated with the Clustering of Junk Food Outlets around Schools

The increasing prevalence of obesity among poor children in developed countries may be partly due to environmental factors; socio-economically disadvantaged populations may be more likely to live in areas that promote ‘junk food’ consumption. In this paper we examine the concentration of junk food sites around elementary schools to characterize local food environments for children in London, Canada. Databases of every fast food restaurant, convenience store and elementary school were compiled, geocoded and mapped to assess distributions of junk food opportunities in school neighbourhoods of varying SES (median household income). Traditional (planar) and network K-function statistics were used to quantify the degree of clustering of junk food

outlets around schools. The median (network) distance from any school to the nearest junk food outlet was 0.3 km, the distance a typical child can walk in 3-4 minutes. Nearly three-quarters (73%) of schools in low-income neighbourhoods have at least one junk food site within 500m (a five-minute walk), compared to only one-quarter (24%) of schools in high-income areas. Results based on the more precise network K-function method indicate a significant clustering of junk food sites around schools in low-income neighbourhoods, but not around schools in mid- and high-income neighbourhoods. The findings indicate that the most socio-economically vulnerable children are also the most highly exposed (captive) to poor quality food environments in their school neighbourhoods. The discussion focuses on methodological problems of the traditional K-function, as well as potential policy implications of our findings and avenues for future research.

Keywords: urban, gis, health, food, children

Sean Gillon, University of California, Santa Cruz. Email: sgillon@ucsc.edu; Corn ethanol production in the US Midwest: changing landscapes and livelihoods

Corn production in the Midwestern United States is expanding rapidly to accommodate growing ethanol demand. U.S. corn ethanol production increased from a few million gallons/year in the mid-1970s to over 1.7 billion gallons/year (BGY) in 2001. The U.S. Department of Energy and Environmental Protection Agency's recently mandated Renewable Fuel Standards project a rise in corn ethanol production to between 6.9 and 9.6 BGY by 2012. Recent studies focusing on the energy efficiency and environmental impacts of corn ethanol production do not comprehensively examine related social and institutional change. This paper explores the relationship between increasing corn ethanol production and the social and natural landscapes of the U.S. Midwest.

Keywords: Agriculture, Energy, Biofuels, U.S. Midwest

Mary Gilmartin, University College Dublin. Email: mary.gilmartin@ucd.ie; Spaces of belonging: Ireland and migration

Ideas of belonging are central to discourses of space and place. The meaning of belonging changes with migration, both for migrants and for the places they move to and from. This paper focuses on Ireland, a country currently experiencing net immigration for the first time in recent history. Drawing on recent empirical work on both immigration to and emigration from Ireland, the paper theorises the relationship between migration and belonging. It argues that new and changing spaces of belonging need to be understood in the context of Ireland's postcolonial experience(s).

Keywords: Ireland, migration, postcolonial theory

Benjamin Gilmer, West Virginia University. Email: ben.gilmer@mail.wvu.edu; Jennifer Miller, West Virginia University. Email: jennifer.miller@mail.wvu.edu; Predictive vegetation models: A comparison of model combination approaches

The distribution of plants and animals in space and time has long been a focus of many biogeographical and ecological studies. The various approaches for modeling species distributions are rooted in the quantification of the species-environment relationship, where biophysical variables are used to explain the distribution of species and communities. As a result, predictive modeling of species distribution has become a widespread tool in the areas of conservation biology, climate change research, and biodiversity estimates. Although there is now a wide range of statistical models available to quantify the vegetation-environment relationship, previous model comparison studies have found little difference in prediction accuracy when predictive vegetation models were compared using the same data. Therefore, there is a need to explore ways to maximize prediction accuracy with multiple models since comparison studies have not found any one "best" model. One alternative for increasing predictive accuracy among modeling techniques has been through combining models (also known in other literature as consensus modeling, composite models, forecast aggregation, forecast synthesis or forecast combination). We compare different model combination techniques of four different types of parametric and non-parametric statistical models: classification trees, generalized linear models, neural networks, and multivariate adaptive regression splines. The dataset we use consists of presence/absence data of four vegetation alliances from the Mojave Desert, CA, whose prevalence range from being extremely rare (0.006 proportion in sample) to fairly common (0.47 proportion in the sample), and twelve environmental predictor variables. Each model combination's classification accuracy is assessed by using receiver-operating characteristic (ROC) plots.

Keywords: predictive vegetation modeling, species distribution modeling, model comparison, model combination

Kevin Gilmore, University Of Denver. Email: kegilmor@du.edu; Donald G. Sullivan, University of Denver. Email: dsulliva@du.edu; High Resolution Records of Holocene Climate Change from Pocket Fens on the High Plains of Colorado: Implications for Prehistoric Culture Change.

Understanding paleoenvironments of the western High Plains is critical to understanding prehistoric human adaptations to past climates and to predict the magnitude and consequences of current climate change in this semi-arid region. Analyses of sediment cores from small fens (groundwater fed peatlands) on the High Plains indicate they contain high resolution (sub-decadal) paleoenvironmental records that extend into the middle Holocene (ca. 7800 BP). These "pocket fens" are small peatlands (25-2500 m²) sustained by springs fed by perched water tables. Fluctuations in the relative humification and organic content of peat from these features provide proxies for effective moisture and temperature, respectively. Due to the heterogeneity of the sediments contained within pocket fens, new methods of data analysis and display have been developed to compensate for sediment differences within and between fens. Data from pocket fens suggest that they contain sensitive records of relatively low magnitude climate fluctuations such as the Little Ice Age and earlier Neo-glacial events, the Medieval Warm Episode, and anthropogenic climate warming of the past 150 years. A previously unidentified period of drought dated 50 BC-AD 375 is designated here the "Terminal Archaic Drought." This event correlates with a hypothesized increase in prehistoric population that occurred at the transition between the Archaic and Formative periods both east and west of the Continental Divide. Drought, in addition to increasing population, may have provided a forcing mechanism that resulted in the cultural innovations and technologies that define the beginning of the Formative Period.

Keywords: paleoclimate, Little Ice Age, Medieval Warm Period

Franklin Ginn, BA (Cambridge), MA (Canterbury NZ), Kings College London. Email: franklin.ginn@kcl.ac.uk; '100% Pure?' Post-colonial nature and ecological restoration in Aotearoa New Zealand

New Zealand's 'natural' heritage - its forests, mountains, native bird and marine life - is increasingly seen as the foundation for a unique national identity. This eco-nationalist discourse folds both Maori ways of seeing (and being in) the world and the unpredictable agency of non-humans into an historically and geographically 'fixed' essence called nature. Focusing on the material and discursive ecological restoration of a small native forest reserve in Christchurch, on New Zealand's South Island, this paper uses actor-network theory (ANT) to problematise such a post-colonial vision of nature. The ecological restoration process employed techniques and technologies to remove exotic 'pests' from the forest reserve, whilst at the same time nurturing appropriate 'native' plant re-growth. Attention to these small- and micro-scale human/non-human interactions in the forest reserve tells a story of the tentative, relational and on-going work required to fix nature in time and space. Riccarton Bush forest needs to be understood not as a timeless fragment of prehistoric New Zealand, but as an articulated collective of human and non-human actors. The paper concludes that ANT, whilst helpful for critical re-description, is insufficient to get to grips with the complex questions of ethics and valuing the non-human evoked by post-colonial constructions of nature.

Keywords: Nature, post-colonial, New Zealand, agency

Richard N. Gioioso, Florida International University. Email: richard.gioioso@fiu.edu; East Little Havana, Miami: A Case of Mistaken Identity in an Ethnic Enclave Neighborhood?

In this presentation I problematize 'ethnic enclave neighborhood' as an analytical concept. This term is defined by both concentrated immigrant entrepreneurship and an identifiable culture reminiscent of that in the home country. East Little Havana, Miami, is an example of a neighborhood that has been classified as a Latino ethnic enclave. Data from surveys and interviews in 2005 and 2006 conducted with Latin American immigrants who currently reside in the neighborhood show how this classification is problematic. Firstly, the term 'Latino' confounds the many distinct national and regional identities and cultures that co-exist in the neighborhood. Secondly, while some residents remark on characteristics that make the neighborhood seem 'Latino', many others draw attention to important aspects of neighborhood life in East Little Havana that are absent when compared to neighborhood life in their home countries in Latin America. These findings lead me to conclude that both the generalized 'Latino' identity for residents of East Little Havana, as well as for the neighborhood itself, do not accurately reflect what the 'Latino' residents of this 'Latino' ethnic enclave neighborhood perceive. As such, researchers are challenged to re-think the usefulness of such terms in describing and explaining both people and neighborhoods.

Keywords: Miami, neighborhood, Latino, ethnic enclave

Alberto Giordano, Texas State University. Email: a.giordano@txstate.edu; Sharolyn Anderson, University of Denver. Email: sharolyn.anderson@du.edu; How Does Living Near a Hazardous Facility Affect People's Perceptions of Risk? Results of an Experiment

This paper examines to what extent living near a hazardous facility contributes to explaining people's reactions to an emergency or their perception of risk. The site of the study was the Emergency Planning Zone (EPZ) of the Nine Mile Point (NMP) nuclear plant in New York State. In the experiment, a sample of residents of the EPZ was asked to estimate driving and straight line distances from the nuclear facility to their place of residence. Estimates were then compared to actual measures using GIS. Additionally, respondents were asked to estimate their perceived distance to the facility using a Likert scale ranging from "Very Near" to "Not Near." Estimates, actual, and perceived distances were then used to predict the respondents' perception of nuclear risk and their reaction to a possible accident at the plant. Respondents were better at estimating driving distance than straight line distance, but in both cases those living near the plant tended to underestimate distance to the facility whereas those who lived farther away tend to overestimate it. Significant differences in risk perception were found after about 2 miles, then again at 5 miles and 8 miles. The most important variables in determining people's reactions were: a) perceived distance to NMP up to about 2 miles; b) actual straight line distance to NMP at about 5 miles; c) estimated street distance to NMP at about 8 miles.

Keywords: GIS, emergency management, risk perception, distance

Ana Paula Giorgi, Department of Geography, University of California Los Angeles - UCLA. Email: agiorgi@ucla.edu; Thomas Gillespie, Department of Geography - UCLA. Email: ; Ecological niche modeling using remote sensing data in the Atlantic Forest of Brazil.

The Brazilian Atlantic Forest, a major global biodiversity hotspot, is one of the most endangered ecosystems in the world, with only 7% of the original forest left. The majority of conservation activities on the region are concentrated in preserving forest patches. However, increasing the restoration efforts and developing larger contiguous forests may help to sustain natural habitats and biodiversity. Using a combination of ecological niche modeling, and data from remote sensing, climate data layers and endemic species, we evaluate the importance of selected forest fragments in conservation efforts. Occurrence data for three endemic species; two birds (*Carpornis cucullata*, *C. melanocephalus*) and one monkey (*Alouatta fusca*), were applied to Maximum Entropy Algorithm, in order to study their spatial distribution in the region. Remote sensing data from various optical and microwave sensors were used to develop either direct spectral metrics, or derived products (e.g. LAI, NDVI) to represent the vegetation and landscape characteristics. The model was run for three different forcing schemes: remote sensing data only, climate data only, and remote sensing and climate data combined, to map the geographical range of the investigated species. Model results indicate that remote sensing data alone can characterize the species range accurately, and that combined remote sensing and climate improves the result. We discuss the implication of these results for the Atlantic Forest conservation and restoration.

Keywords: forest-tropical, Brazil, conservation, ecology, biogeography

Mario A Giraldo, PhD Candidate, University of Georgia. Email: mgiraldo@uga.edu; David Bosch, USDA-ARS tifton GA. Email: ; Lynn Usery, USGS, Rolla Missouri. Email: ; Craig Kvien, Coastal Plain Experiment Station UGA, Tifton GA. Email: ; Soil moisture point readings in small fields and different landuses for remote sensing applications in a complex landscape in south Georgia US.

Accurate long term study of the environmental cycles and the calibration of remote sensing data using the in situ network of reading devices operated by the USDA-ARS near Tifton Georgia rely on understanding the relationships between the point readings and the surrounding landscape. We investigate the relationships of the soil moisture (SM) in eight stations of the in situ network with the spatial and temporal variations of SM in eight 30m by 30m homogeneous fields adjacent to the sites and in five transects in the land uses: grass, orchard, peanuts, cotton and bare-soil. On eight occasions throughout 2005 and January 2006 we established observations and comparisons at two different scales over a 45 km transect along the watershed. Consistently through time, analysis of variance (ANOVA) showed high variation in the SM behavior between the small fields and high homogeneity in the SM behavior within the fields. Temporal stability geostatistical analysis showed that SM presents high temporal stability in the fields, while t statistic analysis showed that the field mean does not necessarily correlate in all the sites with the point reading of the in situ site. We found statistic differences in the SM between the different land uses and also statistic differences between them and the in situ site. These results confirms the hypothesis that the in situ network will serve better in remote sensing studies in which sensors with high spatial resolution are evaluated.

Keywords: Soil moisture, Remote Sensing, geostatistics, point readings

Guy Girard, UFR des Arts Plastiques et Sciences de l'Art, University Paris 1 UFR04 Sorbonne. Email: j.fenton@qmul.ac.uk; Passionate series and poetry made by all

What animates passions, if not the movements of life itself, stretched towards the open fields of the possible? Here are the passions that are the strength of imagination, the passions that animate utopias, because they are irreconcilable enemies for a reasonable life. The heart and the spirit that set on fire, know that every feeling, every thought are at first moved by desire. One of the greatest thinkers of revolutionary romanticism, Charles Fourier, asserted that 12 passions rule human destiny: five sensitive, four affective, and three distributive, the ignorance and repression of which lead to the disasters of our civilisation. On the contrary, their free use through "passionate series" that recasts the social exchange should lead to Harmony. André Breton saluted Fourier as surrealism's forerunner, because of the surprising poetry of his analogical way of thinking, and his proposal for an ethic of desire that introduces the triumph of Eros to the surrealist project of re-enchantment of the daily life. Love, Freedom, Poetry are the surrealist passions: poetry is the language of love, the necessity of its strength recasting the cause of freedom. Only passionate attitudes, as considered by surrealists hysteria, open for them the fields of the possible. In the centre of this utopian space, still burns Ducasse's watchword of "poetry made by all": let us imagine it will be made by the free playing of the "passionate series".

Keywords: Passions, utopian space, Fourier, passionate series, desire, re-enchantment

Frederic Giraut, Université Joseph Fourier UMR PACTE/Territoires. Email: fgiraut@wanadoo.fr; Territorial dynamics and spatial planning trends in developing countries

A comparative study on spatial planning and regional development, and territorial restructuring in developing countries shows few general trends mixed in different patterns. Amongst them those on territorial dynamics constitute the focus of this paper. Territorial authorities, institutions, projects, local, governments and initiatives were positioned with their areas, jurisdictions and zones on a set of figures. The figures are used to differentiate territorial objects and stakeholders by levels (from international to local), tier and scales and by nature, origins and functions. Using a model of the relationship and financial links, three spheres of territorial powers are distinguished, each with its own set of dynamics: the sphere of state territories emanating from the central state apparatus and from devolution (local government); the sphere of operational territories driven by private or public sector; and the sphere of emergent territories with area based development projects, ranging from community based to interregional cooperation. Five main tendencies characterize developing countries in the era of globalization: devolution, participation, concession, regionalization and autonomization. Those trends are not always represented and are combined in different national configurations. This paper traces these for Morocco and South Africa, two African emergent countries with different backgrounds and approaches to spatial planning and territorial management. In the present context of devolution and promotion of stakeholders and spaces for civil society and the private sector, these countries present contrasting patterns with some common trends

Keywords: spatial planning; territorial restructuring ; territory; local government; area based development; South Africa; Morocco; developing countries

Chandra Giri, United States Geological Survey. Email: cgiri@usgs.gov; Shana Gillette, Colorado State University, Fort Collins, CO, 80523, USA. Email: shanag@lamar.colostate.edu; Zhiliang Zhu, US Geological Survey. Email: zhu@usgs.gov; Ashbindu Singh, United Nations Environment Programme, Washington D C. Email: ashbindu.singh@rona.unep.org; Larry Tieszen, US Geological Survey. Email: tieszen@usgs.gov; Mangrove Forest Distributions and Dynamics (1975-2005) in the Tsunami-impacted area of Asia

Mangrove forests, distributed circumtropically in the inter-tidal region between sea and land in tropical and sub-tropical latitudes, provide important ecosystem goods and services. The continued destruction and degradation of many mangrove forests during the past thirty years has decreased the protective capacity of mangrove forest ecosystems, and impaired their ability to rebound from natural disasters such as tsunamis and hurricanes. We interpreted 2005 Landsat data and estimate that approximately 1,670,000 ha of mangrove forests (~10% of the world's total) remain in the tsunami-affected areas of south and southeast Asia. The analysis of time-series Landsat data revealed that the region lost 12% of its mangrove forests from 1973 to 2005. The rate of change varied through space and time. The annual rate of deforestation was highest in Burma (~1%) and lowest in Sri Lanka (~0.1%). In contrast, mangrove forests in India and Bangladesh remained unchanged or gained slightly. At the local level, the intensity of deforestation varied, with localized hotspots of deforestation and

forest re-growth. In terms of temporal variation, net deforestation showed a peak of 137,000 ha (approximately 1% per year) during 1990-2000, increasing from 97,000 ha (0.2% per year) during 1970-1990, and declining to 14,000 ha (0.06% per year) during 2000-2005. Major factors responsible for deforestation were agricultural expansion (67%), shrimp farming (10%), urban development (2%), erosion/inundation (5%), and other factors (16%), such as over-exploitation, salt pan development, and infrastructure development

Keywords: Mangrove forests, Indian Ocean Tsunami, Deforestation, Landsat, change analysis, image processing

Elena Givental, University of California, Davis. Email: egivental@ucdavis.edu; *The Post-Soviet Life of the Old Industrial Urals*

In almost three hundred years the Urals has seen prosperity, stagnation and decline. Its rise as one of the world's first industrial regions in the 1730s due to the abundance of natural resources empowered Russia. Decline in the end of the 19th century is linked to the Urals' remoteness, poor transportation, lack of innovation, and shortage of fuel resources. The region's second boom occurred during the Soviet industrialization of the 1930s and the subsequent WWII, capitalizing on the existing industrial base and its remoteness from the war theater. The Urals fits a model of old industrial regions with its predominance of heavy industry, mineral resource depletion and industrial decline, severe environmental pollution and a vast scope of social problems. Only state subsidies for Cold War militarization mitigated a sharp decline in the 1960s. It shrank in the 1970s and 1980s with the Soviet policy of economic shift to the East. After the collapse of the Soviet Union, the Urals has chosen a path different from most of the old industrial regions. Absent any national recovery programs or new subsidies, the Urals surprisingly continued producing metals and machinery, retooled some plants, and used imported Ukrainian iron and Kazakhstan's copper ores. Intensified ore prospecting in the Northern and Polar Urals promises a continued heavy industry future. The Urals, although still an area of environmental disaster, today has positive net migration and maintains its leading status, producing 42% of Russia's ferrous metals and 35% of its machinery.

Keywords: the Urals, old industrial regions, resource depletion, metal and machinery production

Alex Gjerovski, Ohio State University. Email: gjerovski.1@osu.edu; *Community Organizations Coping With Neoliberalism: The Case of the Michigan Cool Cities Initiative*

Michigan's Cool Cities Initiative, launched in 2003, epitomizes the mentality of Richard Florida's "creative class" and challenges community organizations that embrace significantly different goals. However, community organizations have had difficulty tying together their interests in serving the poor and dispossessed with the aims of the Cool Cities Initiative. Those community organizations not aligning their efforts with the goals of the initiative risk losing state support. Additionally, residents of these communities face challenges shaping their neighborhood into the new urbanist mold, and then subsequently trying to survive in it. This paper analyzes the efforts of several community organizations and moves past received notions of neoliberalism's effects on community organizations. Instead, it posits that community organizations have the ability to manipulate neoliberal policies to their advantage.

Keywords: Community Organizing, Neoliberalism, Detroit, Michigan, Cool Cities

Amy Glasmeier, Pennsylvania State University. Email: akgl1@ems.psu.edu; *What happened to the poor?*

Since 1990, US cities have experienced a significant reduction in concentrations of poor people. Why poverty has deconcentrated is the subject of debate. Some argue welfare reform pushed people off welfare rolls and into jobs, raising incomes and reducing income-based poverty. Others suggest that gentrification pushed the poor out of dilapidated but desirable parts of cities. Still others suggest that new mixed income housing programs such as the Hope VI program resulted in a reduction in the concentration of the poor. Using census data and a variety of spatial analytic techniques, I explore hypotheses about the location of the poor in American cities.

Keywords: poverty poor welfare housing gentrification

Jim Glassman, University Of British Columbia. Email: glassman@geog.ubc.ca; *Democracy with Thai Characteristics? Social Movements, Nationalism, and the Coup of 2006*

Thailand has a rich history of social movement struggles that have contributed to uneven democratization over the course of the 20th century. Ultimately, successive waves of such struggles have encountered obstacles to the processes of social transformation they seek, resulting in repeated lapses into military rule and a general prevalence of what some have called "low quality democracy." Various factors contribute to these outcomes. This paper interrogates one such factor: the inability of Thai social movements to effectively

challenge royalist-nationalist hegemony and to build regional and international connections that would create more leverage for transforming the Thai state. While internationalization of social struggle is no guaranteed formula for success, and might even have some costs, the repeated folding of Thai social movements into royalist and nationalist projects? sometimes through the active co-optation of such movements by groups within the Thai state? has weakened these movements in important ways. The royalist-nationalist hegemony that social movement weaknesses have indirectly abetted, this paper will argue, played a direct role in enabling the coup of September 19, 2006. Moreover, even the forms of social movement internationalism that have been present in Thailand, working through fairly high profile NGO-networks, have failed to counter this royalist-nationalist hegemony and have sometimes contributed to it. This suggests that more than simply internationalism, Thai social movements need international allies that not beholden to forces in the Thai state, as are some national and international NGOs.

Keywords: social movements, globalization, state power, nationalism, Thailand

Sonya M Glavac, Arizona State University. Email: Sonya.Glavac@asu.edu; Kristen D Howze, Arizona State University. Email: ; Andrew Kirby, Arizona State University. Email: ; *Neighborhoods in Metropolitan Phoenix: Public Versus Private Neighborhoods*

It is often argued that suburban sprawl and low density development is unraveling the social fabric of the traditional neighborhood and cited as a source for much of the fracturing of societal norms. However, the above reality is up for dispute. This paper reports on initial results from an empirical study undertaken in Phoenix, AZ on neighborliness in different neighborhoods. The goal of the work has been to assess whether there are social differences between private neighborhoods managed via a Home Owner Association (HOA), and more traditional neighborhoods based on voluntary associations. Contrary to assertions in much of the literature, we have yet to find significant differences between these neighborhoods in terms of the ways in which households relate to, and interact with, their neighbors, and that HOAs seem to have no deterrent effect in this regard. Moreover, we determined that despite rapid growth, widespread suburbanization, high residential mobility, and low tenure rates that residents form significant social ties and widely engage in neighboring activities. We also explored the sociometry of neighboring, examining the reciprocity of neighboring links between residents. Here, differences between the neighborhoods were found.

Keywords: neighborliness, community, urban land use

David A Glenn, Mr., University of South Carolina. Email: Glenna2@mailbox.sc.edu; *Hurricane-Induced Flooding Across the Southeastern United States: A Case Study of Two Landfalling Hurricanes in July, 1916*

Precipitation from tropical cyclones has reduced the effects of drought and has caused extensive flooding over large areas. In July 1916, two hurricanes traversed the Southeast. The first storm made landfall near the Mississippi/Alabama border on the 5th, while the second struck near Charleston, South Carolina, on the 14th. The first hurricane meandered across the Southeast for five days and instrumental records indicate maximum precipitation values exceeding twelve inches. The second hurricane moved more rapidly and produced precipitation amounts exceeding eleven inches, although the system lasted only two days across South and North Carolina. The resulting Great Flood of 1916 is well documented in historical newspapers, instrumental weather records, and personal diaries. Daily-reconstructed precipitation maps were created from all available instrumental records (COOP) and analyzed utilizing the most recent hurricane tracks, ensuring correct storm location and classification (i.e. barotropic or baroclinic) for both hurricanes. This paper will explore the historical documentary evidence of the significant flooding associated with each hurricane, as well as the combined flooding effects. Multiple hurricane strikes within a short time period are extremely rare and are nearly impossible to predict, yet it is essential for those involved in flood and resource management operations to understanding heavy precipitation and flooding associated with tropical cyclones.

Keywords: hurricanes, Southeast, historical, climatology, tropical precipitation, flood

Jonathan Glick, University Of Washington. Email: glick@u.washington.edu; *Gentrification and the Racialized Geography of Home Equity*

This paper provides theoretical and empirical justification for the claim that gentrification is having significant effects on the distribution of home equity wealth. I argue that research on gentrification should consider racialization not just as a further disadvantage for poor renters, but also in its unique intersection with the home equity building process among homeowners. I analyze large-scale

gentrification (affecting zones of 100,000 population) occurring in seven metropolitan areas, Denver, Miami, New Orleans, Oklahoma City, Phoenix, Portland, and Seattle. Within the areas, the effects of gentrification on racial inequality vary considerably. Most, but not all, gentrifying areas have concentrations of African American or Latino homeowners at the onset. Levels of home equity for the median African American or Latino homeowner generally increase as home values increase relative to mortgage debt. However, gentrifying neighborhoods represent a declining share of African American and Latino homeownership over time, which suggests overall change to the racialized geography of home equity building across MSA may be negative.

Keywords: gentrification, homeownership, race, equity, land value

Johannes Glückler, Catholic University of Eichstaett-Ingolstadt. Email: johannes.glueckler@ku-eichstaett.de; Global corporate knowledge transfer: a social network analysis of an international technology service firm

Knowledge is now seen as the primary source of value-added and competitiveness. In the context of global business operation and high knowledge-intensity, firms are most severely confronted with the problem of making existing localized knowledge available at other places rather than only supporting the generation of new knowledge. The knowledge management literature, so far, has concentrated almost exclusively on the transfer of codified knowledge via modern information and communication technologies. Yet these systems regularly fail to mobilize contextualized forms of knowledge, which are the real assets for highly value-added services. This is where many international firms stand today and seek alternative organizational solutions to attain an effective transfer of individual expertise. This paper discusses the challenges and pitfalls of interpersonal knowledge transfer under conditions of globally distributed knowledge and presents the results of an empirical case study in a medium sized technology service firm operating in four continents of the world. By using the methodology of social network analysis, this study conveys deep insight into the real architecture of knowledge flow behind the organizational chart. The paper reveals and discusses the structure of the knowledge network and its mechanisms, barriers and implications for the organization of intra-corporate knowledge transfer in the global economy.

Keywords: knowledge, knowledge transfer, transnational corporation, social network analysis

Brian J. Godfrey, Vassar College. Email: godfrey@vassar.edu; Politics of Preservation: Institutional Brokers of Heritage Sites in Brazilian Cities

Brazil, long preoccupied with issues of modernization and development, has become transfixed by historic preservation. Although this contemporary valorization of the past is widely perceived as a significant change in what has long been called the "land of the future," this paper argues that it is not entirely new, nor does it fundamentally reject certain tenets of modernism that have long guided the country's urban planning. Case studies focus on Ouro Preto, Minas Gerais, the country's first National Landmark and also the first UNESCO World Heritage Site; Rio de Janeiro's "Cultural Corridor," a city-sponsored heritage program downtown; and Belém do Pará's state-sponsored "Feliz Lusitânia" historic district in the Old City. These cases illuminate the roles of institutional symbolic brokers at the local, state, national, and global levels?in defining heritage and appropriating the cultural capital of national historic centers. The paper's analysis of the politics of historic preservation emphasizes the political articulation of these symbolic brokers, their roles in creating official narratives of the past, and the resulting cultural landscapes of heritage in Brazilian historic centers.

Keywords: Urban, Latin America, historic preservation, gentrification, memory

Abhineety Goel, Texas A&M University. Email: abhineety@neo.tamu.edu; Human Impact and Local Knowledge on Biodiversity in Rajaji National Park, India

Rajaji National Park lies in the western Uttarakhand in India, spread over the junction of Dehradun, Haridwar and Pauri Garhwal districts. It is a complex ecosystem rich in wildlife. The forest is home to approximately 23 species of mammals, 315 species of birds and different types of human settlement. This study examines the pressures on, and dependencies, of the communities living there, namely, Gujjars, Taungyas, Gothias, and Tehri dam oustees amongst others, on the biodiversity. According to the Rajaji Park office records, there are 105 villages in and around the park. Intensive forestry operations, colonization of land for various developmental projects, forest fires during summers, and poaching are some of the most significant limiting forces. The location of Gujjar deras (settlements) at the perennial water holes on hill slopes or at seepage springs prevent wild animals from using them. The peripheral villages face constant threat from the wild animals from the park, and chronic employment throughout the year. A significant proportion of people are landless labour or subsistence cultivators working on marginal lands. This paper reports on a bio-

resource inventory of the park, the crucial driving forces resulting in biodiversity loss, and management of bio-resources using the local knowledge of the different communities.

Keywords: Local Knowledge, Biodiversity Conservation, Land Use, India

Andrew R. Goetz, University Of Denver. Email: agoetz@du.edu; Timothy M Vowles, University of North Florida. Email: t.vowles@unf.edu; Sean Tierney, University of Denver. Email: stierney@du.edu; Bridging the Qualitative/Quantitative Divide in Transport Geography

At the 2006 AAG meeting in Chicago, panel sessions were held on the topic, "Transport Geography: Reflections on a Subdiscipline and Identifying Future Research Trajectories." Several of the presentations touched upon the issue of insularity in transport geography and the need to bridge the divide between the largely positivist/quantitative research in transport geography and the post-positivist/qualitative research prevalent in urban, economic, and several other related subfields of human geography. Transport geography has been criticized by some for being a quiet corner of our discipline that has lost its centrality largely because it remains within the analytical framework of the 1960s. This paper explores these sentiments by re-examining recent transport-oriented research in geography to assess the degree to which the qualitative/quantitative divide exists between transport and other subfields in geography, as well as issues of productivity and centrality of transport-oriented research in geography. Results indicate that geographical research involving transport topics is much more prevalent and reflects a wider range of analytical approaches than is frequently assumed. Nevertheless, there is still a considerable divide between "mainstream" transport geography and other human geographical research that necessitates much more interaction between transport and other subfields, and greater incorporation of alternative research approaches within the mainstream of transport geography.

Keywords: transport geography, centrality, qualitative/quantitative divide

Banu Gokariksel, University of North Carolina, Chapel Hill. Email: banug@email.unc.edu; Neoliberalism, Islam and gender: the constitution of the neoliberal Muslim subject and veiling fashions in Istanbul

Recent work on neoliberalism has underlined the contextuality of neoliberalism in the way this ideology articulates with existing social, economic and political structures, institutions and regulatory frameworks to produce a multiplicity of "actually-existing neoliberalism"s. Also, there is a growing interest in examining neoliberalism not only as it relates to the market and the economy, but also as it shapes state-citizen relations and the formation of subjectivities. This paper aims to contribute to these recent developments in the study of neoliberalism by underlining the significance of religion in addition to other factors, in influencing the form neoliberalism takes and by examining the construction of neoliberal religious citizens and subjects. In particular, my focus will be on the relationship between neoliberalism, Islam and gender through an examination of the new women's Islamic fashion industry in the context of the post-1980 Turkey. I will analyze qualitative data consisting of interviews with (male) businessowners and (female) salespeople/consumers of veiling fashions in this paper. My main argument is that neoliberal policies have helped the rise of a veiling fashion industry whose producers and consumers in their different ways partake in a combination of what can be called an 'Islamic neoliberalism'. This Islamic neoliberalism is defined by these groups' contentious relation to the secular state (although going through a transformation under the current 'Muslim democrat' AK Party) and the secular establishment. Neoliberal forms of consumer-citizenship provide interesting possibilities for critically engaging with the secular state for these subjects.

Keywords: neoliberalism, Islam, gender, fashion

Mahmut Gokmen, University of Oklahoma. Email: mgokmen@ou.edu; Tyler Haas, University of Oklahoma. Email: tyler.haas@gmail.com; Modern mapping of Orientalism onto the Arab World: National Geographic Magazine, 1990-2006

This paper focuses on National Geographic Magazine's discourses in Orientalism and journal's textual and visual representations of the Arab World. The timeframe the paper addresses is from January, 1990 to November 2006, and it provides an analysis of the journal's discourses regarding Arab culture using textual and visual construction of Arab men and women in an Orientalist frame. In this paper, we employ post-structural and post-colonial approaches in order to emphasize the exertion of power, language, text and discourse in the construction of the "othering" of the Arab World as an "imaginative geography" of the Orient. This paper demonstrates that the act of representing "others" involves compulsive misrepresentation, exaggeration of cultural differences, framing cultural differences as the peculiarities of "others", and naturalizing American culture. This paper also searches for the potential changes in the Orientalist frame of the journal (throughout the given timeframe) due to important watershed events in the recent history of the Arab World, such as the collapse of the former Soviet Union, both Gulf Wars, and the events of September 11. Our

use of the term “Arab World” in this paper should be understood to refer to Arabic-speaking people and/or people tracing their heritage to an Arabic nation in the Middle East or North Africa.

Keywords: National Geographic Magazine, Orientalism, Othering, Arab World, geographies of representation, post-structuralism, post-colonialism

Arnon Golan, University Of Haifa. Email: agolan@geo.haifa.ac.il; *Jewish Immigrants, Arab residents, and municipal elections in Tel Aviv in the 1950s*

Following the 1948 war and the establishment of the State of Israel the Jewish population of the Tel Aviv-Jaffa urban region rose from 220,000 in 1948 to 380,000 in 1961. Rise of population resulted mainly from the wave of mass Jewish immigration to Israel. Most Arabs that lived in this area were forced to leave their homes during wartime and their number decreased respectively from 85,000 to 6,000. The Israeli government decided upon the formal unification of Tel Aviv and Jaffa municipalities in April 1950. Rapid demographic transformation and municipal boundary re-demarcation were followed by a transfer of power from right wing General Zionist to left wing Labor party. Although most immigrants arrived as early as 1950 this transfer of political power occurred only in 1959, following two municipal election campaigns, in 1950 and 1955, in which the right managed to remain in power. The State of Israel afforded since its establishment general franchise for all citizens, including Arabs and newly arrived Jewish immigrants. It is common knowledge that in national elections most members of these population groups supported left wing parties. Nevertheless the slow transfer of power in Tel Aviv municipality may suggest that they were more reluctant to support the left on the municipal level.

Keywords: immigrants, Arabs, Tel Aviv, elections

Jennifer Gold, University of Cambridge. Email: jmg81@cam.ac.uk; *In the service of empire: the Imperial Forestry Institute, British Colonial Officer training and the historical geographies of scientific knowledge, 1935-1965*

This paper seeks to extend recent geographic interest in imperial biographies to the understanding of the geographies of science. It examines the Imperial Forestry Institute at Oxford University as a specific site conditioning the production and reception of scientific knowledge. In 1935, the unification of the Colonial Forest Service brought forestry officers from the myriad of distinct and entirely separate forest departments across the British empire into a single service with standardised recruitment and training procedures. The Imperial Forestry Institute was designated the central school for the training of colonial forest officers with new recruits required to take a one year Colonial Probationer Course. This paper, which draws on oral history and archival research, argues that a focus on the personal geographies of Institute staff - the vast majority of whom were retired colonial officers - provides an alternative perspective for understanding the historic and spatial contingency of scientific knowledge. Moreover, it is argued that the colonial careers of Institute staff, and in particular the predominance amongst them of postings to the Indian sub-continent, conditioned the scientific training received by colonial probationers.

Keywords: empire, forestry, geographies of science, imperial biographies

Margaret M. Gold, London Metropolitan University. Email: m.gold@londonmet.ac.uk; *The shock of the old: proto-conservation agencies and changing representations of urban heritage in the 1960s*

The 1960s were a decade that saw a significant shift in attitude towards the built environment culminating in a reassessment of what the familiar urban environment had to offer. Despite the prevailing consensus favouring inculcation of progress through comprehensive redevelopment of the urban environment, a number of newly formed organisations, including the Civic Trust (1957) and the Victorian Society (1958), worked to raise awareness of the continuing value of the past through their campaigns to save what they considered to be iconic structures and buildings from destruction. Their early years saw campaigns end in several spectacular failures, notably in relation to London's Euston Arch 1961 and the Coal Exchange 1962. Nevertheless, by the end of the decade, attitudes were changing, partly through disillusionment with existing approaches but also through the growth of conservation measures at the end of the 1960s which created a fertile climate for the reappraisal of Victorian architecture. Using primary data and contemporary reportage relating to these groups, this paper analyses the discourse of early conservation work in London and provincial cities, identifying the recurrent metaphors employed in justifying and sustaining what at first seemed a forlorn cause. It charts the gradual presentation of arguments that went beyond isolated preservation projects to re-conceive conservation within a wider urban context.

Keywords: conservation, Sixties, heritage, discourse

Daniel W. Goldberg, University of Southern California. Email: dwgoldbe@usc.edu; *A Mediator-Based Method for Iterative Bottom-Up Gazetteer Generation*

A gazetteer provides the foundation for numerous critical services in a variety of academic research fields, most commonly through “indirect georeferencing”. This is but a single capability that can be exploited, yet has led to a paradigm of gazetteer generation, termed the “top-down approach”, which produces end results of limited scope and usefulness outside of the target application due to fundamental limitations in the process (e.g. the satisficing condition). In contrast, this paper defines a new generation paradigm, termed the “bottom-up approach”, which focuses foremost on completeness and accuracy, and is not bound by the same limitations. It releases the constraint of explicitly defining what constitutes a valid geographic feature suitable for inclusion into a gazetteer, thereby allowing each individual creator to determine what is suitable and what is not. To test the feasibility such an approach, this paper employs and extends existing geospatial information mediator architectures to define a generalized framework of the gazetteer creation process, focusing primarily on the ability to easily define and include data sources and operations to be incorporated into the process. To evaluate, an experiment comparing the results of different gazetteers created by employing the same geospatial mediator-based method with different data sources and operations for a small section of downtown Los Angeles, California is performed. The results demonstrate that the iterative nature of gradually improving the contents of the gazetteer through the automatic incorporation of higher quality data sources and operations dramatically improve the overall quality of a gazetteer.

Keywords: gazetteer, mediator

David Goldblum, Northern Illinois University. Email: dgoldblum@niu.edu; *Sensitivity of corn and soybean yield in Illinois to air temperature, precipitation, and climate change*

The potential impact of climate change on agricultural production has frequently been evaluated at national and regional scales. This study considers the potential county-scale impact of climate change on corn and soybean yield in Illinois, USA. By identifying specific monthly climate variables (mean daily temperature and precipitation) to which corn and soybean yield is sensitive, this study compares monthly General Circulation Model (GCM) predictions with the monthly climate variables to which corn and soybean yield is sensitive to predict crop yield under future climate. Corn yield is negatively correlated with July and August temperature in much of the state, and positively correlated with precipitation from the previous September (in the central portion of the state) and July and August precipitation in most of northern and southern Illinois respectively. Soybean yield is negatively correlated with mean monthly temperature in the central and southern Illinois, and positively correlated with July and August precipitation in the same regions. Given the GCM predictions for increased summer temperatures and summer drought, both corn and soybean yield will likely decrease under future climate conditions. This is likely to be most pronounced in the central and southern portions of Illinois.

Keywords: climate change, corn, soybeans, agriculture, Illinois, GCM, Midwest

Mara Jill Goldman, Ph.D., International Livestock Research Institute (ILRI), Nairobi. Email: marajgoldman@gmail.com; *Constructed Landscapes, Contested Histories in Northern Tanzanian Rangelands*

Wildlife conservation in northern Tanzanian rangelands has long relied on the construction of such landscapes as wild, open, natural lands, free from human disturbance. Acknowledging the historical impacts of pastoral land use and the political and ecological necessity of working with communities to protect wildlife outside of national parks has done much to disturb these constructed histories. Yet there is little inclusion of local knowledge of historical ecological change in new conservation projects throughout the region. Recognizing the contested nature of land use histories and the alternative historical accounts of ecological change is essential for building politically agreeable and ecologically sound land use futures. In this paper, I present alternative histories and contested future visions of a new conservation area in northern Tanzania, the Manyara Ranch, as presented by local Maasai resource users and the mandating conservation organization. The Ranch is presented in conservation literature as an important ‘natural’ link or wildlife ‘corridor’ between two national Parks. Manyara Ranch is, however, also a cattle ranch, as well as a dry season grazing reserve for neighboring communities. The land trust model for the Ranch promotes multiple land use and community involvement. However, the continued promotion of a particular kind of landscape with an imagined pristine history impedes recognition of the historical use, transformation, and continued use of this area by local people, livestock, and wildlife. By understanding the history of the area from a local Maasai perspective, Maasai visions of the future of the Ranch come into view.

Keywords: historical ecology, Tanzania, Africa, pastoralism, wildlife conservation

Kirk P Goldsberry, UCSB Geography. Email: kirk@geog.ucsb.edu; *A New Real-Time Traffic Map for Los Angeles, California*

According to the 2005 Urban Mobility Report (Shrank and Lomax, 2006) Los Angeles, California has the worst traffic in the United States. One problem is that drivers have insufficient resources for congestion avoidance. In cities like Los Angeles, drivers in pre-trip or en route situations need access to timely traffic information. Traditionally, this information has been relegated to radio and television reports. However, recent developments in computing, in-car navigation-systems, and location-based-services present newfound channels for real-time communication. How can cartographers utilize these channels to enhance the delivery of real-time traffic information in map form? This paper presents a new online traffic map designed specifically for contemporary media including the internet, and mobile devices. The design is guided by two main influences: an empirical assessment of human-map interaction, and recently established design principles for small-screen displays. The research examines human-subjects' responses to several different design variables including: classification decisions, color schemes, and generalization. The methods involve empirical measurements of human subjects' map task performances, and a subsequent system design stage that is informed by the human subjects assessment. Similarly, there are two sets of contributions. The results from the human subjects assessment offer new insight into how people interpret and respond to real-time traffic maps. Secondly, from a technological standpoint, the research suggests an alternative architecture for the construction of web-based real-time map systems.

Keywords: cartography, transportation, GIS, visualization, web mapping, map reading, behavioral geography, information visualization

Harvey Goldstein, University of North Carolina at Chapel Hill. Email: hgold@email.unc.edu; *The University's Role in Regional Development: Some Implications of the Entrepreneurial Turn*

The presentation will report on a national study of the attitudes of faculty towards the role of universities in promoting and assisting local and regional economic development. Implications of the 'entrepreneurial turn' among institutions of higher education, including potential conflicts of interest, the traditional functions and norms of the academy in society, and regional governance issues will be discussed.

Keywords: Academic entrepreneurship, regional development, conflicts of interest

Noah Goldstein, Lawrence Livermore National Laboratory. Email: goldstein8@llnl.gov; *Current GeoSpatial Energy Supply and Demand Modeling - Challenges and Opportunities*

Calculating current and forecasted future energy supply and demands for States and Nations involves models of economics, demography and environmental science. These models have been developed over the past 30 years for specific applications such as policy analysis and demand forecasting. A subset of these models is used for policy testing and research and development (R&D) testing. These models, including those run by federal agencies have been called to model other issues, beyond the model's original domain, such as Climate Change, Renewable Energy and Alternative Transportation Fuel Research. However rich with respect to economic sectors, many of these models suffer from Geographic challenges, namely regional incongruence and coarse generalizing of potentially fine resolution data, including environmental and demographic components. I present the current state of Energy Supply and Demand Models and potential challenges to improving these models. Additionally, I present quantitative examples that show the importance of incorporating regional variation in modeling residential demand and supply from renewable resources.

Keywords: Energy Modeling, Renewable Energy, Policy Modeling

Reginald G. Golledge, Dept. of Geography, University of California, Santa Barbara & Research Unit on Spatial Cognition and Choice. Email: golledge@geog.ucsb.edu; Jack Loomis, Dept. of Psychology, University of California, Santa Barbara. Email: loomis@psych.ucsb.edu; Roberta Klatzky, Department of Psychology, Carnegie-Mellon University. Email: klatzky@cmu.edu; James Marston, Dept. of Geography, University of California, Santa Barbara & Research Unit on Spatial Cognition and Choice. Email: marstonj@geog.ucsb.edu; *Wayfinding Without Sight: The Haptic Pointer Interface*

In this presentation, we report on recent facets of our ongoing research on a wayfinding device for visually impaired or blind travelers. We summarize previous efforts using virtual (spatialized) sound, spatial language, and several direction/distance giving information processes. Based on our experiences with Remote Infrared Auditory Signage (RIAS), a haptic device was developed to

provide directional guidance. Experiments were undertaken to explore the relative effectiveness of spatialized sound (tones), verbal prompts, and vibratory stimuli as guidance techniques. A more detailed discussion of the vibratory device is then provided together with suggested ways of testing the effectiveness of each interface.

Keywords: HPI, Visual Impairment, Vibro-tactile Experience, Empirical Testing

Elyse Golob, Dr., University of Arizona. Email: egolob@email.arizona.edu; *La Universidad y La Frontera: The University's Role in Border Security*

The university's role as a pivotal agent of regional economic development is the topic of intense debate. Institutional involvement arises, at times, as a response to extraordinary events. Following the tragedy of 9/11, the U.S. has faced the challenge of achieving equilibrium between border security, safety and trade flow. The Ports of Entry confront these complexities daily as the gateways of goods, people and information between two countries. As a border state with Mexico, Arizona is a locus for these economic, political and social interactions. The development and implementation of requisite technologies, management systems and governmental policies, however, have not kept pace with escalating and shifting demands. The University of Arizona, a major research institute located 60 miles north of Mexico, is spearheading efforts to create the CyberPort Technology Commercialization Center. Situated in Nogales, AZ between two major Ports of Entry, the CyberPort Center will provide a live test bed to test, evaluate and commercialize border-related technologies. The realization of these efforts requires partnership among a diverse range of stakeholders including the private sector; federal and state governments; and the local community encompassing politicians, civic leaders and property owners. This study will explore the university's role as a facilitator of this initiative and the anticipated benefits to the region.

Keywords: university, border security, economic development, regional economy

Gang Gong, Sam Houston State University. Email: ggong@shsu.edu; *Analysis of Air Travel Propensity Using Logistic Regression*

The National Household Travel Survey (NHTS) conducted by U.S. Department of Transportation collects data on both long-distance and local travel by the American public. It gathers trip-related data such as mode of transportation, duration, distance and purpose of trip. It also gathers demographic, geographic, and economic data for analysis purposes. This research focuses on the analysis of U.S. domestic travelers' behavior in travel by air. Specifically, using a logistic regression technique, this paper is intended to test the impact from travelers' various socio-economic characteristics on their propensity to fly. Regional difference will also be explored.

Keywords: air transportation, logistic regression

Mario Gonzales, New Mexico Highlands. Email: mjgonzales@nmhu.edu; *Border Security as a Labor Issue*

Few researchers study both Palestine and Mexico, yet with respect to land and labour, the two have much in common. Each had its land taken to create an economically larger neighbour. Each has a forced border that creates a "step" economy (Josiah Heyman's term). And the people of each are hence reliant on returning to what was once their land, to work for an economy and state from which they are forcibly excluded - except as wage labourers. This presentation briefly documents the recent history of each situation, and centres on both the structural impediments and sense of agency related to workers in Palestine and Mexico.

Keywords: Border, economics, immigration

Milagros J. González, University of Puerto Rico, Río Piedras. Email: g_milagros@yahoo.com; Mariano Solórzano, International Institute for Tropical Forestry, Río Piedras, Puerto Rico. Email: msolorzano@fs.fed.us; William A. Gould, International Institute for Tropical Forestry, Río Piedras, Puerto Rico. Email: wgould@fs.fed.us; *Migratory Bird Predicted Habitat Maps*

The geographic distribution of a selected number of migratory birds in Puerto Rico will be mapped using the GAP Analysis Program methodology. In addition, predicted habitat maps for these species will be modeled using the landcover developed by the Puerto Rico GAP Analysis Project. A GAP analysis will be carried out to assess the conservation protection of these migratory birds. For this purpose a land stewardship of Puerto Rico will be used in order to calculate the percent of the species habitats that is under some level of protection. The results could help pinpoint the areas that are of importance for the species survival and that need to stay free of human development or urban areas. The Puerto Rico GAP Analysis Project (PRGAP) started as an effort to map vertebrate biodiversity in Puerto Rico and to quantify the amount of protection

that is being given to this biodiversity through land stewardship conservation. As part of the National GAP Analysis Program the PRGAP is sponsored by the Biological Resources Division of the United States Geological Survey (USGS-BRD) whose mission is to carry out regional assessments of the conservation status of native terrestrial vertebrate species and natural land cover types. Other PRGAP sponsoring organizations and collaborators include the International Institute of Tropical Forestry (IITF), US Fish and Wildlife Service (USFWS), and the Department of Natural and Environmental Resources (DNER).

Keywords: sustainable development, biodiversity, conservation

David Goodman, Professor, UC Santa Cruz. Email: hatters@ucsc.edu; *Lively commodity geographies: reflections on the literature.*

This paper reviews the burgeoning literature on the geographical lives of commodities from commodity chains, filieres and commodity systems analysis to circuits and other metaphors. Empirical examples are drawn from recent case studies in the agro-food studies literature.

Keywords: commodity geographies

Gregory B Goodrich, PhD, Western Kentucky University. Email: gregory.goodrich@wku.edu; Andrew W Ellis, PhD, Arizona State University. Email: andrew.w.ellis@asu.edu; *Climatic controls and hydrologic impacts of a recent Extreme Seasonal Precipitation Reversal in Arizona*

The winter (December - February) of 2005-06 ranked as the driest in the instrumental record (since 1895) for nearly all regions of Arizona. The city of Phoenix recorded no precipitation during this time period, which was part of a record dry streak of 143 days without measurable precipitation. More importantly, the Salt and Verde watersheds, which supply the greater Phoenix area with approximately 53 percent of its water supply, received less than 3 percent of normal precipitation. Remarkably, this historically dry winter was preceded by the second wettest winter on record in 2004-05, a winter that filled reservoirs statewide and ameliorated a drought that has persisted since 1996 in some parts of the state. This study begins with a brief overview of the historical context of such reversals of extreme seasonal precipitation in Arizona. We then examine the synoptic and teleconnective conditions that led to back-to-back historically anomalous winters. Finally, we will discuss the impact of this extreme reversal on important watersheds in Arizona. We find that while an extreme reversal such as this has only happened once before in Arizona (1904-05 and 1905-06), there is a trend for increasing variability in winter precipitation from one year to the next in Arizona, especially since the 1960s.

Keywords: extreme, precipitation, Arizona, winter-season, climate, teleconnection

Conrad M. Goodwin, Ph.D., Independent Scholar. Email: macgoodwin@comcast.net; *Wines of Slovenia: Small Country Production in a Globalizing World*

People having been growing grapes and making wine in what is now Slovenia for about 2400 years. Today, there are about 24,000 hectares under vine cultivation and cover about 1.2% of Slovenia's total land area. About 100 million liters of wine are produced annually. Slovenians consume most of the wine, and only about 5% is exported. The country has 3 wine producing regions. Posavje in the south and southeast is best known for Cvček, a light, fresh red wine that normally finds its way to the table along with homemade cheeses and sausages when you visit friends or family. Podravje is in the northeast and is best known for white wines, especially Laski Rizling and late harvest wines. Primorska is in the west, bordering the Adriatic and Italy, and produces some outstanding wines, both whites and reds. Slovene wines, several of which have won medals in international competitions, are not well known in the United States due to limited production and local consumption, hence little for export. EU membership has presented further challenges to Slovene winemakers by limiting wine production areas and by opening the Slovene domestic market to increased foreign competition. In response, some winemakers formed cooperatives to better enable export of their wines. Other wineries concentrate on improving and producing high quality wines, while many still focus on production for personal consumption.

Keywords: Slovenia, wine, EU, agriculture

Mark Goodwin, University of Exeter. Email: M.Goodwin@exeter.ac.uk; Stewart Barr, University of Exeter. Email: s.w.barr@exeter.ac.uk; *The Politics of Scale in Climate Change Research: Enquiry, Policy and Activism*

The politics of scale are critically important for those grappling with climate change research. At present the scaling of enquiry, policy and activism represents three fundamental points of tension within the climate change community - both within and beyond academia. We will examine each in turn. First, the scale of enquiry and scientific representation means that most models of long-term climate change focus on changes in global mean temperature which ignore or distort more local variation. In contrast, social science research is often

framed at the local or even individual scale. We ask whether these two scales can be reconciled. Second, those concerned with the governance of climate change are working with a set of programmes and strategies that stretch from the local to the global and which represent a negotiation of different political and institutional scales. We will explore how such policies might be integrated. Third, the scaling of activism will have a critical impact on our ability to tackle climate change, where the global tends to be too large a scale to mobilise action, whilst the local may provide a restrictive scale for effective action. Each of these elements of course influences, and is influenced by, the others. In short we feel that the 'rupture' of scale cuts across these issues and presents serious challenges to those seeking to confront the full implications of climate change. We will explore these dilemmas using case study material drawn from our own research on the politics of climate change.

Keywords: scale, climate change, scientific enquiry, governance, activism

Jamie Michelle Goodwin-White, University of Southampton. Email: J.Goodwin-White@soton.ac.uk; *Comparative contexts of immigrant and 1.5 generation occupational structure: how do changing ethnic divisions of labor matter for the second generation?*

In this paper, I explore the ways in which geographic context matters for the second generation adult children of immigrants. Specifically, I consider the ways in which five different metropolitan area labor markets have extraordinarily different 1) ethnic divisions of labor, 2) economic fortunes over the past decade, and 3) experiences with newcomers in terms of immigration, internal migration, and the demographic shifts that result from these patterns. As such, the occupational distribution and the rewards that accrue to different bodies in different jobs provide geographically contingent contexts for the important national question of second generation fortunes. How are the 1.5 generation located occupationally relative to immigrant and US-born co-ethnics? How does this differ between places, what remains similar, and why does it matter? Although I focus on the economic and population shifts in the labor force in these cities, as well as on the resulting intergenerational immigrant occupational and wage shifts, I also discuss the interactions of other scales of context - specifically with regard to regional population dimensions and internal migration, as well as state-level policies.

Keywords: immigrants, inequality, economic geography, local labor markets, population geography

Kanishka Goonewardena, University Of Toronto. Email: kanishka.goonewardena@utoronto.ca; *Negative Dialectics, or, The Actuality of Philosophy in the Age of Empire*

This essay explores the contemporary relevance of Frankfurt School philosopher Theodor Adorno's contribution to critical theory in the Hegelian-Marxist tradition, especially in his dialectical meditations on the concepts of 'totalization' and 'identity', which both prophetically anticipate the postmodern motifs of deconstruction and proleptically surpass the late capitalist politics of difference. (Key references: Theodor Adorno, *Negative Dialectics*; Susan Buck-Morss, *The Origin of Negative Dialectics*; Fredric Jameson, *Late Marxism*; Brian O' Connor, *Adorno's Negative Dialectics*.)

Keywords: dialectics, critical theory, marxism, poststructuralism, adorno

Pierre Goovaerts, BioMedware. Email: goovaerts@biomedware.com; *Space-time Visualization and Detection of Health Disparities using Geostatistics and a Space-Time Information System: The case of prostate and cervix cancer mortality in the United States, 1970-1994.*

Geographic Information Systems (GIS) facilitate digital cartography, and Atlases of health outcomes are now published by national and state health agencies. These have proven useful for quantifying patterns in health outcomes, for documenting access to health care, providing tools for risk communication and for assessing disparities in cancer burdens in underserved populations. Notwithstanding these benefits, there are substantial limitations that arise from using conventional GIS technology, in particular for the visualization and detection of health disparities in cancer mortality. First, the smaller size of minority populations leads to rates that can be very unreliable and need to be stabilized prior to any analysis. Second, the interpretation of choropleth maps suffers from the common biased visual perception that larger areas are of greater importance. Third, the temporal nature of the data is not properly accounted for in most GIS, which hampers the visualization of temporal trends that can pinpoint locations where disparities greatly increased over time and health policies need to be changed. This paper presents recent developments in the field of space-time information system and geostatistical analysis of cancer rate data. A methodology is presented to create isopleth maps of cancer mortality risk from observed rates and to propagate the uncertainty attached to the risk estimates through the detection of significant health disparities. The approach is applied to the detection of disparities in cervix and prostate cancer mortality between black and white populations, using data recorded over all US State

Economic Areas for five time periods of 5 years each.

Keywords: geostatistics, time changes, cancer

Suchi Gopal, Dr., Boston University. Email: suchi@bu.edu; Mark Vanelli, MD, MBA, Harvard Medical School. Email: m.vanelli@comcast.net; *Spatial Analysis and Visualization of Patterns of Co-occurrence of Addiction and Serious Mental Illness*

Alcoholism and drug addiction are recognized as progressive, long-term, relapsing disorders, which affect an estimated 15 million people in the US (SAMSHA). Prior medical research has demonstrated that the prevalence of substance abuse disorders in patients with severe mental illness (SMI) is higher than in the general population with co-occurrence rates ranging from 29% to over 50%. The abuse of drugs and alcohol has profound personal, community and social consequences. In this paper, we examine the spatial patterns of co-occurrence of addiction and SMI in the US and more particularly in New England state. Co-occurrence rates vary by geographical area and localized 'pockets' of high or low rates exist throughout the region. High and low rates are estimated using spatial autocorrelation statistics. These patterns are explained to some degree with underlying census geography and location of health services. Health services are classified into three types - major teaching hospitals and medical centers, psychiatrists, and other allied mental services such as methadone clinics, and group facilities such as Alcohol Anonymous Association (AAA) meeting places. Accessibility and distance measures aid in further analysis of regional patterns of delivery of mental health services. Using prescription data relating to an atypical antipsychotic, we further demonstrate the utility of spatial analysis in healthcare delivery. Spatial analysis presented in this paper would be helpful to physicians and health care providers to better manage the condition of co-occurrence. Theoretical issues relating to integration of heterogeneous data, including MAUP, are also discussed.

Keywords: Addiction, SMI, Spatial analysis, Co-occurrence, Healthcare

Andrew Gordon, San Diego State University. Email: gordon@rohan.sdsu.edu; *Accommodating Hypsometrically Tinted Maps for the Color-Vision Impaired*

This study examines the relationship between red-green color-vision impairment and the ability to extract information from maps that use color to display elevation values by area. Red-green color-vision impairment (commonly referred to as color blindness) is a vision disorder that limits a person's ability to distinguish between certain colors. Previous research has shown that those with color-vision impairments have difficulty reading certain statistical maps where color is used to represent value. The combinations of colors commonly used to represent elevation may also lead to confusion. This research attempts to determine what level of difficulty (if any) in map reading exists for color-vision impaired readers for hypsometrically tinted maps, and if these difficulties can be overcome through the creation of accommodated color schemes. Two sets of maps were created using a perceptual color model. One set uses a standard sequence of colors to represent elevation while the other uses a scheme specially accommodated for impaired color-vision. Two groups, one composed of red-green color-vision impaired subjects, the other without impairment, were given a computer-based map reading test on both sets of maps. The number of correct responses (accuracy) and response time for correct answers were used to measure map reading performance. Initial results of the analysis of variance of the group means showed that on the standard maps, impaired subjects were less accurate and took longer to correctly respond than unimpaired subjects. Impaired subjects performed as accurately as unimpaired subjects on the accommodated maps, but took longer to respond correctly.

Keywords: cartography-color, color-vision, relief presentation

Ian R Gordon, London School of Economics. Email: i.r.gordon@lse.ac.uk; *Spatial Mismatch, Race/Class Factors and Inner City Unemployment: translating between the US and UK/Europe*

The spatial mismatch hypothesis, explaining inner city concentrations of unemployment in terms of a more rapid decentralisation of (working class) jobs than of (working class) residents was framed in specific context of post-WW2 US cities where there was both a high degree of sprawl and great concern over high unemployment among black urban residents. A very similar argument - 'trades leave but people stay' - had been made by Charles Booth 70 years earlier in relation to the situation of a London underclass. And contemporary urban policy-makers often talk as if this were the basis of continuing concentrations of underemployment in such inner city areas. But academic researchers in the UK have mostly been sceptical of this line of argument, focusing rather on the role of personal characteristics in disadvantaging the employment prospects of various groups whose limited purchasing power keeps them in inner city housing. In continental Europe, where patterns of intra-urban residential segregation are typically rather different, the argument has also seemed less relevant. In neither case, however, have there been many attempts at direct translation of the

methodology of US research to see whether similar evidence of the significance of spatial mismatch can be found, and what this implies in relation to rival race/class types of explanation. This paper firstly explores the trans-Atlantic comparison in relation to patterns, evidence and methodology, and then uses evidence on the pattern of transportation connectivity in the London metropolitan region to test the premises of the spatial mismatch hypothesis.

Keywords: urban, unemployment, race, spatial mismatch

Jeffrey J. Gordon, Bowling Green State University. Email: jeffg@bgsu.edu; Esther Beckmann, Bowling Green State University. Email: ; *Family Bonding in Mid-Twentieth Century America: Geography and the View-Master*

In mid-twentieth century America, focus upon family-centered, in-home activities flourished. Such activities typically encompassed playing board and card games, listening to the family radio, and watching the newly introduced television. However, another popular medium, the View-Master, offered not only entertainment, but a unique venue for family bonding. Debuting in 1939, one forerunner of contemporary virtual reality technology, the View-Master used 3-D color reels inserted and rotated manually. Popular reel categories included science, sports, movies, cartoons, religion, and famous people. One comprehensive category, geography, consisted of travelogues and scenic subjects such as landmarks, national parks, states, and countries. This geographical category was the subject of a preliminary study. It was hypothesized that not only was the geographical subject matter viewed more as a family activity, but it facilitated communication and bonding. A sample of mid-life males and females familiar with the View-Master from childhood was surveyed. The intent was to examine subjects' perceptions including feelings recalled through familial interaction centered around these virtual travelogues. All subjects indicated memory of the geographical category, the majority relating exclusive use of travelogues and scenic reels as a family activity. Several referred to these viewings as "family vacations." Most subjects recalled this activity as favorable, a time of enhanced communication and inclusion. Some indicated feelings of excitement, learning about extended family, and anticipating new reels at the next family gathering. Results indicated that using geographical content increased familial sharing and bonding.

Keywords: popular culture, View-Master, family bonding

Steven J. Gordon, United States Air Force Academy. Email: steve.gordon@usafa.af.mil; *Case studies using a Rock Art Stability Index*

The Rock Art Stability Index (RASI) is a tool developed to catalog rock art and assess the degree and nature of deterioration and further potential for deterioration. Other researchers detail the need for, and generation of, RASI as a tool for bridging the disciplines of archaeology, anthropology, history, geography, and rock weathering to aid in cultural resource management. This research outlines the practical use of RASI in the field as an assessment tool, and provides results of field implementation of RASI. RASI was implemented in two arid regions: the Tinajas Altas Mountains, Barry Goldwater Range, Luke AFB, Arizona, and in the Waikoloa region of the Big Island of Hawaii. The selection of locations not only allows comparison of arid regions, but also allows RASI to be applied to pictographs (Arizona) and petroglyphs (Hawaii), and granodiorite substrates (Arizona) versus basalt (Hawaii). In both instances, RASI was implemented by more than one individual, to include both people well-versed in weathering and those whose specialty lies outside of weathering studies. The results of this research underscore the ability of RASI to identify multiple weathering threats to cultural resources, especially the presence of vegetation (fire hazard), and water drainage/ runoff, and human activity (rock climbing, graffiti, foot traffic).

Keywords: weathering, rock art, geomorphology

Matthew Gore, Concordia University. Email: matthewgore@gmail.com; *Strip club border crossings: migrant male sex workers and the economies of desire*

As most formal and informal economy jobs in Montreal offer immigrants few opportunities to earn a living wage, a number of immigrants, particularly young males from Latin America, have left traditional low-skilled employment in the manufacturing, agricultural, and commercial cleaning industries, to work in the city's sex industry. The anonymity of the sex industry welcomes migrant labour without requiring work visas or language proficiency. Migrant sex workers face significant challenges upon arriving in a new country. However, as they come to develop working relationships with their customers, migrant sex workers can turn to their customers for reasons other than money, often to access their networks of social capital. While customers may become resources for other employment opportunity, immigration, or access to processional services, they invariably remain in positions of power. I argue that although these relationships appear to be beneficial mutualisms that offer opportunities for social mobility, they ultimately reproduce themselves, with very few sex workers ever crossing

many borders.

Keywords: Montreal, sex work

Andrew Gorman-Murray, GeoQuest Research Centre, University of Wollongong. Email: andrewgm@uow.edu.au; Gordon Waitt, GeoQuest Research Centre, University of Wollongong. Email: gwaitt@uow.edu.au; Chris Gibson, GeoQuest Research Centre, University of Wollongong. Email: cgibson@uow.edu.au; *Constructing and contesting gay/lesbian belonging in an Australian country town: a case study of the 2006 ChillOut Festival in Daylesford, Victoria*

Contributing to work on gay/lesbian ruralities, this paper explores the contradictory nature of gay/lesbian belonging in Daylesford, Victoria, a country town which hosts ChillOut, Australia's largest annual rural gay/lesbian festival. Now in its tenth year, ChillOut attracts 16000 visitors, and crucially underpins Daylesford's wider reputation as an accepting, gay-friendly country town. In this context, we investigate the role of ChillOut in the lives of local gay men and lesbians resident in both Daylesford and surrounding areas of country Victoria. We utilise qualitative data gathered at and around the 2006 ChillOut Festival specifically, including visitors' surveys, interviews with festival organisers and local residents, and local newspaper commentaries. We initially argue that ChillOut is important for generating a sense of belonging for local gay men and lesbians. Survey and interview responses showed that ChillOut is a focal event for gay men and lesbians in country Victoria, and provides a means of establishing ongoing dialogue with and acceptance by the wider rural community. But we further argue that ChillOut simultaneously reveals the boundaries of gay/lesbian inclusion/exclusion in Daylesford. This was most powerfully demonstrated by the local council's refusal to fly the gay-identified rainbow flag from the town hall during the 2006 Festival, and its subsequent banning of the display of all festival flags from that key public building. The vociferous debate which ensued in the local newspaper revealed the underlying antagonism towards both ChillOut and local gay men and lesbians, demonstrating the contested nature of gay/lesbian belonging in an ostensibly gay-friendly country town.

Keywords: gay men/lesbians, belonging, rural communities/spaces, ChillOut, Daylesford, Australia

Anton Gosar, Faculty of Humanities Koper, University of Primorska. Email: anton.gosar@guest.arnes.si; *Managing EU's Southern Border: The Slovenia-Croatia Dispute*

The paper will focus on the border dispute between Slovenia and Croatia after the disintegration of Yugoslavia and in the light of European Union's expansion in 2004. The discussion of the border region in regard to the historic, economic and cultural situation will be presented. Results of recent field works done in north-eastern and south-western Slovenia will be presented. The relatively favorable situation, which allowed ownership and employment regardless of (Yugoslavian provincial) border, has gone from worse to bad prior to Slovenia's inclusion into the European Union and have become a burden as the s. c. Schengen border crossing regime is becoming increasingly tighter. As Croatia is seeking EU membership as well, disagreements in regard to the actual border delimitation are flaring up - despite the fact that Slovenia strongly supports Croatia's intentions. The Mura River and Pirano Bay case will be analyzed.

Keywords: Political Geography, Ex-Yugoslavia Heritage, Slovenia-Croatia, Border

Sunday Goshit, University of Iowa. Email: sunday-goshit@uiowa.edu; George P Malanson, University of Iowa. Email: george-malanson@uiowa.edu; David L McGinnis, Montana State University - Billings. Email: dmcginnis@msubillings.edu; *Patterns of Winter Precipitation Variability in Western Montana*

Winter precipitation is the major source of Snowfall for western Montana. We investigate the spatio-temporal variability of winter (DJF) precipitation in western Montana over the second half of the 20th Century. Monthly winter (DJF) precipitation records for a period of 50 years are compiled for 109 Climate data from the US High resolution Coop station database operated by the National Climate Data Center NCDC of the National Oceanic and Atmospheric Administration. Principal component analysis (PCA), a multivariate statistical technique is used to identify spatial patterns of regional winter precipitation variability by defining homogenous spatial groups. We use wavelet analysis to analyze temporal variability by looking at the time-frequency signal of the winter precipitation over the period. The results explain spatial and temporal patterns of winter precipitation variability in this region. Local effects of topography and relief are shown using the dense network of stations selected for this study. We discuss the relevance of understanding winter precipitation variability to the Snowpack in the region over the period

Keywords: precipitation variability, principal component analysis, wavelet analysis

Matthew N Goslin, Ecotrust. Email: chincapin4@yahoo.com; Malin Pinsky, Stanford University/ Wild Salmon Center. Email: ; Dane Springmeyer, Wild Salmon Center. Email: ; Jon Bonkoski, Ecotrust. Email: ; *Evaluating basins for salmon conservation across the North Pacific by assessing key threats, protected areas and current abundance and diversity*

As part of the "State of the Salmon" project, we have compiled and estimated abundance data for anadromous Oncorhynchus species across the North Pacific (U.S. Canada, Japan and Russia). This data was evaluated to prioritize conservation efforts by identifying those basins with the highest value in terms of current abundance and diversity. Network analyses of threats to salmon were conducted after developing databases of dams and hatcheries georeferenced to appropriate hydrological layers. Current levels of protection were also taken into account. Patterns of abundance, threats and protection will be reported and explored.

Keywords: salmon, gis, dams, hatcheries, protected areas, alaska, canada, russia, japan, pacific northwest

Hannah Gosnell, Oregon State University. Email: gosnellh@geo.oregonstate.edu; *When Ranching is for the Birds (and Fish): New and Emerging Natural Resource Management Institutions on Agricultural Landscapes in the U.S. West*

Due to a number of push and pull factors, agricultural landowners in many parts of the U.S. West are increasingly oriented towards managing for environmental amenities (e.g., world class birding in the Klamath Basin, world class trout fishing in the Greater Yellowstone Ecoregion) and ecological services (e.g., regulation of water quality, soil stability, nutrient cycling). Many of these landowners are engaging in restoration activities due to a combination of environmental laws, changing preferences and priorities, the growing popularity of rights-based market mechanisms designed to encourage reallocation of resources, and government-sponsored conservation incentive/payment programs. The result is an increasingly "multifunctional" landscape: where irrigated agriculture once reigned supreme, landowners are experimenting with dryland grazing, engaging in riparian restoration activities, restoring wetlands, and reducing their hay yields and cattle numbers. In many ways ecological conditions are improving. But are these "strong" multifunctional landscapes? What kinds of communities are emerging on these landscapes? This research aims to identify environmental governance structures that work to promote and sustain resilience in social as well as ecological systems dominated by agricultural land use. Results from interviews and data collection in transitioning agricultural landscapes in Southwest Montana and in the Klamath Basin, Oregon, are presented.

Keywords: environmental governance, multifunctionality, post-productivism, U.S. West, amenity migration

Alison Goss, Purdue University. Email: agoss@purdue.edu; Laura Bowling, Purdue University. Email: bowling@purdue.edu; Jon Harbor, University of Colorado at Denver. Email: Clas.dean@cudenver.edu; *Assessing the Historical Impacts of Landscape Transformation on Water Fluxes, Muskegon River Watershed, MI*

The hydrologic impact of land use change has been addressed through numerous studies. Yet, these investigations are limited in their spatial as well as temporal scales because of the lack of high-quality remotely sensed land cover data and streamflow records. Also, this lack of data prevents the complete examination of how water fluxes respond to land use change over decadal and century timescales. Land use/cover change in the Muskegon River Watershed, MI, was reconstructed at ten year timesteps for the past 100 years. These decadal land cover "backcasts" served as inputs to a macroscale hydrologic model, Variable Infiltration Capacity (VIC). Impacts to water fluxes, streamflow, and soil moisture patterns across the watershed will be presented. These results are counter to watershed studies in smaller geographic areas over shorter time periods. This unique type of long-term hydrologic impact assessment, which coincides with periods of widespread industrialization and land use/cover change in a large watershed, enables the creation of mitigation strategies to reduce the negative impacts of development on critical water resources and informs assertions of how land use/cover change may impact water resources in the future.

Keywords: land use change; water fluxes; Variable Infiltration Capacity (VIC)

Mark A Gossard, Missouri State University. Email: Gossard927@missouristate.edu; *Sediment budget approach to evaluate urban-related instability in an Ozark Stream.*

Sediment load variations can cause channel instability in gravel bed rivers. Accelerated gravel sediment inputs due to land use-related disturbances have been shown to cause channel and bank instability in Ozarks streams. Ward Branch is a heavily urbanized watershed in Springfield, Missouri for which restoration measures are planned. This study aims to use a sediment budget approach to understand the sources and transport patterns of bed load in a particularly

unstable 300 meter long “disturbance” reach along Ward Branch where bank erosion and channel incision is releasing excess gravel to the stream. Urbanization has increased the 2-year flood peak by more than three times the pre-settlement condition. Channel form and erosion/deposition were monitored over a 12 month period. The methods used in this study are (i) repeated cross-section and longitudinal surveys of the channel, (ii) scour chains and bank erosion pins, (iii) pebble counts and sieving of both the bank and bed materials, and (iv) painted tracers to monitor bedload movement. Rainfall records and flood peaks are also being monitored. Results of the tracer experiments showed that during three bankfull floods and one larger event, the D25 moved 25 meters, D40 moved 15 meters, D50 moved 20 meters, D84 moved 16 meters, D90 moved 12 meters, and the D95 moved 7 meters on average with an overall recovery rate of 34%. Results from this study will be used to plan bed and bank stabilization measures and understand channel storage and mobility dynamics of Ward Branch.

Keywords: Fluvial Geomorphology, sediment transport, urban stream

John Gossom, The Ohio State University. Email: evereye3@rocketmail.com; *A Solution to the Solution?*

Richard Walker identified the decentralization of the American city as a “suburban solution” to the problem of over accumulation, the dynamics of class struggle that obtain in the growth/stagnation cycles inherent to the capitalist framework, and the externalities of urban industrial activity. In an earlier article, he and David Large related the fixity of capital in the built-environment of the suburbs to a growth at all costs political economic climate that cripples any attempt to rein in energy extravagance. The trends that Walker delineated nearly thirty years ago have greatly impacted the shape of the contemporary metropolitan area and have continued relevance, but many of the circumstances that made moving to the suburbs attractive to city dwellers have changed or are in decline. Furthermore, high oil prices and the coming challenge of climate change have brought back calls for conservation and directed concern about energy extravagance at the consumptive, suburban lifestyle. Taking Walker’s early works as a point of departure, my intention is to assess the continued viability of the suburban solution to the current economic situation and suburban/exurban development. Drawing on my research comparing and contrasting a US and post-communist example of a sprawling metropolitan area with an information based economy, (Columbus, Ohio and Prague, Czech Republic), the relevance of Walker’s work in sorting out the trajectory and momentum of investment into a city’s built-environment as capital’s response to the contemporary problems posed by urban and suburban living will be explored.

Keywords: Suburbanization, Energy Efficiency

Theodore L. Goudge, Dr., Northwest Missouri State. Email: tgoudge@mail.nwmissouri.edu; *Hardwood, Hard Knocks: The Geography of Men’s Major College Basketball 2006-2007*

March Madness results in a nationwide fascination with the American invention of basketball. Just how national is the scope of player production for the college game? Earlier work was conducted in the field of sport geography regarding recruitment of high school basketball players in the 1970’s and 1980’s. This work by Rooney focused on high school origin data derived from college team rosters. Subsequent works by Goudge have brought an updated analysis of the geography of player origins and team success as recent as the 2003 season. What’s happened since that time? A database was developed that includes the hometowns and/or high schools of the players who make up the rosters of NCAA Division I college basketball teams. In addition, an attempt to quantify the success of each major college team was undergone to analyze the geography of success. The resulting maps and data tables present a spatial distribution indicating distinct regions of high and low player production and program success exists. This distribution was compared with identified regions in Rooney’s seminal work and subsequent works by Goudge to determine the extent of the changes that have occurred.

Keywords: basketball, college sports, sport geography

Katherine Gough, Department of Geography, University of Copenhagen. Email: kg@geogr.ku.dk; *Influencing Youth? The impact of a pressure group on youth employment in Ghana*

During the 1990s, pineapples became one of the most important agricultural export crops in Ghana. In the Akwapim Range, located just north of Accra, farmers rapidly expanded their production in response to the rising demand. Young people who had left the area in search of employment in the city returned and others dropped out of school to work in the pineapple fields. Subsequently, a pressure group FAWE (Forum for African Women Educationalists) ran a campaign to get the young people back into school. A poster campaign targeted the youth with the slogan ‘School first! Work can wait’. The pineapple producers were also targeted and agreements drawn up to only employ young people during the school holidays or out of school hours. In this paper, I explore the nature and consequences of the campaign run by FAWE: Why was the campaign established

and what were FAWE’s aims? Who was consulted in the setting up and running of the programme? I focus in particular on young people’s involvement in and opinions of the campaign: Were the youth aware of FAWE’s campaign and what were their views on it? Has the FAWE campaign influenced their involvement in pineapple growing? Through this case, I am able to explore the nature of the power relations between young people and campaigners for social justice in an economy increasingly being tied to the global market.

Keywords: Youth, pressure group, employment, Ghana

Kevin A. Gould, University Of British Columbia. Email: kgould6505@yahoo.com; *travelling technocrats and the formation of neoliberal land policy in Guatemala*

Neoliberalism is conventionally imagined as an abstract force that moves from Global North to South, imposing market discipline and painfully reorganizing populations and environments. But we can also think of neoliberalism as a particular set of practices, agents, materials, and imaginaries arranged into diverse, sometimes fragile networks. This perspective opens the possibility to study neoliberalism by tracing the activities of its technicians, known as technocrats. In this paper I take this approach to examine the formation of Guatemala’s current neoliberal land policy. First, I describe how technocrats assembled the materials and information to construct a policy as they shuttled between San Jose (Costa Rica), Guatemala City, and Washington, DC in the early 1990s. Second, I identify ways that they solidified their proposal, forming and transforming organizations as they went. I pay special attention to how technocrats inserted a blueprint of their policy into the Guatemalan Peace Agreements, which officially ended the civil war in that country in 1996. Third, I show how the Agreements became the basis for more institutions and for loans which funded land registration and titling projects in parts of rural Guatemala. This history reveals national and international elites collaborating in the formation of a neoliberal policy and that a valuable resource of the Guatemalan left, the Peace Agreements, was designed partially by neoliberal technocrats. I conclude by discussing how the analysis both unsettles and conforms to conventional depictions of neoliberalism in the Americas and by asking what this approach offers for social justice struggles in Guatemala and elsewhere.

Keywords: land, neoliberal, World Bank, Guatemala, technocrat, Land Administration

Konstadinos G. Goulias, University of California Santa Barbara. Email: goulias@geog.ucsb.edu; *Progress in the Evolving Paradigm of Travel Demand Forecasting*

In this paper, an evolving paradigm for modeling and simulation is described. It is emerging from a need to address travel behavior and develop procedures in facets that emerge from three sources: a) dynamic planning practice; b) sustainable and green visions, and c) new research and technology. The typical aspects of data collection, modeling, and simulation considered for transportation policy analysis and planning are in this way examined from perspectives that raise many questions about our ability to make programmatic assessments. In the paper presentation, a brief review of the policy analysis motivation for contemporary travel demand forecasting is offered first. This is followed by an overview of activity-based microsimulation models and tour-based models and the need to study behavioral dynamics not only as a one-way spatio-temporal process but also as a process with many feedbacks. This review also addresses data requirements, data availability, data used in practice and research and institutional and policy barriers for new data acquisition. The opportunities for geography research are then examined in terms of innovations in data collection, modeling and simulation for integrating dynamic activity-based models with land use microsimulation as well as the necessary steps to validate models when they span a variety of scales. The presentation also addresses the need for curricula that support research in this area and they also create a new professional cadre that combines skills required in modeling with a deeper understanding of human nature.

Keywords: travel behavior, dynamics, sustainable transportation, forecasting

Sharmila Govender-Van Wyk, Department of Land Affairs, Republic of South Africa. Email: SGovendervanWyk@dla.gov.za; GDH (Deon) Wilson, Prof, Department of Tourism Management, University of Pretoria. Email: dwilson@orion.up.ac.za; *Sustainable tourism on commonages as an alternative to traditional agricultural-based land reform in Namaqualand, South Africa*

This paper investigates the impact of livestock farming on redistributed commonage land on rural livelihoods in Namaqualand since 1994. The paper contends that farming had been on the decline for decades, and its contribution to the Gross Domestic Product declined from 10% in the 1970s to about 3.5% in 2005, resulting in the loss of up to 400 000 jobs in the sector. In order to make a case for sustainable tourism, the study investigated a tourism venture in the Richtersveld, Namaqualand. The study found that the venture has provided both

economic advantages (job opportunities, infrastructure development and increased spending by tourists in the area) and social spin offs (reduced unemployment, reduced alcoholism, increased capacity and skills, and the youth engaged in meaningful employment creation). The findings suggest that commonage users are barely able to sustain themselves from cash earnings gained from livestock farming and that there have been no visible improvements in terms of their quality of life. The findings further illustrate that, while livestock farming is the only known and practiced means of livelihood available to most people in Namaqualand because of the arid climate and poor crop farming conditions, commonage users are receptive to alternatives to traditional farming such as tourism. In view of the findings from the commonage case studies and the Richtersveld sustainable tourism venture, the study proposes that South Africa's land reform strategy should offer other sustainable development options, such as tourism, as an alternative means of ensuring a livelihood for rural people.

Keywords: sustainable tourism, commonages, land reform

Samuel N. Goward, University of Maryland. Email: sgoward@umd.edu;
Jeffrey G Masek, NASA Goddard Space Flight Center. Email:
Jeffrey.G.Masek@nasa.gov; Chengquan Huang, U. Maryland. Email:
cqhuang@geog.umd.edu; Warren Cohen, U.S. Forest Service, PNWRS.
Email: warren.cohen@oregonstate.edu; Gretchen Moisen, U.S. Forest
Service, RMRS. Email: gmoisen@fs.fed.us; Robert Kennedy, U.S. Forest
Service, PNWRS. Email: robert.kennedy@oregonstate.edu; Scott Powell,
U.S. Forest Service, PNWRS. Email: Scott.Powell@oregonstate.edu;
Sean Healey, U.S. Forest Service, PNWRS. Email:
Sean.Healey@oregonstate.edu; Nancy Thomas, U. Maryland. Email:
nthomas1@umd.edu; Karen Schleeweis, U. Maryland. Email:
skal1@umd.edu; US Forest Disturbance and Regrowth Assessment from the
Landsat Record

Forest disturbance and regrowth are assumed to be significant forces modulating North American carbon balance. Quantifying the carbon fluxes of forest changes requires the changes be assessed with appropriate spatial and temporal details. The Landsat imagery archive accumulated since 1972 provides a unique data source for carrying out this work over the last 30+ years. With funding from NASA, this team is developing methods to look at continental patterns of forest dynamics during this time period. Cumulative data records from the NASA Geocover decadal products are providing insights into the continental patterns of disturbance. For a statistical sample of 30 WRS (world reference system) locations, time series Landsat "data cubes" are being compiled to look at biennial trends in disturbance and regrowth. In both cases, automated techniques to address orthorectification and geo-registration, radiometric calibration and atmospheric adjustments have been employed to normalize these data prior to change detection. Validation of the results is being carried out by comparison to the US Forest Service Forest Inventory and Analysis (FIA) field measurements.

Keywords: remote sensing, North American Carbon Program, USFS FIA

Jeffrey L. Gower, J.D., University of Buffalo - SUNY. Email:
jgower@justice.com; Partnering with the Hermit Kingdom: The Kaesong
Industrial Complex SEZ of North Korea

The Democratic People's Republic of Korea ("North Korea") teeters on insolvency after a ruinous experiment with its isolationist "juche" economic philosophy. As North Korea is essentially a failed state, it has little competitive industry and no ability to raise capital in the international financial markets to close its import-export gap. To bring economic activity into its borders, North Korea developed several Special Economic Zones (SEZs) that allow foreign firms, primarily from the Republic of Korea ("South Korea") and China, to locate within its borders and utilize its low-cost workforce. Since 2005, over 450 foreign firms have opened manufacturing facilities in North Korean SEZs. The majority of these factories are located in the Kaesong Industrial Complex (KIC). Foreign firms currently employ 70,000 North Koreans in the KIC SEZ alone. Foreign firms receive the benefit of North Korean labor at a 30% less cost than can be sourced in China, or roughly the same wage rate sourced in Vietnam. However, North Korean political instability has led to an ever-changing set of informal operating rules. This paper looks at the potential impact that SEZs may have in the economic and political future of the two Koreas, primarily concerning potential Korean reunification, knowledge transfers, and the South Korea-U.S. Free Trade Agreement (KORUS FTA) in negotiation.

Keywords: Korea, economic geography, Kaesong Industrial Complex, special economic zone

Kathryn Grace, University of California, Santa Barbara. Email:
whatchawhatcha@yahoo.com; Fertility Correlates in Peten Guatemala

The purpose of this paper is to examine the determinants of the extremely high total fertility rate (TFR) in a remote and rarely studied pocket of northern Guatemala. Guatemala is divided into two ethnic groups, the Ladino (mixed European ancestry) and the Indigenous. Ladinos belong to every social class in

the country while the vast majority of the Indigenous population remains extremely impoverished and marginalized. Additionally, the country is characterized by a high crime rate and a history of violent internal strife which has been particularly devastating and isolating to Indigenous groups. Currently "less than three-quarters (73.8%) of the relevant age group attend school" with only half of these ever entering the 5th grade. Health care access is also of concern since it is almost exclusively available to urban dwellers. Based on these alarming conditions it follows that Guatemala would have an extremely TFR. In fact, in rural areas of Guatemala, the TFR exceeds 6 births per woman while in rural regions of the Petén, the Guatemalan frontier and the geographic focus of this paper, fertility rates are close to 8 births per woman. Combining classic fertility correlates with environmental and migration data from the 1998-99 Demographic and Health Survey data collected by the Guatemalan Instituto Nacional de Estadística and Measure/DHS+, Macro international we will perform a hierarchical regression analysis to determine the impact and role of these factors. This research will apply innovative statistical techniques not traditionally applied in fertility research which incorporate concepts of interacting and continuous space.

Keywords: Guatemala, fertility, rural migration

Sonya R. Graci, Brock University. Email: sonyagraci@rogers.com;
Accommodating Green?: Overcoming Barriers to Sustainability in China's
Tourism Industry.

Over the last several years, the environmental impacts of the tourism industry and more specifically the accommodation industry have come to the forefront of global issues. Environmental degradation has impacted most tourist destinations so the need to implement more sustainable practices is strong. Sustainability considerations have been mainly conceptual to date however and have not translated into industry wide practice. This has been the case in China, where tourism demands are far exceeding the coping ability of the tourism destinations and little, if any environmental management techniques have been implemented. What is needed now is a way to assist the Chinese tourism industry in ensuring that its tourism resources are not degraded beyond repair, and to understand what the barriers are to sustainable tourism. This paper provides an in-depth analysis of the barriers to implementing environmental management initiatives in the Chinese tourist accommodation industry. It explores the interrelated and independent factors that impede the sustainability of tourist destinations. Strategies and incentives to overcome the identified barriers are also explored. A study to identify the impeding factors and related strategies was conducted in Sanya, Hainan, China in 2004 - 2005. The study involved a sample of one hundred accommodation facilities of varying size, star rating and ownership which were analysed using a quantitative survey technique. Key informant interviews with local, provincial and central government agencies, certification bodies and trade associations were also conducted as well as stakeholder workshops to discuss barriers and partnership development.

Keywords: China, barriers, sustainable tourism, accommodation industry, partnerships, environmental management

Sue C. Grady, PhD, MPH, Michigan State University. Email:
gradys@msu.edu; Ivan Rameriz, MA, Michigan State University. Email:
ijr2105@msu.edu; Neighborhood Effects on Birth Outcomes and Mediating
Medical Risk Pathways by Race in New York City

This study measures the direct and indirect effects of local residential segregation, i.e., black isolation, on low birthweight for African-American and White women in New York City, controlling for individual-level risk factors and neighborhood poverty. This race specific, cross-sectional multilevel study found that as black isolation increased in neighborhoods the risk of adverse birth outcomes also increased for African-American and White women living in these areas. Medical conditions identified as mediators included chronic hypertension and pregnancy-related hypertension for African-American women and chronic hypertension and lung disease for White women. Although this study was limited by the quality of the birth certificate data it does provide exploratory pathways by which medical risks and their sequelae are linked to neighborhood environments and reproductive vulnerability.

Keywords: Residential segregation; racial disparities; birth outcomes; multilevel modeling; mediating effects

Olivier Graefe, University of Bayreuth. Email: Olivier.Graefe@uni-
bayreuth.de; The dialectics of the domestication of water in Islamic rural
society

The domestication of water in the sense of taming and controlling the supply of drinking water on the one hand and making water available at the domicile on the other hand, represents progress to many rural Moroccan households. Especially women do benefit of the new facilities by saving them many efforts of fetching water outside the village. But this undeniable technical improvement for rural areas can also be analyzed in the light of the re-Islamization of society and profound social change as a means for men to reify

their domination in a context of threatened masculinity. This paper will show, following Bourdieu's and Baudrillard's early works, the political and symbolic logics and meanings which are lying underneath the modernization of rural water supply emphasizing the dialectical relationship between evolving waterscapes and dynamic gender relations.

Keywords: nature-society relationships, semiotics, water, gender, Morocco

Marie Graf, McGill University. Email: marie.graf@mail.mcgill.ca; Gail L. Chmura, McGill University. Email: gail.chmura@mcgill.ca; Using Pollen Modern Analogues To Locate A Buried Dikeland Soil In A Restored Upper Bay Of Fundy Salt Marsh

The upper Bay of Fundy's Cumberland Basin is home to an estimated 16,500 hectares of salt marsh, nearly all of which have been diked and converted to agricultural lands since the arrival of the Acadians in the late 17th century. John Lusby Marsh is a 600 ha salt marsh that was diked and farmed for approximately 250 years, until dikes breached in the late 1940s and the marsh was restored to tidal conditions. Since dike breach, the reclamation surface has been buried beneath approximately 1 m of tidally-imported sediments. We developed modern pollen analogues for three different grassland land uses common in the upper Bay of Fundy: salt marsh, actively farmed dikeland and fallow dikeland. These modern analogues were used to locate the reclamation surface and reconstruct a sequence of historic land uses. Fifty surface samples were collected: 17 salt marsh, 22 farmed dikeland and 11 fallow dikeland. Using discriminant analysis we discriminated the three land use types based on their pollen spectra. We further discriminated agricultural practices involving cattle grazing or manuring from those that did not, by including coprophilous fungal spore counts in the analysis. A sediment core containing the reclamation surface was extracted in John Lusby Marsh, and a set of eight fossil pollen spectra was compared to the modern analogues. Discriminant analysis classified the fossil samples into a sequence of historic land uses which included phases when the marsh was diked and farmed.

Keywords: salt marsh, Bay of Fundy, pollen, fungal spores, modern analogues

Rosana Grafals, graduate student, Rutgers University. Email: rgrafals@eden.rutgers.edu; The effect of external and remnant sand fences on vegetation cover density and richness of developed shores

The main purpose of sand fences at developed shores is to facilitate the process of dune formation by trapping sediment transported by the wind and accelerating sediment deposition. During this process, rapid deposition often inhibits vegetation growth through excessive burial. However, this is only true for external fences that have approximately 50% porosity and 1.2m height. Little is known about the effects of weathered, buried fences with higher porosity and lower height on vegetation burial. Therefore, the main objective of this study is to compare the effect of these two types of fences on sediment transport and deposition and, consequently, on dune vegetation growth. The methods used are based on field measurements of sand accumulation and analysis of vegetation cover and richness gathered at Ocean City, New Jersey where external fences and multiple rows of remnant fences are found at different zones of the dune gradient. Transects perpendicular to the shore are recorded along the dune field to measure topography. On each transect, quadrants and stakes are located landward and seaward of every sand fence to measure vegetation density and species type, and sediment accumulation. It is expected that remnant fences cause slower deposition rates that stimulate vegetation growth. Therefore, developed shores with remnant fences should have denser and richer vegetation cover than those with external fences.

Keywords: aeolian transport, sand fences, vegetation cover

Daniel A Graham, ABD, University of California, Berkeley. Email: intibucano@gmail.com; The Accumulation of "Primitives": Neoliberal Multiculturalism and the Production of Lenca Space in Southwestern Honduras

This paper settles on the uneven terrain of southwestern Honduras, where critical forms of indigenous identity politics within and among Lenca communities have been undercut by neoliberal cultural rescue initiatives and economic development projects. The paper considers two interrelated moments of neoliberal-multicultural engagement in the Lenca highlands and theorizes their role in securing the conditions for capital accumulation in the region. The Nuestras Raíces program and the Ruta Lenca project offer two instances of public-private collaboration in the promulgation and enforcement of market-friendly articulations of Lenca identity and territoriality. By undertaking to privilege and commoditize authenticity and difference, these interventions have worked to decenter groups' social memory of struggle as a basis and idiom of cultural-political action, with deleterious consequences for those who fail to meet litmus tests for alterity. At the same time, the commoditizing move has effected the gradual displacement of identity-based claim-making from the political arena to the marketplace. However, and as this paper will attempt to show, these developments have galvanized renewed resistance to them and have helped to

reify an imagined Lenca territory that lends additional coherence to a region-wide social movement capable of linking community struggles for control over both land-based and cultural resources.

Keywords: indigenous, Latin America, neoliberalism, identity, multiculturalism

Jason E. Graham, The University of Tennessee. Email: jegraham@utk.edu; Sally P. Horn, the University of Tennessee. Email: shorn@utk.edu; Martin R. Arford, Saginaw Valley State University. Email: mrrarford@svsu.edu; A High-Resolution Macroscopic Charcoal Record from Laguna Martínez, Costa Rica

Charcoal fragments preserved in lake sediment cores provide valuable evidence of past fire history. We investigated macroscopic charcoal in a lake sediment core from Laguna Martínez in northwestern Costa Rica as a complement to prior analyses of pollen and microscopic charcoal. Laguna Martínez (10.642 N, 85.197 W, 340 m elevation) is located within an area of seasonally dry tropical forests on the lower slope of Miravalles volcano. This lake and a number of others in the area formed ca. 8000 years ago in conjunction with pyroclastic flows from Miravalles volcano. Our 5 m sediment core has a basal date of 7610 ± 50 14C yr BP. Pollen analysis of the core revealed evidence of maize agriculture at the site beginning at 4760 ± 40 yr BP — the earliest date for maize agriculture anywhere in Costa Rica. Our macroscopic charcoal study involves sampling the entire core at contiguous 1 cm intervals, disaggregating the samples in cosmetic-grade hydrogen peroxide, and sieving them through screens with mesh sizes of 250 and 500 micrometers. Macroscopic charcoal is present throughout the record, prior to as well as during and after the interval of maize cultivation. However, charcoal concentrations vary between samples by over two orders of magnitude.

Keywords: Costa Rica, fire history, charcoal, paleoecology

Mary M. Graham, York College of Pennsylvania. Email: mgraham@ycp.edu; Richard D. Stone, Shippensburg University John L. Grove College of Business. Email: ; Battlefield Preservation in the Civil War's Western Theater: Upholding the Myth of the "Lost Cause"

In most wars the victor writes the history. This is not the case of the U.S. Civil War in which the history was written principally by Southerners who afterward promoted the war as a "Lost Cause" to make themselves feel better in defeat. Because most of the battles were fought in the South, the southerners then could decide which battlefields to preserve. This paper will discuss battlefield preservation in the Western Theater to ascertain if preservation efforts of battlefields by the national and state governments and local organizations and groups has indeed furthered the myth of the "Lost Cause."

Keywords: historical, civil war, military

Matthew W Graham, Masters Candidate, University of Florida. Email: mwgraham@ufl.edu; Matthew W Graham, Masters Candidate, University of Florida. Email: mwgraham@ufl.edu; Post-Fire Burn Severity Analysis of Sandhill Pine Ecosystem Using Landsat ETM+ Imagery

This is a project to evaluate the ecosystem level impacts of fire on the landscape of North Central Florida. A two pronged approach using field based measurements and remote sensing indices developed for post-fire burn severity will be used. Indices will be evaluated against both each other and the field measurements. A wildfire near Waldo Florida in 1998, termed the Race Track Fire will constitute the wildfire site. A host of controlled burns during the upcoming 2006/2007 winter at the Ordway-Swisher Biological Research Station will constitute the study site for the prescribed fires. Landsat TM/ETM+ images will be used in the evaluation of the Race Track Fire. ASTER will be tasked for anticipated prescribe burn dates in the spring 2007. Both platforms will be used in identical fashion to produce comparison data. The evaluation algorithms will be made up from a selection of indices derived from the literature. All results will be ranked in terms of effectiveness. Florida Division of Forestry records for the Waldo fire will be reviewed to ascertain the extent and various types of effects that occurred as a result of the Waldo fire. Highly spatially correlated data will be used to train the remote sensing analysis. The prescribed fire component will involve fieldwork conducted prior to the fire, during the fire, and at intervals post fire. The project will be completed by spring 2007.

Keywords: Remote Sensing, Natural Hazards, Fire, Severity

Alan Grainger, School of Geography, University of Leeds, Leeds LS2 9JT.. Email: A.Grainger@leeds.ac.uk; Alternative Simulations of Whiteness - A Case Study of Sierra Leone.

The limitations of the prevailing discourse of multiculturalism have become increasingly apparent in recent years. Not least among them is the simplistic treatment of inter- and intra-community communication, and the neglect of such phenomena as the simulation of 'the other', which can both promote social cohesion and generate violent reactions. This paper contributes to the develop-

ment of a more nuanced discourse by demonstrating how a reflexive approach with a more detailed analysis of communication processes can offer insights into contested constructions of citizenship, place and belonging, and enhance our understanding of space-time relations in transnational geographies. Grounded in a reading of the political history of Sierra Leone, it applies Baudrillardian theory to explore the simulation of whiteness in different communities and trace the repercussions of this for communication and solidarity both within and between countries. It pays particular attention to displacement and replacement, the suborning of place for ideological reasons, and how simulations are used as national and international political instruments. It concludes that both the character of simulations and the ability to interpret them are inherently path-dependent, and that simulations of whiteness can offer profoundly subversive challenges to 'white' cosmopolitan constructions.

Keywords: simulation, multiculturalism, cosmopolitanism

Dennis Grammenos, Northeastern Illinois University. Email: D-Grammenos@neiu.edu; *Café con Leche: Critical Geographies of Latino Racialization in Chicago*

The emergence of Latinos as an increasingly visible minority in major U.S. cities like Chicago has disturbed the binary white/black racial categories that dominated much of the twentieth century. Latinos are now the largest ethnic minority population in the Chicago metropolitan area and in the city's erstwhile "vanilla" suburbs, while they are well poised to surpass the African-American population within the city itself in a matter of a few years. This paper examines the sociospatial dynamics of the racialization of Latinos in the Chicago metropolitan area. In particular it focuses on the self-ascribed "whitening" of nearly half of the metropolis' Latinos and the implications that such racial transformations carry for the future.

Keywords: Latinos, race, ethnicity, Chicago

Liza Grandia, Ph.D., Yale University, Postdoc Fellow in Agrarian Studies. Email: liza.grandia@yale.edu; *How Frontier Ranchers become Globalized Capitalists: Cattle Enclosures in the Northern Maya Lowlands*

Much of the scholarship on primitive accumulation rightly focuses on the fate of marginalized peoples who have been dispossessed of their subsistence commons and thrown onto the labor market (a.k.a. "proletarianized"). Yet, enclosure alone is insufficient for laying the foundation for industrial capitalism. It also requires the parallel development new labor relations so that investors can "reproduce" their capital. Hence, this paper tells the story of a new wave of enclosures in Petén, Guatemala, from "the other side"-that is, from the perspective of cattle ranchers who are driving the transition from peasant homesteading to large-scale agribusiness. I first describe the coercive mechanisms by which cattle ranchers acquire land from frontier homesteaders and the acceleration of this dispossession by a misconceived land-titling program financed by the World Bank. Will this land plunder turn to profit and "economic development"? How? And, for whom? Borrowing David Harvey's terminology, is this "accumulation by dispossession" or simply "dispossession"? To understand what new economic and labor structures may emerge from this rapid re-concentration of land by cattle ranchers, I analyze transformations in the regional cattle economy due to the impact of neoliberal trade and infrastructure projects organized under the Puebla to Panama Plan and the Central American Free Trade Agreement. I find that external subsidies are essential for the transformation of largely unproductive cattle ranches into other more profitable, transnational enterprises such as African palm plantations, carbon trading, and eco-tourism, as well as the illicit trafficking of drugs and migrant labor.

Keywords: enclosures, cattle, political ecology, Guatemala, primitive accumulation

Carla Chenault Grandy, UC Santa Cruz. Email: chenaultc@yahoo.com; *Understanding Long-Term Beach Width Change at Oceanside City Beach, San Diego, California*

Beaches are vital to the culture and economy of California and the health of California's beaches is affected by both natural and anthropogenic processes. Sediment delivery to the beaches and climatic fluctuations are the primary agents driving beach width change and during the history of development of Southern California, damming of coastal streams, development of harbors, armoring of seacliffs, and artificial beach nourishment have altered the sediment budget as have the effects of El Niño and La Niña events. Oceanside City Beach is located in Northern San Diego County and has received a great deal of attention due to both its proximity to Oceanside Harbor and the fluctuations in beach width witnessed here since the harbor construction in the 1940s. This beach, which in the late 19th Century was a popular tourism destination with beaches reportedly measuring up to 100 meters in width, is today entirely protected by shore protection structures and the focus of several beach nourishment efforts. We are measuring beach width change at Oceanside City Beach using aerial photographs taken between 1947 and 2003. Shoreline and back beach features are digitized to

measure a beach width for each set of photographs. Beach widths are then compared to changes in the sediment budget and climate cycles to help us understand the factors affecting beach width change. Thus far the analysis suggests that beach width at this location has been most affected by beach nourishment and fluvial sediment supply for upstream rivers.

Keywords: Oceanside, beach width, aerial photographs, sediment budget

Richard J Grant, University Of Miami. Email: rgrant@miami.edu; *The Work of Slums*

Slums as sites of work and production are a neglected spatiality in urban and economic geography. To date, most of the research effort has been on understanding slums as places of residences as opposed to places of work. The conventional economic liberal assumption that slums represent an economic category of dysfunctional exclusion is an unsatisfactory explanation and fails to account for any economic activities within slums. Instead, recent scholarly and media evidence points to production taking place in slums. My paper reviews the findings from a number of literatures about the types of work that is taking place in slums. First, there are ethnographic accounts and general works that consider the general phenomenon of "a planet of slums." Second, research on informal economies offer some insights into the relationships between work in slums and the wider space economy. Third, research on local economic development has shed light on local policy terrains as well as some of the entrepreneurial efforts of slum dwellers. Fourth, business school researchers offer particular case studies of products and the links between firms and slum economies. I also review two research traditions that have not yet examined the work of slums and consider their potential contributions. First, global value chain research and second, locational analysis and spatial agglomeration theory, modified to fit the particular context of slums, can both offer promising research avenues to explore and understand the spatiality of slums as place of work.

Keywords: economy, slums, clusters, informalization

Zane Austin Grant, M.A., University of Arizona. Email: zag@email.arizona.edu; *Autonomous Force and State Power in Bogotá, Colombia*

Cartucho, a neighborhood four blocks from Bogotá, D.C., Colombia's capitol plaza, was deemed ungovernable from the 1948 riots until 2003 when it was leveled to be replaced by a park and clothing mall. In this paper, I will advocate the use of a Guattarian influenced, urban semiotic theoretical framework to flatten geopolitical state and urban scales towards a better understanding of how state/subject relationships shape the city. After establishing how such a study may be performed, I will present a case from my summer 2006 research of how geopolitical forces in a predominantly rural, civil war have political economic implications in reshaping the city's landscape through population displacement and coercive state management of space.

Keywords: Colombia, geopolitics, state theory, urban theory, autonomy, Guattari, political

Angela M. Gray, The University of Kansas. Email: ang@pionet.net; *Spaces of Refuge: Cultural Landscapes of Refugee-hosting and Resettlement in Ukwimi Zambia*

My paper seeks to understand the long-term impacts of refugee-hosting and resettlement by examining refugee and host community interactions in and around the former refugee camp in Ukwimi, Zambia. The project understands the dynamics of refugee-hosting to include a wide variety of relationships - between and among refugee relief organizations, development initiatives, host communities, and refugee populations ? operating at a variety of spatial scales. Framed around these relationships, my dissertation will assess the political climate concerning refugee settlement, identify Zambian perceptions of and attitudes towards refugee populations, and investigate the strategies by which, as well as the degree to which, self-settled refugees have integrated into the host community. In doing so, I will analyze how refugee and host community relationships operate, and shift, within particular political, gendered, and historical contexts, thereby creating distinct landscapes of refugee-hosting and resettlement.

Keywords: Africa, Refugees, Development, Gender

Clark Gray, University of North Carolina at Chapel Hill. Email: cgray@email.unc.edu; *Out-Migration and Rural Livelihoods in the Southern Ecuadorian Andes*

Recent research in migration and development studies has emphasized the connections between individual out-migration decisions and broader household livelihood strategies and contexts, and in particular has revealed the effects of land ownership and rural employment opportunities on out-migration. Nonetheless, few studies of out-migration have incorporated the full spectrum of livelihood assets and opportunities likely to have important effects on migration, including the environmental context which plays a key role in rural communities. Drawing on original household and community survey data from the southern

Ecuadorian Andes, I test the effects of household livelihood assets and environmental context on rural out-migration to international and internal destinations using a multinomial discrete-time event history model. Key independent variables include household access to owned, rented and loaned agricultural lands, land quality, and survey measures of exposure to soil erosion and nutrient depletion.

Keywords: migration, rural livelihoods, environmental refugees, Ecuador, Andes

Mia Gray, Dr., University of Cambridge. Email: pmg27@cam.ac.uk; *Social Networks and Social Capital in Labour Markets: exploring network relationships*

This paper critiques the expanding use of the term social capital as a shorthand for social networks in the labour market. Social capital has most often been presented as a macro-level indicator of social connectedness of a community and has, more recently, been unproblematically used as a substitute for social networks. By substituting social capital for social networks, scholars lose previously gained insights about how social networks function not only to connect and include but also to exclude and to reinforce job segmentation in the labour market. We present a more nuanced approach towards social networks which looks at the relationships between gender, ethnicity and power in the workplace. We also argue that social capital in the labour market has important intra-regional and interregional dimensions which are lost if social networks are only analysed in the at work. Moreover, we argue that social networks not only has to be differentiated by gender, age, and ethnicity, but that these social structures produce different spatial barriers and opportunities. By tracing the career paths of non-ethnic and ethnic minority, female and male, ICT professionals via a life-history approach, we investigate how social capital functions, for individuals and the firm, in elite segments of the labour market.

Keywords: Social networks, social capital, labour markets, gender, ethnicity

Noella Gray, Duke University. Email: njg3@duke.edu; *Local NGOs and the Co-Management of Marine Protected Areas in Belize*

Marine protected areas (MPAs) are rapidly transforming the international seascape, promoted as essential tools in the effort to conserve and manage marine resources. However, in spite of their increasing prevalence and popularity, there is still much debate over how MPAs should be designed and managed. The 'expert knowledge' advocates argue that unless MPAs are designed according to scientific criteria, they cannot possibly meet their objectives, whereas the 'local participation' advocates argue that citizen participation in MPA designation and management is critical to their success. This debate occurs in the abstract, among an international network of scientists and conservation professionals, as well as in relation to particular places and MPAs. In Belize, home to the world renowned Meso-American barrier reef system, fourteen MPAs have been established. Eight of these MPAs are co-managed, meaning that the Belizean government shares management authority with local non-governmental organizations (NGOs). These local NGOs ostensibly facilitate local participation in resource management, while remaining accountable to the national government and responsive to the interests (and funding) of international NGOs and scientists. Drawing on the political ecology literature and six months of fieldwork (including interviews and participant observation), this paper will explore the role of one local NGO in MPA co-management in southern Belize. It will focus on how the NGO negotiates the influence of actors across multiple scales in the implementation of MPA policies, rather than exemplifying the either/or of the abstract 'expert knowledge' vs. 'local participation' debate.

Keywords: NGO; co-management; marine protected area; political ecology

Stephen Gray, University of Wyoming. Email: sgray8@uwyo.edu; Gregory Pederson, Montana State University. Email: gpederson@montana.edu; Andrew Bunn, Western Washington University. Email: andy.bunn@wwu.edu; *Millennial-scale Reconstructions of Regional Hydrology from the Upper Colorado River Basin, USA*

Recent advances in statistical dendroclimatology have dramatically improved our ability to examine past multidecadal to centennial-scale temperature trends. However, these techniques have rarely been applied to millennial-length reconstructions of regional hydrology. Here we employ a set of seven new 1000+ yr tree-ring records to explore the use of regional curve standardization (RCS) and wavelet decomposition (WD) in generating an extended reconstruction of Colorado River flow. These results demonstrate that lower treeline sites in the Upper Colorado Basin share strong regional growth-curves, and that remnant wood of unknown cambial age can be incorporated into a composite regional chronology. Regional chronologies are also relatively insensitive to standardization procedures (e.g. ratio vs. residual weighting). The resulting seven-site RCS chronology explained over 70% of the variation in observed flows (total water year) at Lees Ferry, Arizona, and served as the basis for an 1100-yr proxy reconstruction. The extended record was then filtered using a WD approach that allows simultaneous examination of the time/frequency domains and facilitates

comparisons between events in the gauged (1906 to present) and pre-gauge periods. The wavelet analysis again confirms the relative wetness of the 20th century (especially the 1920s), and for the first time shows a series of persistent (20-40 yr), extreme low-flow events that spanned 900 to 1400 AD. These techniques allow direct comparisons of the magnitude, intensity and duration of low/high flow events across a >1000 yr record, and provide an invaluable baseline for water management in the western United States.

Keywords: Drought, paleoclimatology, tree rings, regional hydrology, Colorado River Basin

Jessica K. Graybill, Colgate University. Email: jgraybill@mail.colgate.edu; *Creating "sustainable Sakhalin:" trajectories and subversions*

Sustainability rhetoric is important to hydrocarbon development on Sakhalin Island. The "world is watching" this offshore hydrocarbon development funded by massive foreign direct investment and operated by multinational actors in post-Soviet Russia. "Sustainable Sakhalin" is most vocalized by multinational corporations (Sakhalin Energy, BP-Rosneft) developing the offshore hydrocarbon blocks to promote socially and environmentally responsible development. However, 'sustainability' has caught the attention of other actors, namely environmental non-governmental organizations, who utilize it in local-global campaigns promoting human-natural environmental protection. What does sustainability mean "on the ground" among multiple actors [local and indigenous peoples, different generations of environmental specialists, ENGOs, government and business leaders, expatriates] who affect - and are affected by - contemporary development? Through cognitive mapping research, I find that visions of 'sustainable Sakhalin' are neither unified nor shared among actors, leading to multiple emergent movements towards sustainability. Recognizing that local actors promote and develop sustainable development, this paper focuses on how sustainability is understood by people impacting/impacted by hydrocarbon development. This paper investigates the varied understandings of sustainability in sites of hydrocarbon development (Yuzhno-Sakhalinsk, Nogliki, Okha), revealing a contested landscape onto which this concept is attempting to be mapped. It also reveals a regional character to sustainability - important for understanding the situatedness of different arguments for better human and environmental futures. Only by revealing and appreciating the differences among different actors' visions of better futures can we understand sustainability movement(s) in this region, potentially useful for understanding movements in other regions of the FSU.

Keywords: sustainability, Sakhalin Island, Russia, hydrocarbon development, cognitive mapping

Anne E. Green, IER, University of Warwick. Email: A.E.Green@warwick.ac.uk; *Interactions between skills mismatch and spatial mismatch: insights from disadvantaged local areas in the UK*

In recent years factors underlying the geographical distribution of employment and non-employment at the micro area level have come under increasing scrutiny from academics and policy makers. Notions of 'skills mismatch' and 'spatial mismatch' have been used in attempts to 'explain' the geography of non-employment. However, the extent to which these notions are separable in practice is debatable. This paper draws on case study work with young people in three disadvantaged neighbourhoods in England. It explores their aspirations, perceptions and awareness of contemporary labour market opportunities as they begin to negotiate the transitions from compulsory education to training and work. It highlights the positive and negative role of family and friends in shaping perceptions and opportunities. It also draws on stakeholder perspectives on the factors underlying labour market disadvantage and considers the success and failure of policies to widen horizons. Both commonalities and differences across the three local contexts are highlighted, and results are compared with related research from Northern Ireland. On the basis of the evidence presented, the paper highlights how notions of 'skills mismatch' and 'spatial mismatch' are interlinked and contingent upon the characteristics of the local economy and of jobs, employers, job seekers. It also introduces a 'temporal' dimension, considering geographical access to job opportunities at different times of day and the extent to which some neighbourhoods may be caught in a mid 20th century 'time warp'. Finally, the role of area regeneration policies in overcoming and exacerbating problems of concentrated worklessness is considered.

Keywords: skills mismatch, spatial mismatch, wages, deprived areas, perceptions

Arthur G Green, PhD Student, McGill University. Email: arthur.green@mcgill.ca; Kai Bucher, International Food & Agricultural Trade Policy Council. Email: k.c.bucher-alumni@lse.ac.uk; Linking Complex Systems: Cotton Production in Sub-Saharan Africa

Recent changes in international policy towards cotton trade indicate that African producers may soon benefit from increased market access. Although these changes are considered positive developments, complex human-environment systems make assessing the impacts of macroeconomic policy on cotton production difficult. Some problems with current approaches to measuring cotton production potential in Africa include (1) failure to integrate complex systems into predictive or descriptive models; (2) over-reliance on coarse-scale analyses; and (3) that expert opinion, used to overcome problems of integration and scalability, lacks objectivity and explicit parameters. An integrative model may provide a useful tool for understanding how policy changes relate to cotton production potential. This study applies a geospatial analytic approach to modeling the human-environment system surrounding cotton production in Mali, Benin, and Burkina Faso. The study integrates georeferenced parameters bridging the agent/structure dichotomy. Parameters and their relationships are drawn from theories of social capital, ecological modeling scenarios, geographic considerations, and contextuality of human-environment systems. The model is composed in a geographic information system that can be manipulated to represent different theoretical linkages and production scenarios. Statistical analyses observe collinearity between parameters and reduce the number of parameters (Principal Component Analysis). Ground truthing of the model takes place in Mali.

Keywords: Africa, cotton, development geography, GIS, human-environment

Chris Green, University of Missouri-Kansas City. Email: cmgvw9@umkc.edu; GIS Applications for Ozone Biomonitoring in Kansas City

Ground-level ozone is formed from the byproduct gases of vehicular traffic and industry. In Kansas City, MO, these precursor gases are produced by commuter traffic traveling along multiple major interstates that intersect in the urban core and by numerous small factories. Ground-level ozone is toxic to life. Not only does tropospheric ozone increase hospital admissions for respiratory problems, but also it physically affects plants. The USDA Forest Service monitors the effects of tropospheric ozone on plants by using highly sensitive native plant species. These bioindicators show visible signs of ozone induced stress in the presence of high concentrations of anthropogenic ground-level ozone. The purpose of this study was to examine the connections of ozone precursor sources and the locations of surveyed ozone injured vegetation. Site selection was based on USDA - Forest Service site recommendations. Fifteen similar sites in the Kansas City metropolitan area were surveyed for Common Milkweed, a native bioindicator used by the Forest Service. These sites were geocoded into a GIS. The number and severity of ozone induced stress were included in the shapefile attribute data. Buffers of specific distances were then applied to point and mobile sources of ozone precursors in the study area. The spatial relationships of highly stressed sites and precursor sources were examined. Of the seven sites that showed signs of ozone stress, most were in close proximity to a major road.

Keywords: gis, air quality

Donna Green, CSIRO. Email: donna.green@csiro.au; Terra Nullius all over again? climate impacts in Australia

The Torres Strait Islands are frequently 'left off the map' in research on biophysical change in Australia. There are few observational data sets from which modelling work or inundation studies can be performed?even though these communities may be facing imminent threats to their existence. Some of these islands are only a metre or two above local mean sea level; and in the last two years several have suffered major inundation incidents. Most of these islands have inadequate infrastructure, health services and employment opportunities. This social context is highly significant in terms of these communities' resilience to climate hazards because social and economic disadvantage reduces their ability to cope and their capacity to adapt to rapid environmental change. This concern is compounded by a cultural issue not normally considered by natural scientists working on identifying climate impacts in human settlements. Many Islanders connect the health of their land and sea country to their mental and physical wellbeing and, more broadly, their cultural integrity. In the near term, projected changes could affect subsistence hunting as well as commercial fishery operations with significant nutritional, economic and cultural ramifications. Similarly, change in rainfall could exacerbate existing pressures on potable water supplies unless significant anticipatory planning is initiated to reduce this climate related risk. In the longer term, the very existence of Ailan Kastom (Island Custom) may be threatened if projected sea level rise in combination with extreme weather events increases the frequency and/or severity of inundation incidents and necessitates relocation from the islands.

Keywords: climate change indigenous australia

Mark D. Green, Ph.D., Indiana State University. Email: M-Green@indstate.edu; The Capture and Storage of Natural Watershed Runoff to Support Permanent Settlement at Mudaybi' Along the Desert Fringe in Ancient West-Central Jordan

Mudaybi' a 65x90 meter fortified site adjacent to the Syrian and Arabian desert in west-central Jordan was constructed by Iron 2ab (925-539 BCE) Moabites. The site continued to be used throughout antiquity with the last phase of intensive occupation occurring during the Nabataean period (300 BCE to 106 CE). Located on the eastern border of the Moabite Kingdom, the site was strategically located along the major transportation corridor linking the region with its neighbors to the south and east. The location of the site afforded a view of the adjacent region out to a radius of 10 km, which suggests that it may have been part of a deliberate signaling network. Mudaybi' was one of seven Iron 2ab fortified sites located in sight of each other within the visibility radius. Though the site offered considerable strategic benefits, the nearest perennial water source was over 12 kilometers from the site. Permanent occupation at the site would have required the harvest and storage of rainwater from winter storm events. There is a small reservoir of unknown age immediately north of the site that currently captures runoff from an adjacent watershed. Using a DEM, GIS, and runoff models, the runoff and discharge potential of the watershed into the current reservoir are estimated. Calculations based on the runoff potential and the amount of accumulated water stored in the current reservoir during the summer of 2001 suggest that harvested and stored runoff would have provided sufficient water to support permanent settlement at the site.

Keywords: Jordan, GIS, Watershed, Iron Age

David F Greene, Concordia. Email: greene@alcor.concordia.ca; Quesada Mauricio, Institute of Ecology, Morelia, Mexico, UNAM. Email: mquesada@oikos.unam.mx; The relationship between horizontal wind speed and the probability of seed abscission in mid-latitude and tropical species dispersed by wind.

We examined seed abscission of two mid-latitude and five tropical species at short averaging times (10 seconds in all but one case; 15 minutes in the remaining case), hypothesizing that (1) the probability of abscission should be proportional to Drag and therefore to the square of the horizontal wind speed; there should be a threshold wind speed for abscission that is greater than 0. We found that the exponent of power-law regressions of abscission probability on horizontal speed had exponents that tended to be somewhat higher than the expected value of 2.0. We assume this enhancement is due to the correlation of horizontal and vertical speeds. A threshold speed of about 0.25 m/sec was typical. The exception to both generalizations was the tropical vine *Matelea* because it has the capacity to abscise seeds without wind because of the drying mechanism of the diaspore fibers. We conclude by discussing the consequences of this work for the modeling of seed dispersal.

Keywords: seed abscission, seed dispersal, wind, anemochory

Richard P. Greene, Northern Illinois University. Email: rgreene@niu.edu; Amenities as drivers of growth: Intra-urban and Inter-urban scales

Generations of Minnesota geographers were exposed to metropolitan analysis (intra-urban) by way of John Adams and metropolitan regions (inter-urban) by way of John Borchert. These courses/approaches were set within a broader collective geographic education that Minnesota graduate-students were exposed to, which included both topical and regional approaches as well as physical and human dimensions. The common denominator in the approaches by John Adams and John Borchert was amenities (both physical and cultural) as drivers of urban growth. Consider the recent works by John Adams, clearly influenced by Homer Hoyt, where he demonstrates that sector/wedge patterns remain the dominant spatial pattern of the contemporary American city. Explanation was a constant theme by Adams in both his research and teaching and amenities at the intra-urban scale was one of the explanatory variables that rose to highest significance. Borchert used amenities to explain variation across the urban system in terms of growth and development. In this paper, I review the recent literature on amenities and analyze new data to suggest that amenities continue to drive growth at both the intra-urban and inter-urban spatial scales.

Keywords: amenities, intra-urban, inter-urban, scale

Charles Greer, Indiana University. Email: greerc@indiana.edu; Shanon Donnelly, Indiana University. Email: sdonnell@indiana.edu; James J. Hayes, Indiana University. Email: jamehayes@indiana.edu; Jillian M. Rickly, Indiana University. Email: jrlickly@indiana.edu; An Ecosystem Energy Model of Landscape Form and Function

While landscape study in Geography through recent decades has produced important work with focus on how selected aspects of culture influence selected features or groups of features, study of the composite landscape has suffered commensurate neglect. Defined as the totality of features at the surface of the

earth, the composite landscape is the physical evidence of human-environment interaction, a better understanding of which is necessary for any progress in theoretical and practical approaches to sustainability. Pursuing the goal of 'keeping humans and nature in the same analytical framework,' and based on energy relationships being the common denominator of human and non-human systems, ecosystem characteristics provide the starting point for the current project to develop a comprehensive qualitative model of landscape relationships. We use the fundamental matter-energy-information relationship to explain the construction and maintenance of features, as well as how they accomplish work of all kinds in the landscape system. Applied to a forty square mile landscape in Monroe County, Indiana, the model identifies twelve feature types delineated into 250 constituent features based on how each processes inputs of matter, energy and information, and how each links to other feature types. Among the outcomes, the model shows that higher levels of information relative to matter and energy are an indicator of greater symbolic power in a landscape feature type. Implications and limitations of the energy-based model for landscape studies and beyond are then discussed.

Keywords: landscape, ecosystem, energy, information

Ian N. Gregory, Lancaster University. Email: i.gregory@lancaster.ac.uk; *Spatial analysis of long-term change using vector data: Examples from British demography.*

The Great Britain Historical GIS contains the boundaries of the major administrative units of England & Wales as they changed from the mid-nineteenth century to the present. In doing this it locates a wealth of census and vital registration (birth, marriage and death) data in space and time. This would appear to make it an excellent platform for analysing long-term demographic change. The situation is complicated by the difficulties that boundary changes cause to analysing change over time. This paper describes a variety of approaches that have been developed to resolve this problem. One of the most sophisticated is the use of areal interpolation techniques to standardise all of the data using a single set of administrative units. This enable us to explore long-term spatio-temporal change in using an unprecedented level of detail however it has the problem that it inevitably introduces a certain amount of error into the resulting data. This paper explores a variety of approaches to the issues of changing boundaries and areal interpolation and the error that results from it.

Keywords: Historical GIS, spatial analysis, demography, areal interpolation

William J Gribb, University Of Wyoming. Email: planning@uwyo.edu; *Location, Habitat and Management Strategies for Castor canadensis in the Grand Teton National Park: Implications for the Greater Yellowstone Ecosystem*

The location and distribution of *Castor canadensis* (beavers) had not been examined in Grand Teton National Park (GTNP) since the mid-1970s. This research was conducted over the period 2002-2006 utilizing field and aerial surveys of GTNP to locate and record habitat characteristics of active beaver lodges and dens. Approximately 370km of stream reaches and lake shores were field inventoried for beaver activity and habitat characteristics. Overall, 43 active lodges dens were cataloged, this represents a decline of more than 50% in active locations since the last survey in the mid-1970s. Habitat characteristics have changed from a dominance of activity in cottonwood (*Populus angustifolia*) associated communities to a predominance of activity in willow (*Salix* spp.) dominate areas. This shift in vegetation communities has increased competition for browse with elk (*Cervus elaphus nelsoni*). Compounding the habitat changes has been a subsequent change in water flow along the Snake River and its tributaries. Drawdown patterns of Jackson Lake with subsequent flow changes on the Snake River have created seasonal fluctuations varying from 659 to 18,150 cfs.. Over the last nine years, drought conditions in the region have reduced flows in major tributaries to the Snake River, specifically Pacific Creek and Buffalo Forks, by as much as 50%. Thus, habitat, waterflow along major rivers, and decrease in back-channel waters have possibly contributed to the declining beaver population in Grand Teton National Park. Management strategies should be designed to sustain existing beaver habitats and, where possible, expand beaver locations to increase core populations.

Keywords: habitat, beavers, grand teton national park, greater yellowstone ecosystem

Carl J Griffin, Dr, Queen's University. Email: Carl.Griffin@qub.ac.uk; *Affecting Violence: Language, Gesture and Performance in Eighteenth and Early Nineteenth-Century English Popular Protest*

Historians of English popular protest have long noted the essentially orderly nature of most contentious gatherings. 'To carry weapons, to bandy ferocious threats, and to destroy machinery was one thing', reckoned Hobsbawm and Rudé, 'to shed blood was quite another' (1969). But as E.P. Thompson noted in his hugely influential 'The Moral Economy', whilst protesting 'crowds' may well have been disciplined the form of collective bargaining by riot in which they engaged could only be successful if the leverage of the fear of disorder and

violence could be brought to bear (1971). Or to quote Wells, 'the moral economy was implemented in the context of threatened or actual violence' (1988). Whilst Thompson never suggested that discipline was always maintained, outbreaks of physical violence were relatively rare. We know remarkably little though about the tools and practices deployed in English protests through which a psychosomatic fear was engendered, practices which were clearly successful in affecting violence and more than occasionally winning concessions. Through an archival analysis of a series of different forms of English popular protest, both 'overt' and 'covert', this paper both clearly demonstrates both the usefulness of adopting 'performative' concepts in understanding the complexity of past protest and the centrality of psychological and bodily manipulation in the toolbox of English protestors. Violence did not have to involve flesh (or weapon) upon flesh to achieve its goals, rather through language, gesture and the performing of (dis-embodied) pain, bodies could be made to feel something equally visceral and just as anguishing.

Keywords: Protest, England, violence, affect, performance

Duane A. Griffin, Ph.D., Bucknell University. Email: dgriffin@bucknell.edu; *Fine-scale geomorphic pattern and biodiversity*

Ecological diversity at patch, landscape, and regional scales reflects interactions between individual organisms and abiotic constraints. Biogeographers and ecologists have long recognized the key role geomorphology plays in these interactions through their effects on microclimate, moisture and nutrients supplies, disturbance regimes, and migration and dispersal. Less-well appreciated are the implications of fine-scale (

Keywords: biodiversity, geomorphology, biogeography, simulation model

Gareth Griffin, University of Louisiana-Lafayette. Email: gareth@louisiana.edu; *The (Hetero)Sexual Citizen and the Evolving Landscape of Sexual Citizenship*

Over the past twenty years, the rhetoric of the lesbian and gay movement has evolved from a discourse of liberation (focused on issues like repealing sodomy laws) to one of citizenship (focusing on questions of marriage equality and other rights). One unexpected result of this shift has been that lesbians and gays are no longer uniquely sexualized when it comes to questions of citizenship. This paper argues that citizenship rhetoric has forced heterosexuals—and more specifically heterosexual opponents to homosexuality—to become sexual citizens themselves. By examining *Bowers v. Hardwick* and *Lawrence v. Texas*, this paper demonstrates a change in how opponents of homosexuality defend the legal and moral "superiority" of heterosexuality. In the wake of these decisions, opponents of homosexuality can no longer dismiss homosexual claims for equal rights simply because of the illegality of homosexuality; they now must define explicitly why their sexual practices are innately "better" or "moral" in comparison. This change in discourse has consequently politicized the question of sexuality itself and its relationship to citizenship.

Keywords: sexual citizenship, homosexuality

R. Daniel Griffin, University of Arkansas Tree-Ring Laboratory. Email: dendrodan@gmail.com; David W. Stahle, University of Arkansas Tree-Ring Laboratory. Email: dstahle@uark.edu; Malcolm K. Cleaveland, University of Arkansas Tree-Ring Laboratory. Email: mcleavel@uark.edu; Jesse R. Edmondson, University of Arkansas Tree-Ring Laboratory. Email: jre03@uark.edu; *600 Years of Salinas River Flow Reconstructed from Blue Oak Tree-Rings*

The Salinas River Valley in California is known as America's salad bowl and is home to a \$3.5 billion crop industry based largely on groundwater irrigation. Saltwater intrusion associated with long-term aquifer overdraft has ruined thousands of hectares of productive agricultural lands and threatens major municipal wells. Recharge to these alluvial aquifers originates primarily as precipitation and subsequent infiltration from the Salinas and its tributaries. A 60-year record of monthly flow is available at Paso Robles in the upper basin, above more human interference than any other gauge on the Salinas. This record exhibits dramatic inter-annual to decadal variability, including the epic drought of 1976-1977. Old growth blue oak (*Quercus douglasii*) woodlands are widely distributed in and near the drainage basin of the Salinas River and the radial growth of this species is remarkably sensitive to annual precipitation. We have recently developed a new network of 300- to 700-year long blue oak tree-ring chronologies, and these exceptional proxy time series are highly correlated with Salinas flow records at Paso Robles and other gauging stations along the river. A 595-year reconstruction of annual mean flow at Paso Robles explains 70% of the variance during the instrumental period. The reconstruction indicates many zero flow years equal to the drought of 1976-1977 and extreme decade-long droughts more severe than any measured during the instrumental period from 1940 to present. This high-quality reconstruction offers long term perspective on hydrologic variability in the Salinas basin.

Keywords: Salinas River, Blue Oak, Dendroclimatology

Daniel A. Griffith, University of Texas - Dallas. Email: dagriffith@utdallas.edu; Manfred M. Fischer, Vienna University of Economics and Business Administration. Email: Manfred.Fischer@wu-wien.ac.at; Modeling Spatial Autocorrelation in Spatial Interaction Data: A Comparison of Spatial Econometric and Spatial Filtering Specifications

Spatial interaction models of the gravity type are widely used to model origin-destination flows. They draw attention to three types of variables to explain variation in spatial interactions across geographic space: variables that characterise an origin region of a flow, variables that characterise a destination region of a flow, and finally variables that measure the separation between origin and destination regions. These models are said to be misspecified if their residuals are spatially autocorrelated, violating the independence assumption. This paper outlines and compares two approaches, the spatial econometric and the eigenfunction-based spatial filtering approach, to deal with the issue of spatial autocorrelation among flow residuals. An example using patent citation data that capture knowledge flows across 112 European regions serves to illustrate the application and the comparison of the two approaches.

Keywords: spatial autocorrelation, spatial interaction, spatial filtering, spatial econometrics

John R. Grimes, Eastern Kentucky University. Email: john.grimes@eku.edu; Don Yow, Eastern Kentucky University. Email: Don.yow@eku.edu; Contesting Globalization by Reconstructing Markets: Florida's "Wild & Wonderful Shrimp" Program

This paper examines how globalization is impacting Florida shrimpers and the State of Florida's "Wild and Wonderful Shrimp" program as a strategy to contest and reshape globalization's outcomes. The geography of shrimp imports is described as well as the recent history of its growth. The U.S. market for shrimp can be described as mostly consisting of a "mass market" that is met by farm-raised, frozen imports and a much smaller "specialty market" met by fresh wild-caught shrimp. The interaction of these two very differently characterized segments of the shrimp market are discussed as well as Florida's strategy to increase demand of their shrimp by the use of a shrimp marketing campaign. The examination of this program shows a state that is attempting to confront the challenges of globalization while acknowledging its own policy limitations because of interdependencies that globalization creates.

Keywords: Florida Shrimp, Globalization, the State, Agro-foods, Coastal Economies

Sara Grineski, PhD, University of Texas at El Paso. Email: segrineski@utep.edu; "This house is not good for asthma." Housing and environmental justice

Environmental justice research involves the study of the unequal exposure of poor and minority residents to environmental hazards. In this analysis, I consider indoor environmental exposures as another facet of environmental injustice. I take the perspective that the home is a product of unequal power relations, like ambient conditions. Many research studies have linked housing conditions, such as mold, dust and roaches, to asthma. In this paper, I investigate the experiences of parents managing children's asthma in the central city and in the suburbs of Phoenix, Arizona, where the housing stocks are different. I interviewed 41 low-income African-American and Hispanic parents living in the central city and 12 affluent Anglo parents from a suburban area. I find that wealthy suburban parents are more likely to own their homes, making it easier to conduct asthma-related modifications (e.g., remove carpets). When they do not make modifications, it is because of aesthetic preferences, not a lack of resources or knowledge. Poor central city parents face multiple challenges in controlling indoor exposures. Renters are constrained in making changes to their homes, and are forced to spend their own limited resources to repair rental units. Undocumented immigrants tend to suffer serve landlord abuses and live in marginal housing stock, complicating asthma management. Low-income parents report frequent moves within the central city, trying to access a better environment within a zone of environmental degradation. These parents and their children with asthma face a double jeopardy, whereby their unsafe indoor environments are located in hazardous outdoor environments.

Keywords: environmental justice, health and place

Margaret M. Gripshover, University Of Tennessee. Email: mgripsho@utk.edu; Thomas L. Bell, University of Tennessee. Email: tombell@utk.edu; Earth, Wind, and Fire: The Role of Newspaper Accounts in Public Perception of Suicide Rates After the 1906 San Francisco Earthquake, Hurricane Katrina, and the Great Chicago Fire

Print media reports hype the fear, angst, and chaos following major catastrophes. This was just as true of reportage in the Chicago Tribune following the Great Fire in Chicago in 1871, and the San Francisco earthquake of 1906, as it was in New Orleans regarding the death and destruction in the aftermath of Hurricane Katrina in 2005. And, based on anecdotal evidence and journalistic

sensationalism, media reports seem especially drawn to the "epidemic" of suicides in the wake of such catastrophes. In contrast to media reports, public health statistics indicate that suicide rates do not necessarily increase from the norm immediately following major disasters. Public perception and anticipation of a dramatic increase in suicides as a reaction to major earthquakes, hurricanes, and fires, does, however, persist.

Keywords: Chicago Tribune, Great San Francisco Earthquake, Hurricane Katrina, Great Chicago Fire, suicide

Janet H. Gritzner, South Dakota State University. Email: janet.gritzner@sdstate.edu; Modeling Wetland Basins in the Prairie Pothole Region

The Prairie Pothole Region (PPR) of the US and Canada is characterized by thousands of shallow, water-filled depressions with sizes ranging from a fraction of a hectare to several square kilometers. The purpose of this work is to apply GIS hydrologic modeling techniques to further understanding of surface-flow characteristics in glacially disturbed landscapes. High resolution bare-ground LIDAR DEMs are used as raw elevation data. Over 83 percent of the wetlands in PPR are smaller than 0.8 ha and are generally not resolved by Level II USGS DEMs, remaining depressions are filled during standard conditioning procedures in hydrologic modeling that create a depressionless DEM. Given these statistics, the accuracy of any hydrologic modeling in the PPR using normal methods is doubtful and new approaches required. The study area is a 78 square mile basin located within the larger Devils Lake Basin, ND. To maintain wetland depressions, a mask that identifies the location and extent of real depressions is first generated and, from it, a seed grid is derived. The sink mask was fully attributed with data on maximum depth, average depth, volume, and surface area for each sink as well as code, count, and surface area information from National Wetland Inventory (NWI) datasets. Some 30,324 depressional features were initially identified in the LIDAR DEM. Some 6,016 sinks were possibly wetland features. The mask was applied using various criteria, including depression depth and size, class, and water regime of NWI wetlands. Derived catchments were evaluated. Isolated and linked wetland features were categorized.

Keywords: wetlands, hydrology, GIS models, LIDAR

David Grondin, University of Ottawa. Email: dgrondin@uottawa.ca; Astropolitik as Global Dominance in the War on Terror: Securing "Freedom of Space" to Achieve Space Control

From World War II onwards, US national security elites have thought US state identity through the prism of national security, whilst the US state has had but one global strategy, a neoliberal geopolitics of global dominance. September 11 was constructed by US governmentality as a nationalist and sovereigntist opportunity to reaffirm state power, thus reactivating unquestionably the violence of the national security state. This paper aims to address how the frontiers of the US homeland are remapped by the War on Terror as it relates to the US Astropolitical dominant discourse. Astropolitics has indeed emerged as a genuine geopolitical discourse on Outer Space. Adopting a critical geopolitics framework, this paper focuses on the US strategic discourse promoted by US defense and statecraft intellectuals and national security elites as it participates in the securitization and reterritorialization project of Outer Space as an American space. The pioneer work of Everett Dolman on Astropolitik - an astropolitical discourse featuring Space weaponization as inevitable and a call for the US to seize the strategic opportunity of achieving Space control ? is here used as a starting point of discussion, especially for its linkage with the Bush administration new National Space Policy (NSP). As Space warfare takes place in the context of general military operations of "full-spectrum dominance", it takes into account the transformed nature of war in the 21st century that rests, for US statecraft, upon a rewriting of the global space through a strategy of neoliberal dominance where force is spatially projected.

Keywords: statecraft, geopolitics, geostrategy, US global strategy, Outer Space

Theodore Grossardt, University of Kentucky. Email: thgros00@uky.edu; Fantasy and Identity in Public Infrastructure: When State and Advocacy Groups Agree They Exist

Frequently new groups constitute themselves around a shared opposition to some new public sector project, either on local or global 'grounds' (eg. The I-66 Interstate Highway project has fostered 'Kick 66'). The existence of, and claim to membership in, such groups is fostered by more than just the members themselves, and in fact may be used by political and technical project sponsors as an excuse for limiting public participation in public infrastructure planning. The perceived or claimed 'threat' to the process may set off or legitimate a cascading series of countervailing public sector strategic moves that further formalizes and limits true dialogic exchange. Ironically, when the "existence" of an advocacy group is acknowledged by the public sector, as evidenced by changes in public involvement strategies, then that is an act granting additional power to the

advocacy group and ironically taking it away from the 'non-aligned' public. The advocacy group will be better able to continue to make its voice heard than non-members, once the public sector begins attempting to tamp down the form and depth of public involvement. Thus the ultimate 'debate' will elide the ordinary public, and grant all negotiation power to the state and the jointly-constituted opposition group(s). The author contends that such outcomes are undesirable from the point of view of citizens.

Keywords: public infrastructure planning, advocacy group, state planning, identity

Chad G. Grossenburg, Montana State University. Email: chadgrossenburg@yahoo.com; *Campsite Impacts and the Limits of Acceptable Change Planning Process: A Case Study of the Jedediah Smith Wilderness Area*

The Limits of Acceptable Change planning process is a means by which managers attempt to preserve natural conditions while facilitating public use in federally designated wilderness areas. The biophysical condition of campsites is often used as one indicator of naturalness. Despite progress using scientific methods to inventory and monitor campsites, little progress has been made formulating standards of campsite condition in the Limits of Acceptable Change planning process. Wilderness planners also require an understanding of the relationship between nearby population growth and its influence on campsite conditions. The population of Teton County, Idaho, adjacent to the Jedediah Smith Wilderness, has doubled in the last twenty years. Other Western places have witnessed similar patterns as many counties next to wilderness areas have recently outgrown other counties. Campsites, in the Jedediah Smith Wilderness of the Teton Range in northwestern Wyoming, were analyzed for changes in biophysical condition and spatial distribution over the last five years. The origin of wilderness users were recorded to determine the impact of new migrants on campsite conditions. Existing campsite conditions were found to have significantly improved, but the number of campsites have increased. These data show that indicators of campsite conditions in the Limits of Acceptable Change planning process need to focus not only the condition of campsites, but also on the spatial aspects of campsite proliferation and recovery. The number of overnight users from Teton County, Idaho were found to be relatively low. Despite recent population growth these recent migrants have little influence on campsite conditions.

Keywords: Campsites, Limits of Acceptable Change, Teton Range, Wilderness

Michael Grossman, Ph.D., Department of Geography SIUE. Email: mgrossm@siue.edu; Masumi Zaiki, Ph.D., Faculty of Cross-Cultural Studies, Kobe University. Email: zaiki@ccsis.u-tokyo.ac.jp; Rebecca Johnson, Department of Geography SIUE. Email: ; *Annual Maximum Floods and Typhoons in the Kanto, Kyushu, and Hokkaido Regions of Japan in the 20th Century*

This paper examines records of annual maximum floods on eleven major rivers in the Kanto, Kyushu and Hokkaido regions of Japan between 1960 and 2002. Analysis indicates that the study period can be divided into two sub-periods. Period 1 (1960 to the late 1970's early 1980's) was a period of smaller average floods and fewer large floods and Period 2 (the late 1970's early 1980's to 2002) was a period of larger average floods and more frequent large floods. Annual maximum floods in these regions of Japan can be attributed to typhoons, periods of heavy rain during the summer rainy season, and spring snowmelt (in Hokkaido). Of these three causes, typhoons are usually responsible for the largest magnitude floods. Based on this link between typhoons and larger magnitude annual maximum floods, we hypothesize that the differences between Periods 1 and 2 can be attributed to an increase in the number of strong typhoons reaching Japan during Period 2. Analysis of the record of typhoon tracks and daily precipitation (3-day totals associated with the typhoons responsible for the annual maximum flood) support this hypothesis. Further, to investigate causal mechanisms for the observed shift in the number and strength of typhoons affecting Japan, we examine the hypothesis that differences between Periods 1 and 2 can be linked to shifts in global atmospheric circulation patterns such as ENSO and the PDO.

Keywords: floods, typhoons, Japan, East Asia, climate change

Zoltan Grossman, Ph.D., The Evergreen State College. Email: grossmaz@evergreen.edu; Alan Parker, Ph.D., The Evergreen State College. Email: parkeral@evergreen.edu; Edward Whitesell, Ph.D., The Evergreen State College. Email: whiteset@evergreen.edu; *Climate Change and the Pacific Rim Indigenous Nations Treaty*

In October 2006, the Northwest Indian Applied Research Institute published "Climate Change and Pacific Rim Indigenous Nations," as a report to tribal government leadership. The report explores existing effects of climate change on Indigenous peoples and their homelands in Pacific Rim countries, the present

responses of Indigenous nations at both a local and international scale, and potential future paths for Indigenous nation governments to deepen and expand their powers to influence the global discussion and regulatory process around climate change, and to mitigate or adapt to its inevitable impacts. The project is part of a larger proposal to initiate an Indigenous nation-to-nation treaty agreement among Native governments in the Pacific Rim. The United League of Indigenous Nations treaty will serve as a structure to address major issues and challenges that are common to the nations including, most particularly impacts of climate change on Indigenous homelands and the future survival of Native peoples including Maori in Aotearoa (New Zealand), Native Hawai'ians, Alaskan Natives, First Nations in Western Canada, and Native American nations in the Pacific Basin states. The report reviewed evidence of drastic changes now affecting Indigenous hunting and fishing, economic infrastructure, water and housing availability, forest and agricultural resources, and the survival of tribal members and their cultural practices. The report concluded that "Indigenous peoples are the 'miner's canary' of global climate change for the rest of humanity," and issued recommendations to Indigenous nation leadership on possible strategies to confront, mitigate or adapt to the impacts of climate change.

Keywords: Indigenous sovereignty, Native treaties, Climate change, Global warming

Karl Grossner, UC Santa Barbara. Email: karlg@geog.ucsb.edu; Michael F. Goodchild, UC Santa Barbara. Email: good@geog.ucsb.edu; Keith C. Clarke, UC Santa Barbara. Email: kclarke@geog.ucsb.edu; *Defining a Digital Earth System*

In a 1998 speech before the California Science Center in Los Angeles, then US Vice-President Al Gore called for a global undertaking to build a multi-faceted computing system for education and research, which he termed "Digital Earth." The Digital Earth vision is that of a computing system providing access (via response to queries and exploratory tools) to what is known about the planet and its inhabitants' activities, now and at any time in history. Furthermore, it would accommodate modeling extensions for predicting future conditions with what skill their algorithms might achieve. As such, in its most complete form Digital Earth is a "mirror world," conceivably even passing a Turing-like test. Although such completeness is not a realistic possibility, a digital earth system capable of organizing all such knowledge may be, and is the subject of this research. Together, geographic information systems (GIS), digital geolibraries and knowledge organization systems (KOS) provide many of the conceptual and technical elements required for a comprehensive digital earth system. However, an approach to data modeling that is fundamentally different from a typical GIS is required. It must be semantic and ontology-based; that is, structured to allow feature and event attributes to represent meaning in class rules and relationships. Attribute changes over time must be trackable, to permit visualizations of dynamic processes. Furthermore, the model must enable integration of object and field data sources. We review recent related research and chart a course through the remaining issues, towards an achievable digital earth system.

Keywords: digital earth, virtual globe, geolibrary, data models, GIS, knowledge organization

Kevin Grove, Ohio State University. Email: grove.80@osu.edu; *What, Me Worry? Market Democracy, Global Warming, and the Privatization of Insecurity*

Global warming calls forth a decidedly non-modern mode of being-in-the-world, one in which the precariousness of existence is unavoidable: as the trailer to An Inconvenient Truth proclaims, global warming is about life. This implication of life - or, more precisely, the environmental transformations that make modern life possible - in the negation of existence introduces a new form of ontological insecurity, one in which the modernist dream of benign technology mastering nature for universal benefit is laid to waste. However, the relation between environmental transformation and precariousness as a general ontological condition has yet to be given extended critical consideration. Indeed, the non-human is commonly written out of analyses of precarity that take insecurity as the founding moment of sociality and, therefore, being. But the emergence of a popular form of environmentalism founded on the insecurity of existence as totality of the human and non-human calls for critical examination of this relationship. How radical are the alternatives put forth by this new environmentalism? This paper argues that the turn to green technologies such as energy-efficient light bulbs and individualized carbon offsets advocated by environmentalist discourses feeds on this insecurity to further embed neoliberal fantasies of the market and technology as stabilizing mechanisms. Precarity clears fertile grounds for the development of new biopolitical practices that deepen capitalist oppression through the technologization and privatization of ontological insecurity. These processes also draw our attention to the ways in which space is produced as an emergent and contingent condition.

Keywords: Global Warming, Biopolitics, Sovereignty, Neoliberalism, Science, Technology

Morgan Grove, USDA Forest Service. Email: jmgrove@gmail.com; *An Ecology of Prestige: Linking Household and Vegetation Dynamics in Urban Ecosystems*

The dynamics of urban ecosystems can be enhanced by linking the multi-dimensional, social characteristics of households to variations in land cover and land management practices. The goal of this presentation is to compare the relative significance of three social theories of household structure?population, social stratification, and lifestyle behavior?to vegetation dynamics?cover, structure, function, and succession in Baltimore, Maryland. Our ability to examine the relative significance of these theories depends upon fine scale social and biophysical data. Using object-oriented image classification software to combine household level social data, parcel boundaries, high resolution, multi-spectral imagery and LIDAR data, we compare the relative significance of these theories to explain variations in vegetation cover, structure, and function. Emerging from this analysis is what we call an "ecology of prestige," which emphasizes the importance of vegetation to the social identity and status of distinct social groups at a neighborhood level. Ultimately, by linking these household processes to land cover and land management practices, a more complete, robust, and synthetic understanding of urban ecological dynamics is possible at a fine scale and over the long term.

Keywords: Baltimore, Vegetation, Social Stratification, Lifestyle, Urban, Ecology

Benjamin Growley, The University of Montana. Email: benjamin.growley@umontana.edu; Ulrich Kamp, The University of Montana. Email: ulrich.kamp@umontana.edu; Lewis Owen, University of Cincinnati. Email: lewis.owen@uc.edu; *Landslide Hazard Zonation GIS for the October 2005 Kashmir Earthquake Region*

Long after the Kashmir earthquake of October 2005, the destructive aftermath is still visible. Hillsides show signs of weakening through fissuring and small-scale sliding. These unpredictable landslides pose a potential threat to existing infrastructure, villages, and populations. Two main methodologies were utilized in developing a Landslide Hazard Zonation GIS: (1) field based observations (geomorphologic mapping; description of stratigraphies; repeat photography; etc.) and data collection; (2) remote sensing and geographical information system (GIS) analyses. The multitemporal approach includes pre- and post-earthquake data. The latter includes data from November 2005 directly after the earthquake, and data from May 2006 after the snowmelt season. In 2005, a series of >200 landslide locations were incorporated into a GIS database holding GPS locations that correspond to a series of pictures of the landscape. The 2006 field campaign repeated all photographs for those GPS locations and documents that further sliding occurred in the six month period since the first database was created. Aftershocks and snowmelt- and rainwater infiltrating into the ground especially along the fissuring were/are responsible for ongoing landsliding in the region. Results from unsupervised and supervised classifications of satellite imagery (ASTER, Landsat, Quickbird) support the landslide mapping. Criteria for defining a hazard zonation system are based on existing literature and include parameters such as topography, geology, lithology, climate, vegetation, settlements, roads, etc. The Landslide Hazard Zonation GIS for the Kashmir earthquake area of Northern Pakistan is an important acquisition to plan rapid and secure mitigation procedures and future strategic planning.

Keywords: earthquake, gis, hazard, Himalaya, landslide, remote sensing

Tony H. Grubestic, Indiana University. Email: tgrubesi@indiana.edu; *A Spatiotemporal View of Broadband Regions: Tracking Competition and Availability*

Variations in the supply and demand of telecommunications infrastructure in the United States are well documented. However, amidst waning concerns of a digital divide, particularly with respect to its demographic characteristics, the geographic aspects of broadband availability continue to be intriguing. Of note, is the significant locational diversity in broadband competition throughout the U.S. While some areas benefit from a robust selection of broadband providers, choices for consumers in other regions are often limited. These disparities in competition are effectively creating a broadband core and periphery framework in the United States. The purpose of this paper is to explore the spatially unbalanced levels of broadband competition in the U.S. by providing a spatiotemporal analysis of broadband regions and their development from 1999 - 2004. Broadband core and periphery regions are identified through the use of spatial statistical techniques and a geographic information system. A broadband competition index for ranking metropolitan and micropolitan areas is also introduced.

Keywords: Telecommunication, Competition, GIS, Spatial Analysis

Pyr Gruffudd, University of Wales Swansea. Email: r.p.gruffudd@swansea.ac.uk; *On the prowl with the possum posse: nature and nation in Aotearoa/New Zealand*

This paper addresses complex geographies created by the brush-tailed possum in New Zealand. Introduced from Australia in 1837 to stimulate a colonial fur-trade the possum 'jumped the fence' and became a massively effective pest. With abundant food and no natural predators an estimated 70 million possums now colonise over 90% of the nation. They 'target' the iconic native forests, compete with native fauna for food and shelter, and are also accused of eating the eggs of kiwi and kokako. They have an economic impact on pasture plants and on farm animals, as well as being a 'nuisance to amenity' in suburban areas. These impacts are understood within an extremely well-developed and disseminated discourse of biodiversity and biosecurity. This, crucially, is informed by - arguably built upon - a Maori holistic worldview that claims humans share a common whakapapa (ancestry) with other animals and plants and have a highly-developed sense of responsibility to protect and enhance them. As an 'alien' species, the possum has been the subject of a diverse and energetic eradication programme, ranging from the official creation of Edenic 'mainland islands' to grass-roots and entrepreneurial businesses involved in fields ranging from leisure (such as the Possum Posse) to high fashion. This paper analyses some of these interventions in terms of their claims to embodied knowledge of nature and nation, their appeals to gendered identities (and especially versions of white - pakeha - masculinity), and their presumed reintegration of the wild and the native into postcolonial versions of identity.

Keywords: national identity, nature, New Zealand

Adrienne Gruver, Pennsylvania State University. Email: abg152@psu.edu; *Epidemiological Data Analysis Tasks in a Geovisualization Environment*

Geovisualization tools are increasingly used for exploratory analysis in a variety of disciplines. In an effort to systematically assess how well these tools support the analytical needs of users, it is critical to conduct research from the perspective of users. In this presentation, I will describe my research on the assessment of the Exploratory Spatio-Temporal Analysis Toolkit (ESTAT) as it is experimentally used by professionals in the health research community. ESTAT is a geovisualization application developed by the GeoVISTA Center for the National Cancer Institute. It links established exploratory data analysis methods with a bivariate map and is intended to foster the investigation of multivariate relationships visually and geographically. In order to analyze how geovisualization can support health research, the focus of my study is to identify specific data analysis tasks health professionals seek to carry out in a geovisualization environment. My research methods include a short series of semi-structured interviews with health professionals using ESTAT. The user feedback from this study will be used to improve and expand the ESTAT application, as well as establish the end-user needs that geovisualization for health research should fill.

Keywords: geovisualization, exploratory spatial data analysis, epidemiology

Songgang Gu, Texas A&M University. Email: gsg@geog.tamu.edu; Hongxing Liu, Texas A&M University. Email: liu@geog.tamu.edu; *Derivation of shallow-water bathymetry using remotely sensed imagery*

Remote sensing is an effective way for shallow-water bathymetry due to the relationship between the water depth and reflected radiance observed by the sensor. Several studies have demonstrated that the logarithm band-ratio is a better choice for bathymetric mapping based on the assumption that this ratio is relatively insensitive to bottom-type variation and water-quality change. However, in most situations, this ratio changes with bottom types and water quality and that assumption is invalid for bathymetric mapping within the entire scene. Moreover, attenuation coefficient of the water varies with the changing water depth in reality. We proposed a new method to effectively derive water depth by removing the effects of different bottom types, water quality and depth.

Keywords: shallow-water bathymetry, remotely sensed imagery

Qingfeng Guan, University of California, Santa Barbara. Email: guan@geog.ucsb.edu; *PGCAL: A general-purpose Parallel Geographic Cellular Automata programming library*

Most Geographic Cellular Automata (Geo-CA) models involve a set of parameters indicating multiple geospatial and non-geospatial factors, and calibration processes are needed to determine the appropriate values of these parameters to produce realistic simulation results. However, due to the very large number of combinations of parameter values and the ever-increasing amount of high-resolution geospatial data, the calibration process is usually extremely computationally intensive. To reduce the computing time without making any simplifying assumptions, parallel computing technology was considered as a solution in this study. A general-purpose Parallel Geographic Cellular Automata (PGCAL) programming library was developed for users to easily develop and

customize their own high-performance Geo-CA models without being aware of the underlying technical details of parallel computing. Several distinguishing characteristics of Geo-CA models were considered during the development of PGCAL. First, a spatially adaptive decomposition method, i.e., the quad-tree-based domain decomposition, was implemented to reduce the workload inequality among processors, which is mainly introduced by the heterogeneous spatial distribution of geographic objects over the space. Second, an “update on change” approach was used to reduce the communication overhead among processors. Third, both dynamic and static load-balancing methods were provided in PGCAL for users to choose the most efficient method according to the characteristics of the their own Geo-CA models. The PGCAL was developed in C++ based on the Message Passing Interface (MPI) library, and can be used on most of current parallel computing systems.

Keywords: parallel computing, cellular automata

Consuelo Guayara, University of Iowa. Email: consuelo-guayara@uiowa.edu; *Environmental Policies, Place, Class, Ethnicity, Gender, and Institutional Embeddedness*

I argue in this paper that researchers’ political views on environmental interventions about Amazonia are interlinked with their working and living experiences of place and the politics Amazonia as multiplicity of places play. In addition, researchers’ political views are also inextricably connected to social processes unfold in these places, and researchers’ institutional embeddedness. Amazonian images are institutionally produced by units of knowledge production with different technical relations to foreign capital and labor, with different relations of and in production that struggle to stay competitive in the production of knowledge in a twenty first century capitalism. In that sense, foreign financial assistance crucially contributes to shape the image of research about Amazonia impinging upon already uneven regional economical, social, and scientific institutional structures within countries like Colombia and Brazil. Moreover, foreign assistance creates distortions of environmental policies and practices about the Amazon. My research is based on the analysis of my data gathered during fourteen months of field work that provided the ethnographic and archival work to analyze two sets of researchers, in two different government institutions in two countries whose research work focused on Amazonia. Key terms: class, gender, sense of place, social identifications, environmental policies, institutional embeddedness, conservation

Keywords: Key terms: class, gender, sense of place, social identifications, environmental policies, institutional embeddedness, conservation, Amazonia, environmental interventions

Jeanne Kay Guelke, University of Waterloo. Email: jkg@fes.uwaterloo.ca; *Katrina and caritas: faith-based organizations’ urban visions and disaster relief efforts*

The Salvation Army and Society of St. Vincent de Paul attribute their visible first-responder status during the Hurricane Katrina disaster in New Orleans to the fact that “we were already there.” The two faith-based organizations’ disaster relief activities are examined in light of their sense of urban mission and their concepts of urban space. The massive effort by faith-based organizations (FBOs) to assist Katrina victims reactivated an ongoing public debate over the interface between church and state in the provision of emergency relief. Government funding of FBOs and their theology of mitigating human suffering suggest that FBOs will not capitulate to government’s prerogatives to safeguard its citizens; and their social justice agenda could encompass environmental restoration and sound land-use planning.

Keywords: religion, natural hazards, disaster relief, social justice

David Guerrero, Inrets. Email: guerrero@inrets.fr; *Modelling French Hinterlands: measuring deviations*

This paper explains how transport changes in the last decade have modified the relationship between ports and hinterlands in France. Data was drawn of cargo flows between French “departments” and ports, based on Customs data between 1995 and 2005. A spatial interaction model was developed to provide a set of expected results, and these were compared with the actual flows. The structure of port-hinterland cargo flows is found to be highly consistent with the spatial interaction model: most of the variation of hinterland size can be explained only by port traffic and inland distance. However, important exceptions appear when we consider different types of cargo or forelands. These “exceptional” flows are mostly those that are containerized which are found to be less “inland distance sensitive” and they contribute to distort spatial relationships of ports.

Keywords: hinterland, port, France, modeling

Andres Guhl, Universidad De Los Andes. Email: aguhl@uniandes.edu.co; *From degraded landscape to tourism heaven: history, environment and development in Villa de Leyva, Colombia*

The current state of a landscape represents how certain resources have been used in the past, and it also indicates some of the opportunities a society has for its future. The region near the municipality of Villa de Leyva is a good example of how this interaction between society and nature has taken place since pre-Columbian times. This paper will explore and how socioeconomic and political forces such as Spanish colonization and Independence among others shaped the landscape of this region by transforming its agriculture and land tenure regime, becoming a man-made desert. Landscape evolution continues to this day, but the driving forces of change are not related to agriculture but to tourism and development aid. The presentation will emphasize the last thirty years, when development aid transformed this man-made desert into a landscape suitable for intensive agriculture, that now has become a tourist destination.

Keywords: Development, Environmental degradation, History

Odeibler Santo Guidugli, University Of State Of Sao Paulo. Email: odeibler@rc.unesp.br; *Administrations and Local Spaces in The Context of Demographic Aging*

Local spaces and their administrations themes have assumed more significance. It is precisely, in the local spaces, that the exercise of power on local scale and the relations between this power and the different “local nations” become more evident. In these relations multiple dimensions need to be considered: economic, social, political, spatial and demographic. The last dimension is presented multifaceted in terms of children and adolescents, adults and the elderly. The research developed contemplated the issue of demographic aging in the municipalities of the state of São Paulo with population inferior to ten thousand inhabitants in the period considered between 1970 and 2005. In 1970 the total of the municipalities in this category was 275 and, in 2005 of 310. These values put in evidence the significance of this category of municipalities in the studies that try to Local Administrations and demographic dynamics considering the process of aging as a component of these administrations. It was used a stratified sample of 20% of the total of the municipalities contemplating variables that characterize aging and Local Administration. The results have shown challenging situations if it is considered the accelerated process of aging in these localities due to the distance and even lack of knowledge, of these changes which affects the exercise of power in terms of efficiencies and efficacies in the life of the elderly.

Keywords: administrations, local spaces, aging

Carlos J. Guilbe, Dr., University of Puerto Rico. Email: carlosguilbe@msn.com; *Wal-Mart vs Kmart New Battlefields: The Eastern Caribbean Market*

For decades, WalMart and Kmart have been defining the retail geography in many urban areas in North America. However, during the past 15 years, both multinationals has been moving to overseas markets. San Juan de Puerto Rico has been serving as a central place for many major retailers in the eastern Caribbean. Today, WalMart, Kmart as well other NACS (North American Chain Stores) are consolidating their presence in this region. This competition into new markets is transforming the economic, social and land use pattern in San Juan. This paper analyzes the geographical transformation and the reposition of San Juan within the urban hierarchy of cities in Latin America.

Keywords: Puerto Rico, Retail Geography, Globalization

Steven Guilbert, University of Wales, Aberystwyth. Email: stg@aber.ac.uk; Suzie Watkin, Univeristy of Wales, Aberystwyth. Email: ; Michael Woods, University of Wales, Aberystwyth. Email: ; Jon Anderson, Cardiff University. Email: ; *Rural Protests and Local Interests: Scales of Belonging in Rural Political Activism*

The emergence of a broad-based rural protest movement in Britain over the course of the past decade has been premised on the notion of the countryside as a scale of belonging and a focal point for collective action. Appeals to rural identity and rural solidarity have been used to build alliances between activists concerned with different rural issues (farming, hunting, rural services, housing development, etc), and in different parts of the countryside. For individual participants in rural protest activities, however, the motivations for involvement are often rooted in the immediate experiences and challenges of the rural communities in which they live, producing a dynamic relationship between the rural and the local as scales of belonging. This paper draws on empirical research conducted in several rural communities in Britain to examine how individuals understand and negotiate the local and the rural as scales of belonging, how challenges confronting the countryside are interpreted through the local, and how changes experienced within localities are interpreted through the lens of the ‘rural’. The discursive interconnection of these scales, it is argued, both facilitates and potentially limits the disposition of rural residents towards

political mobilization.

Keywords: Rural, Protest, Belonging, Local, Identity

Braxton Guinn, University of North Alabama. Email: boguinn@una.edu;
Michael Pretes, PhD, University of North Alabama. Email:
mjpretes@una.edu; South Carolina's Coastal Wetlands: Rapid Population
Growth and Environmental Change

More than half of the United States population lives in coastal counties. Some regions of the country, such as the Southeast, have had an especially dramatic increase in coastal population. Coastal counties in the state of South Carolina have seen their populations increase by 33 percent during the past two decades. This rapid population growth has significantly affected wetlands in the state. Using remotely sensed imagery, wetland polygon data, and demographic data (TIGER files), this presentation will analyze the relationship between demographic trends and environmental changes along the South Carolina coast since 1990. The presentation will also examine the state's response to these changes, and suggest ways that the state might enhance protection of wetland environments during a period of rapid population growth.

Keywords: wetlands, coastal areas, population, environment, USA-Southeast, South Carolina

Inci Guneralp, University of Illinois at Urbana-Champaign. Email:
iguneralp@uiuc.edu; Bruce L. Rhoads, University of Illinois at Urbana-
Champaign. Email: brhoads@uiuc.edu; Uncovering the Cumulative Effect of
Upstream Curvature on Planform Migration of Meandering Rivers

Current theoretical mechanistic models aimed at predicting planform migration of meandering rivers relate the meander-migration rates to local and upstream planform curvature where the influence of upstream curvature on migration rate decays exponentially with distance upstream. However, this migration-curvature relationship is based on a theoretical assumption about how curvature should affect near-bank flow velocity in a bend, rather than on extensive empirical studies. Furthermore, although the theoretical models based on exponential-weighting of upstream curvature effect yield fairly realistic predictions of bend asymmetry and translation, they are incapable of reproducing complex forms of bend evolution, such as compound looping - quite common features along meandering rivers. This paper investigates empirically the spatial relationship between planform migration and curvature along a variety of meandering rivers, some including compound loops. For this purpose, the weighting distribution of the upstream curvature effect on local migration rates are analyzed using two time-series models: (1) distributed lag model and (2) transfer function model. Then, the results from both methods are compared to verify the robustness of the distribution. Accurate and detailed planform geometry and curvature data necessary for such extensive analyses are obtained using parametric cubic spline interpolation, and then, arc-length parameterization of the planform data. The results indicate that the weighting distribution of the upstream curvature effect on migration rate may be more complex than currently is assumed. Thus, the study improves our understanding of the spatial relationship between upstream curvature and planform migration of meandering rivers, specifically those with compound loops.

Keywords: meandering, curvature, planform migration, time-series analysis, aerial photography, GIS

Diansheng Guo, University Of South Carolina. Email: guod@sc.edu;
Regionalization with Spatially Constrained Multivariate Clustering: Methodolo-
gies and Applications

Region-building has been one of the commonest problems encountered in spatial analysis (Haggett et al. 1977; Openshaw and Rao 1995; Assuncao et al., 2006). Given a set of spatial objects with univariate or multivariate values, regionalization is to aggregate the objects into a given number of spatially contiguous regions while optimizing an objective function, which is normally a measure of the attribute similarity in each region. Regionalization has been an important and challenging problem for a large spectrum of research and application domains, for example, climatic zoning, ecoregion analysis, hazards and disasters management, map generalization, location optimization, census reengineering, and health-related mapping and analysis. The research reported here proposes, implements, and evaluates a family of clustering-based regionalization methods. Two of the proposed methods significantly outperform existing regionalization methods across a set of quality measures. The proposed algorithms are fast and can find the solution in $O(n^2 \log(n))$ time.

Keywords: spatial data mining, regionalization, clustering, constraints

Qian Guo, San Francisco State. Email: qguo@sfsu.edu; Frontier Settlement
Patterns and Parallel Urban Hierarchies: The Effects of Xinjiang Production and
Construction Corps in China's Colonization of Xinjiang

An important consequence of Chinese colonization in Xinjiang, its Central Asian frontier, is the rapid urban growth characterized by two parallel urban hierarchies. One is based on traditional urban centers and provincial economic development, the other has emerged in land reclamation areas developed by Xinjiang Production and Construction Corps (XPCC), China's apparatus for frontier development in Xinjiang. This paper attempts to demonstrate that such parallel urban hierarchies are due to the unique Chinese colonization process in Xinjiang, i.e., large-scale Han Chinese settlement insulated from the indigenous groups and independent of the provincial government. As a result, two parallel urban hierarchies evolved. Since the end of the Cold War, XPCC has accelerated the development of its own urban network as an effort of retaining Han Chinese settlers through provision of urban economic opportunities and services. This trend may lead to strengthening new regional urban centers at the expense of traditional ones, and further divide Xinjiang into two segregated socioeconomic system, one of Xinjiang Uigur Autonomous Region and one XPCC. There is need to examine how such parallel developments would affect China's design for Xinjiang's economic integration and cultural assimilation.

Keywords: Xinjiang, XPCC, urbanization, urban systems

Anuradha Gupta, M.S., University of Hawaii at Manoa. Email:
agupta@hawaii.edu; Birds as Indicators for Terrestrial Conservation in Palau

The island nation of Palau has many endemic and endangered terrestrial species, however, knowledge of which terrestrial areas to protect has been limited. In 2003 we implemented a program to identify areas of high or unique terrestrial biodiversity using birds as indicators. Methods and criteria followed those developed by BirdLife International to identify Important Bird Areas (IBA). The IBA process identifies areas of global biodiversity importance based thresholds of threatened or regionally-restricted birds and congregations of shore and seabirds. Fieldwork was conducted in two phases. One phase consisted of presence/absence bird surveys using community volunteers and the second phase consisted of forest bird surveys using the more rigorous Variable Circular Plot method. Data was pooled and extrapolated to form recommendations for eight proposed terrestrial conservation areas. The resulting network of proposed areas included known populations of all of Palau's threatened and regionally-restricted terrestrial bird species and all of Palau's other IUCN-listed critically endangered, endangered, and vulnerable terrestrial plants and animals. The network also captured at least one representative area from all of Palau's major habitat types and many other known populations of endemic plants and animals.

Keywords: Conservation area, Conservation - terrestrial, Micronesia ? Palau, Island, Bird, Biodiversity protection ? terrestrial, Important Bird Area, Indicators

Penny Gurstein, Professor, School of Community and Regional
Planning, University of British Columbia. Email:
gurstein@interchange.ubc.ca; Laura Tate, PhD Student, University of
British Columbia. Email: ; Virtual Spaces, Real Lives and Places: Case
Studies to and From Canada

As companies continue to use technology to segment and redistribute work processes which were once more spatially-rooted, they also impact the lives and experiences of workers and their home communities. The changes affecting workers are not straightforward; nor are they simply one-way. And such changes are often launched from within what might be termed virtual spaces, or what Menzies (2005) calls immersive environments, wherein the essential task of re-integrating segmented work occurs. Truly understanding the relationship between virtual space and real lives and communities requires in-depth and contextually-grounded case study research. The EMERGENCE Canada research project has responded by examining thirteen case studies of outsourcing through telemediated channels, involving Canada as either the source or destination of this work, and such diverse activities as: data processing; systems and software development and maintenance; accounting and financial management; telesales; customer service; training and staff development; and editorial and design functions. This paper examines the interrelationship between the virtual spaces created by outsourcing, and real communities where impacted workers live, and proposes possible implications for evolving theories of space and place. We argue that the complex geographies of virtual spaces are a mediating factor through which workers' identities, and in turn, their relationship to their communities, are reshaped. The presentation will be augmented by video clips for a documentary in production, "Global Work, Local Lives."

Keywords: Geography of Information-Technology Enabled Services

Stephen P. Gushue, M.S. Candidate, University of Nevada, Reno. Email: gushue9@hotmail.com; *Everyday Moapa: A Graphic Discourse on the Vernacular Landscape of Nevada's Moapa Valley.*

Situated 60 miles northeast of Las Vegas, Nevada, the Moapa Valley has a storied history of occupation, settlement, and prosperity. Sizable springs have continually renewed the Muddy River, making this valley a verdant icon within the otherwise torrid and inhospitable Mojave Desert. These anomalous waters have invited succeeding populations into the Valley allowing for varied cultural landscapes to be implanted and supplanted, especially over the past hundred years. However, if the Moapa Valley is an example of constant landscape change due to long term occupation, its younger sibling, the metropolitan area of Las Vegas, waves the emblem of overkill. With Las Vegas' booming development, a centrifugal force is spinning out of the neon valley and into the surrounding rural regions. Through the inception of the Coyote Springs subdivision along U.S. 95, the Moapa Valley is the next great bedroom community of Sin City. This will, eventually, create two types of landscapes within the valley: The vernacular one exhibiting elements of the agricultural history of Moapa, and the established landscape of those seeking a home within the megalopolis of Las Vegas. By utilizing photography, cartography, archival and field research a perception and spatial location of the vernacular landscape can be determined and represented in contrast to the oncoming development.

Keywords: Nevada - Moapa Valley, Cultural Landscapes, Regional Geography, Rural Landscapes, and Graphic Representation

Greig Tor Guthey, PhD, San Francisco State University. Email: gguthey@yahoo.com; *Working for the Region: Wine Conventions in Northern California*

Deeper relationships, regional knowledge, and common productive strategies, broadly known as conventions, are said underlie economically dynamic clusters. Places like Silicon Valley have been shown to have unique cultures that generate innovations and suggest they are "learning economies." Do Similar sets of practices and understandings weave northern California wine producers into a cohesive regional complex? This paper will focus on the regional conventions of wine producers and consider their character.

Keywords: wine, regional development, california

Julie Guthman, Univ of California Santa Cruz. Email: jguthman@ucsc.edu; *Race, Subjectivity, and the Politics of Conversion in Alternative Food Movements*

In response to stinging critiques of the insularity and whiteness of the contemporary US alternative food movement, interest is swelling in making the movement more inclusive in the interest of furthering a social justice agenda. A less white movement is undoubtedly a necessary if not sufficient condition to re-imagining how the social inequalities (including health-related) and environmental problems associated with the current food system might be addressed. Nevertheless, much of the on-the-ground work remains focused on food provision, premised not only on the assumption that certain food is inherently good, but that if such food is made more accessible and affordable to people in the "inner city" they should and will obtain and eat it. This paper speculates on a possible explanation for the apparent lack of engagement among low income African Americans in these food projects. The hypothesis it entertains is that it is mainly white subjectivities that are being enacted in these alternative spaces of food provision. Specifically, it suggests that a particular set of idioms have been produced in movement spaces that are not only insensitive to raced histories but in their claims to universalisms interpellate white subjects to participate in these spaces. The pervasiveness of white bodies, white imaginaries, and white subjectivities crowds the space for other sorts of political projects and subjectivities to emerge. Therefore, the character of these efforts says much more about the subjectivities of the white advocates of these projects than those who are the objects of their conversion and enrolment projects.

Keywords: race, food, community food security, whiteness

Robert N. Gwynne, University of Birmingham. Email: r.n.gwynne@bham.ac.uk; *Upstream and downstream strategies of wine firms and local development impacts in Chile's Colchagua valley.*

This paper explores the theme of governance as it relates to the evolution of global commodity chains in agro-industry and their incorporation of wine firms in Chile's Colchagua Valley. The paper specifically examines the upstream and downstream relationships of key wine firms in a valley in which vineyard planting and wine production has grown rapidly over the past fifteen years in order to supply export markets. The paper assesses how this growth of wine exports has impacted upon local development and, in particular, local supply relationships and the behaviour of land and labour markets.

Keywords: Commodity chain, Governance, Wine, Chile, Local Development

Hoe Hun Ha, SUNY - Buffalo. Email: hoeha@buffalo.edu; Jean-Claude Thill, The University of North Carolina at Charlotte. Email: jfthill@unc.edu; *Analyzing Pedestrian Accidents with Spatial Regression and DecisionTree Induction: A Study in Buffalo, NY*

Traffic safety studies have underscored the hazardous conditions of pedestrians in this country. Pedestrian fatalities exceed ten percent of all traffic-related fatalities, while injuries incurred by pedestrian during a crash are often highly debilitating. This situation calls for increased public awareness of the pedestrian safety issue and better knowledge of the main factors contributing to traffic hazard for pedestrians. In this paper, we present machine learning and spatial regression approaches to model pedestrian accident rates. First, regression diagnostics are carried out to test for spatial dependency in the data; spatial regression models are estimated. Next, a decision tree is induced on the basis of various environmental and socio-economic conditions. The case study presented is in Buffalo, NY.

Keywords: Spatial Regression, Machine Learning, Decision Trees, Pedestrian Accidents

Barry N. Haack, George Mason University. Email: bhaack@gmu.edu; Ann Rafner, AMEC. Email: ann.rafter@amec.com; *Double Sampling with Remote Sensing: a Review and Case Study*

With the relatively recent availability of operational fine-spatial resolution imagery from satellites, there is more opportunity to conduct spatial sampling with combinations of spatial resolution data. This method is generally called double sampling with regression but has also been referred to as ratio estimation. It is also a variation or related to stratified sampling, multilevel sampling and nested sampling employed by USDA for agricultural statistics and by others for different applications. Double sampling consists of first using a coarser spatial resolution sensor to delineate a feature or features of interest such as open water bodies for waterfowl, forests, wetlands or a specific crop. For selected samples within the full study area, a second delineation is done with a finer spatial resolution system which is presumed to be more accurate. A statistical comparison of the two estimates for the selected sample areas is made and if a suitable relationship exists, a correction factor can be determined and applied to the full study area. Double sampling was fairly common in the early periods of space borne remote sensing but is less frequent recently. This presentation will review the process of double sampling and provide a case study. The case study is using the technique for determining the extent of the winter rice crop in Bangladesh with Landsat data and statistics provided for local administrative units by agricultural agents. That study provided excellent correlation between the two data sets.

Keywords: remote sensing, rice, double sampling, rice

Rebecca Haacker-Santos, M.S., SOARS-UCAR. Email: rhaacker@ucar.edu; Rajul Pandya, PhD, SOARS-UCAR. Email: pandya@ucar.edu; Annaliese Calhoun, B.A., SOARS-UCAR. Email: acalhoun@ucar.edu; *Geography and Geoscience: Working together to build a diverse scientific workforce*

Understanding and responding to the full spectrum of societal issues resulting from our increasing interaction with the planet requires developing a geoscience workforce that draws from the full diversity of the US population. Not only will this make the science stronger by engaging multiple perspectives, it will ensure the relevance of the science to all communities. In the geosciences, as in geography, participation by members of underrepresented groups is low. In order to better recruit and retain students from diverse backgrounds, we seek to form partnerships with the geographic community around the successful geoscience mentoring program, Significant Opportunities in Atmospheric Research and Science (SOARS®). The mission of SOARS is to broaden participation in the geosciences, especially atmospheric sciences. SOARS is a multiyear undergraduate-to-graduate bridge program that includes a supportive learning community, multidimensional mentoring, and a structured summer research internship. This combination of elements has proven successful; in its 11 year history, 81 of the 104 SOARS students have completed or are enrolled in graduate school. SOARS seeks to build on its current efforts to recruit geography students by offering them relevant and unique opportunities for research at the National Center for Atmospheric Research (NCAR). The presentation will describe SOARS' strategies in more detail, and will discuss research opportunities at our laboratories for students with a geography background. We also wish to explore opportunities for long-term collaborations to broaden participation in both geography and geosciences.

Keywords: diverse workforce, research opportunity, geosciences

Bethany Haalboom, M.A.; B.A., Duke University. Email: bjh14@duke.edu; **Lisa M. Campbell, Ph.D, Duke University. Email:** lcampbe@duke.edu; *Still using without losing: the Ostional sea turtle egg harvest ten years later*

In 1994-95, (Campbell 1998) assessed a legalized, commercial harvest of olive ridley sea turtle eggs in Ostional, Costa Rica, and the extent to which it exemplified two contemporary themes in wildlife conservation: 'sustainable use' and 'community-based conservation'. She found that the socio-economic benefits from egg harvesting were substantial and widely recognized by community members, and that legal and administrative structures ensured community participation in, and control of, resource use. Benefits combined with participation to gain local support for conservation of nesting sea turtles and their eggs. In 2004, Trow repeated Campbell's original survey, to assess the extent to which the benefits and perceptions of the egg harvest have changed. While perceptions of impacts have remained the same, however, some explanations for rankings have changed. Of particular note is the greater emphasis on the importance of conservation, where conservation awareness has increased and it can now be considered an important incentive for participation in the project. Applying Agrawal's (2005) theory of environmental subjectivities, this study highlights how community members may have come to view these sea turtles and their unique nesting behaviour differently by participating in a long term community based conservation project. However, while local subjectivities may be changing, and this may be linked to participation in governance of the resource, other potential motivations have to be considered. In addition, in the approximately ten year interim between surveys, a variety of social, political, and economic changes have occurred, and these changes help contextualize results.

Keywords: community-based conservation, environmental governance, incentives, participation, sea turtles, Costa Rica

Johanna Haas, J.D., A.B.D., Illinois State University. Email: jmhaas2@ilstu.edu; *Promised Land: The cult of private property as represented in early Appalachian religious practices*

Over the last century, a strong societal belief in private property has dominated the culture and economy of Appalachia. While many social forces worked together in creating this set of beliefs, the Protestant church had a predominant role in disseminating and solidifying these beliefs. A survey of sermons, hymns, and other historic sources of the mountain churches shows a dual construction of private property conceptions. First, an emphasis on a morality of traditionalism and self-reliance lead to a passive acceptance of place in the world, both treasuring ones own property rights and respecting those of others. Second, these religious documents show a literalist, fundamentalist construction leading to a strong belief in a tangible heaven where a better home literally will be granted. These religious beliefs enabled the pattern of primitive accumulation of coal lands away from the Appalachian mountaineers and into the hands of the coal companies. A promised land therefore became a literal concept, both in the here and the hereafter.

Keywords: religion, private property

Lee Hachadoorian, CUNY Graduate Center / Hunter College. Email: leehach@geo.hunter.cuny.edu; *Homogeneity Tests of Tiebout Sorting - A Case Study at the Interface of City and Suburb*

The Tiebout Hypothesis has stimulated 50 years of research into the relationship between residential location and local taxes and services. One thread in the literature attempts to corroborate Tiebout by explaining population homogeneity (an indicator of sorting) as an outcome of increased consumer choice associated with a larger number of local jurisdictions to choose from. This literature has treated an MSA's large central city as just another jurisdiction on par with small suburban municipalities. The proposed explanation is confounded by (a) sorting for reasons (such as ethnicity) having nothing to do with local taxes and services; (b) sorting based on service differentials within the central city; and (c) statistical sorting, the tendency for smaller subpopulations to be more homogeneous than the population from which they are drawn. Recent attempts to correct for this statistical artifact have failed to take into account the spatial dependence of population characteristics. Using the neighboring New York counties of Queens (a jurisdictionally unified city county) and Nassau (a jurisdictionally fragmented suburban county) as a case study, we quantify the dissimilarity between populations occupying contiguous census tracts and look to see whether sharp differences in population characteristics are more likely to be found across jurisdictional borders. We also ask how these patterns differ between city and suburban landscapes.

Keywords: Tiebout Hypothesis, residential location

Jason Hackworth, University of Toronto. Email: jason.hackworth@utoronto.ca; *Neoliberalism, neoconservatism, and the spread of faith-based social welfare in the US*

The Bush Administration has been keen to extend and create faith-based social welfare as an eventual replacement to centralized government administration of housing, welfare, and health care for the poor. On the one hand, the set of initiatives is very much in line with the politics of the Right in the US?focused on devolved governance, "family values", etc, but on the other, this has created an interesting tension between the neoconservative and neoliberal factions of his constituency. The former are wildly supportive of the measures, but the latter are skeptical because the programs do not lead to lower expenditures. As Jennifer Zeigler of the famously-neoliberal CATO institute argues, "Faith-based organizations are crucial members of civil society that need to replace the federal welfare system, not be dependent on it". This paper critically examines the tension created by this program and speculates on what it tells us about the (in)compatibility of neoconservative and neoliberal social policy.

Keywords: neoliberalism, neoconservatism, welfare

Brandon Harley Haddock, Missouri State University. Email: Haddock75@MissouriState.edu; *"Gay Camp": Analysis of Outdoor Recreation in Gay, Lesbian, Bisexual, and Transgender Culture and the Economic Impacts in the Ozarks.*

Douglas County, MO is one of the most impoverished counties in Missouri. However, the opportunities for tourism and outdoor activities in the county provide for potential economic growth to the area. Specifically, the Cactus Canyon Campground has become a national and international attraction to the Gay, Lesbian, Bisexual and Transgender (GLBT) community. Each year brings increased global acceptance of this community through the legalization of rights and dismissal of laws against the GLBT. This acceptance is tied to an increase in the visibility and specific services aimed at the inclusion and acceptance of the GLBT community. The 'power of the pink dollar', or spending power of the GLBT community, has become an important area of study in many different disciplines. This study examines the geospatial patterns of incoming Cactus Canyon Campground users and focuses on three main objectives: (1) the economic strength of GLBT tourism in the Ozarks, (2) a survey of where campground users come from, and (3) an evaluation of the economic patterns of campground users. A survey has been designed to allow comparison of travel dollar spending in the Ozarks with other travel spending by the participants. Geospatial patterns of campground users will be evaluated through thematic mapping, interpolation of actual frequency, and forecasted needs for tourism capabilities. The results of this research will be used to highlight the positive economic impact of the GLBT community on outdoor recreational activities that can increase awareness of the community and activities in the Ozarks region.

Keywords: gender, tourism geography, population, rural geography, economic geography

Gregory Haddock, Northwest Missouri State University. Email: haddock@nwmissouri.edu; **Mark Corson, Northwest Missouri State University. Email:** mcorson@nwmissouri.edu; **Jeffrey Bradley, Northwest Missouri State University. Email:** jbradle@nwmissouri.edu; *The New Old Yellowed Notes - Exploring the rate of change in digital lecture tools*

This research attempts to quantify the nature of change within various teaching styles and methodologies. New digital pedagogy tools such as online courses, online course components, presentation software, and multimedia animations take resources and time to develop. Once developed, resistance to immediate change is inevitable. Due to the dynamic nature of the discipline, resistance to change is not appropriate for geography courses, whether in human, physical, or geospatial techniques. The focus of this research is on geography faculty who have and have not developed various digital elements to their courses. The rate of development and rate of change of these items will be measured and explained.

Keywords: teaching methods, geography pedagogy

Brian Hagan, NGA. Email: haganb@nga.mil; *Geographic Names Transactional Gazetteer*

The geographic regions of Western Asia and the Middle-East are linguistically complex. The place-names by which villages, hills and rivers are called vary greatly depending on the tribe and dialect of the person speaking or writing the name. In order to accurately portray names of places and features in these areas, NGA must leverage as much knowledge from as many sources as possible. The purpose of this paper and demonstration is to show results of an NGA effort to use the power of technology and the internet, via a wikipedia-style transactional gazetteer, to collect and provide geographic name information to customers, in critical areas of the world. This on-line, transactional gazetteer will allow all internet users/customers to contribute geographic names and related information

for Afghanistan, Pakistan and Iraq. NGA's Geographic Names Data Base (GNDB) will serve as the foundation of names, with the community providing input and variations in categories such as: 1) Names and locations of geographic features not found in the NGA database 2) Variations of spellings of existing names 3) Alias names for features and places 4) Updates on geographic information for places and features 5) Source(s) of new name or information 6) More accurate geographic coordinates for names/places The paper will give a summary of the data that has been collected to-date, as well as a demonstration of the capabilities of the gazetteer.

Keywords: gazetteer, GIS, geographic names

Chris Hagerman, Portland State University. Email: hagerman@pdx.edu; Constructing a sustainable central city neighborhood in Portland, Oregon

Many cultural geographers have been critical of the ways in which powerful interests have disciplined central city spaces through redevelopment. In Portland, Oregon, a city with a history of progressive, normative environmental and urban visions, the question becomes whether to consider planning for sustainability and new livable neighborhoods in a similar light. The River District, a historic waterfront and warehousing district, has undergone extensive public planning and recent redevelopment and this research investigates the politics of care, scale and memory articulated through transformations of this material and discursive landscape. A recently opened theater, a platinum LEED certified conversion of a historic armory building, simultaneously projects ties to the city's past, sustainable design, and new forms of community. However, issues of social justice have been overshadowed as this project and the surrounding area has been recast as a new urban livable community. The armory demonstrates a spatial strategy of shifting emphasis from segregating the urban poor to redeveloping declining industrial areas within a symbolic economy that draws on appeals to sustainability, theories of the creative class, and justifications of the deconcentration of poverty thesis.

Keywords: Portland, planning, sustainability, historic preservation, social justice

Patrick D Hagge, Oak Ridge National Laboratory. Email: haggpe@ornl.gov; Marie L Minner, Oak Ridge National Laboratory. Email: minnerml@ornl.gov; Nagendra Singh, Oak Ridge National Laboratory. Email: singhn@ornl.gov; Human Interventions in Semi-Automated Approaches to Spatial Data Fusion Error Detection

LandScan USA is a high-resolution population distribution model of the United States developed by Oak Ridge National Laboratory. LandScan USA benefits from incorporating disparate datasets; however, this data fusion exposes major qualitative limitations in the input data, which, if not corrected, can result in errors in the model output. Errors in datasets include spatial errors, attribute errors, temporal errors, and functional errors. Semi-automated tools are useful for finding large errors through reconciliation of multiple data attributes against a constructed model (for example, locating all highly populated census blocks with high agricultural land cover). However, such tools are limited to identifying mathematical anomalies and have no utility in assessing the extents to which the errors need to be corrected. Human interventions are necessary to correct inaccuracies by employing qualitative judgment through recognizing the currency and lineage of certain data sets, understanding settlement patterns, and employing a healthy skepticism of attributes associated with pre-existing datasets. This paper discusses the nature of the error encountered in the data fusion process and the importance of human interventions as part of a semi-automated approach to detect, evaluate, and minimize such errors.

Keywords: GIS, error detection, data fusion

Julia Haggerty, University of Otago. Email: julia.haggerty@stonebow.otago.ac.nz; Hybrid Environmentalities and Freshwater in Aotearoa New Zealand: An exploration of multi-cultural narratives of social participation in river management

Based on the recent stewardship history of one of Aotearoa New Zealand's most celebrated rivers, the South Island's Maitai River, this paper considers the interplay between experiences in freshwater governance and subjectivities, with special attention to the influence of water's particular socio-ecological complexities. Due to the complex ways in which they are constructed and function as (natural) resources, freshwater rivers offer an opportunity to probe the boundaries and dimensions of the concept of environmentality (Agrawal, 2005) as an analytical tool. Drawing on archival materials and oral history narratives of river stewardship gathered from Maori and Pakeha communities in Murihiku/Southeast, the analysis documents encounters between socio-ecological dynamics, governance institutions, and the world views and practical experiences of river users. Evidence presented in this analysis affirms scholarship that points out the potential for nurturing environmental subjectivities through the devolution of resource control to robust local institutions. The paper also argues that environmental and political dynamics have created opportunities for synergistic

exchanges between Maori and European as well as expert and lay perspectives about freshwater ecosystems. However, this case study also emphasizes the transformative and often destructive powers of neoliberal economic ideologies, colonial histories and the biophysical qualities of river systems in mediating the outcomes of environmental governance for both subjectivities and ecologies.

Keywords: Fisheries, Water, Governance, New Zealand

Euan Hague, DePaul University. Email: ehague@depaul.edu; Edward H Sebesta, Independent Researcher. Email: ; Locating the Confederate nation: The United Daughters of the Confederacy and the Jefferson Davis Highway, 1913-1944

The United Daughters of the Confederacy (UDC) has long been engaged in a nationalist project to reposition Jefferson Davis, the leader of the slave-holding Confederate States of America (C.S.A.) during the 1861-1865 Civil War, as a hero for all Americans. Placing plaques and monuments to Davis throughout the United States, one of the major UDC efforts occurred between 1913 and 1944 when this women's organization for descendants of Confederate servicemen unilaterally named a transcontinental highway in honor of Davis. Mileposts and marker plinths were cemented along roadsides from Alexandria, Virginia to San Diego, California and from the U.S. border with Mexico to that with Canada. Claiming the Jefferson Davis Highway (JDH) as a four thousand mile long memorial to 'the great American soldier and statesman' the UDC produced booklets and maps describing the JDH and members wrote poetry extolling its path across the American landscape. This UDC attempt to relocate Confederate nationalist commemoration beyond the boundaries of the 19th century C.S.A. came at a time when white authority was being written into the cultural landscape of the United States. The UDC's efforts, therefore, comprised a nationalist project to ensure that the Confederate nation was honored throughout the United States.

Keywords: memory, nationalism, monuments, highways, United Daughters of the Confederacy, USA,

Anne Haila, University of Helsinki. Email: anne.haila@helsinki.fi; Land markets and property rights in China

In recent years several scholars analysing urban development in China have assumed that the land market has emerged in China. Instead of questioning the concept of the market, searching for unbiased empirical evidence, discussing policy alternatives and ideologies, scholars have surprisingly unanimously selected one point of view, that of property rights, and recommended the definition of property rights as a solution to make the market function better. The paper will examine and look critically this genre of studies claiming that the land market has emerged in China and recommending the definition of property rights.

Keywords: property rights, land market, China

Tina Haisch, . Email: tinahaisch@gmx.de; Christof Kloepper, . Email: christof.kloepper@unibas.ch; Tolerance and the creative class. A sympathetic critique

Tolerance is a crucial concept in Florida's theory on the creative class. Florida claims that urban regions with a high degree of tolerance are well endowed with creative class, which, in turns, boosts urban development. The objectives of the paper are the following. Firstly, we present empirical results of the conceived impact of tolerance on the creative class in 8 European countries. Secondly, our paper puts some critical remarks concerning the conceptualisation and empirical measurement of tolerance at the regional level by Florida. One issue that will be addressed is the multi-dimensional nature of tolerance. We will also show that tolerance has a different meaning in different spatial contexts. Thirdly, we will present a more in-depth analysis of Switzerland that is based on unique data of public direct votes on topic with relevance to tolerance. These data indicate that the significance of tolerance can not be easily assessed by an analysis of only one kind, and that the factor tolerance is closely linked to other factors such as long term political traditions. In addition, evidence is provided that, even though tolerance is highly correlated to creative class distribution, it does not allow to forecast spatial mobility of the creative class.

Keywords: creative class, tolerance, TTT

Jouni Häkli, University of Tampere. Email: jouni.hakli@uta.fi; Biometric identities as symbolic violence

The technologies of biometric passport control have been introduced as a security measure in the context of the War on Terror. For example, the US Visitor and Immigrant Status Indicator Technology system performs a risk calculus on passengers on the basis of database information about travellers' behaviour, financial situation, health, previous destinations, etc. Passengers are then categorized as trustworthy, questionable and dangerous. Coupled with the idea of travellers' infallible identification based on their bodily features, this calculus, and the identities it confers on a person, come to enjoy an aura of

legitimacy and objectivity. This paper argues that biometric identities created for risk profiling represent symbolic violence in the form of arbitrary defamation imposed upon various forms of otherness ranging from ethnic and religious difference to subcultural behaviour. In the aftermath of 9/11 we all have become potential suspects with our identities subject to suspicion. The institutional authority to inflict symbolic violence in the name of a heightened sense of security has gradually turned exception into a norm: we can be stopped anywhere, be interrogated on our identities, and ultimately have them replaced by ones that fit in with the narratives rooted in attempts to control risk, ambiguity and uncertainty.

Keywords: biometrics, security, mobility, body, identity, symbolic violence

Daniel M Hale, University of Leeds. Email: geodmh@leeds.ac.uk; "Their pound of flesh": job satisfaction and work-life balance beyond the family

The emergence of work-life balance as the latest manifestation of the workplace-based feminist project has focused theory and policy on those with child- and increasingly elder-care responsibilities. Contemporary policy and academic debates have reflected this to the extent that work-life balance is now shorthand for the attempt to combine work pressures and family responsibilities. Reconciling these spheres of activity constitutes an increasing problem in advanced producer economies. I argue that this conception of work-life balance, however, is structurally myopic. The oversimplification of work-life balance discourses render workers with no family or care responsibilities invisible. The paper seeks to augment the feminist 'ethic of care' which forms the foundation of the work-life balance discourse, and in doing so to pay attention to those without care responsibilities, but with competing claims on their work-life balance: younger workers. This paper uses an expanded notion of job satisfaction, one which acknowledges the importance of local family, community, and other non-work contexts in its establishment to understand the ways in which work-life balance is contested and achieved. Drawing on a series of in-depth interviews based in the legal sector in the north and south of England, this paper examines and theorises ways in which younger workers encounter and sometimes overcome discursive and structural barriers to establish work-life balance.

Keywords: Work-life balance, job satisfaction, law, neoliberalism

Beth L Hall, Desert Research Institute. Email: Beth.Hall@dri.edu; Timothy J. Brown, Desert Research Institute. Email: tbrown@dri.edu; The relationship between drought and wildfire in the US

There is an intuitive assumption that the more extreme the drought, the greater the potential for an active wildfire season. The 2006 fire season in Texas and Oklahoma is a recent good example of this, where extreme fire activity was attributed to extreme drought. This study is motivated in part to better understand the relationship of drought and fire business. Also, it is of interest to provide fire management with an indication of precipitation thresholds related to fire business. While there have been other studies relating precipitation and drought indices to fire activity, this study is further motivated to examine how effectively a newly developed dataset of high-spatial resolution standardized precipitation indices (SPI) can be related to fire business. A recent project at the Climate, Ecosystem and Fire Applications (CEFA) at the Desert Research Institute (DRI) produced an 1895-2003 dataset of SPI indices for 1-, 3-, 6-, 12-, 24-, 36-, 48-, 60-, and 72-month cumulative time frames based on approximate 4km resolution PRISM precipitation data. This dataset is related to over 200,000 wildfire ignitions, area burned and prescribed burning across the US to assess quantitative thresholds of drought related to fire for the period 1985-2003. Because of varying fuel types and seasonality, it is relevant to examine subsets of fire data and SPI values for varying times of the year, ignition causes, and geographic regions. This presentation provides results of this study and discusses the relevance of this information for decision-support in fire management.

Keywords: drought, fire, SPI

Davin Hall, University of Cincinnati. Email: halldi@email.uc.edu; Cops and Robbers in the Changing City: Examining the relationship between police presence and crime rates among gentrification

This study seeks to examine and explain variation in the relationship between crime and police presence in urban subdivisions while gentrification practices are underway. A ratio of arrests to crimes will be created and mapped in order to analyze police presence (arrests) as compared to crimes (reports). Reports of crime and police arrest reports were collected from a 44 month period (January, 2003 to August, 2006) and mapped across U.S. Census delineated neighborhood boundaries in the city of Cincinnati. Police activity, particularly as concerned with race, has been an important topic in Cincinnati for several years, and this study hopes to answer whether police are disproportionately targeting poorer neighborhoods with higher concentrations of racial minorities, and relaxing their presence in more affluent neighborhoods. Further, crime data will be analyzed to determine if changes in arrest rates or crime rates have an effect on one another, and what kind of effect this is. Gentrification practices in

Cincinnati will then be examined to determine if police are heightening their presence in areas targeted for revitalization, and if these areas affect crime rates.

Keywords: Crime mapping, policing

Heather M Hall, University of Waterloo, Ontario, Canada. Email: hmall@fes.uwaterloo.ca; Being Realistic about Planning in No Growth Communities: Challenges, Opportunities and Foundations for a New Agenda

Regional disparities, most notably of the 'heartland-periphery' pattern, have been a distinctive feature of Canadian urban geography throughout the industrial era. New regimes of economic prosperity, recessions, and restructuring in the post-industrial era coupled with demographic fluctuations have added new and accentuated divisions and disparities creating an increased gap between cities that are growing and not growing. Under these conditions, it seems realistic to expect that no-growth cities might begin to develop distinctive planning strategies centered on a theme of decline or no growth scenarios. However, this has not been the case. The City of Greater Sudbury is located in North-eastern Ontario and is best known across Canada for its original resource-based 'boom', its unsustainable mining practices and subsequent decline. The 21st-Century City of Sudbury has since evolved into a more balanced regional centre. Nonetheless, the population of the City has been fluctuating over the last 30 years, experiencing decline, slow growth, and no growth scenarios. This research determines why decline is occurring and investigates the opinions of those involved in the planning and economic development process through key informant interviews with planners, economic developers, consultants, and politicians regarding planning. The research findings document the contradictory perceptions that surround planning in no growth locales. The paper further explores the challenges and opportunities for no growth urban areas and concludes with a discussion of what might constitute alternative criteria for a New Agenda capable of generating more realistic economic and planning policy and strategy considerations for no growth urban areas.

Keywords: Growth and Decline of Cities; Urban Planning; Alternative Styles of Economic Development; Ontario - Northern; City of Greater Sudbury; Mid-size City

Jaclyn M Hall, University of Florida. Email: jhall@geog.ufl.edu; Seeing the Forest for the Trees: Change beneath the canopy in East African Rain Forests

For many East African rain forests, viewing the 55 m tall canopy from an opposing ridge gives the impression of healthy and intact forest, yet underneath are found farms, numerous stumps, sawpits and other evidence of human activities. This study investigates variations in composition and structure within the area that would be classified as rain forest, and develops methods to determine 'within land cover' change. Humid forests are some of Earth's most biodiverse and ecologically sensitive ecosystems, therefore, new satellite analysis methods must be developed in order to maximize our understanding of the spatial dimensions anthropogenic disturbance on humid forest condition. In order to understand species-level organization at the landscape level this study investigates spectral signatures of various forest conditions to integrate three spatial scales. Fine-scale species-level data from detailed field surveys are used to understand stand canopy characteristics at a meso-scale in order to generate an understanding of ecological patterns and change processes at the landscape scale. Regression and ordination are used to create indices of biological parameters of humid forest, including numerous canopy structural characteristics. The regression results also give new understanding to the spectral signature of various forest structures, which will help integrate data from multiple sensors into landscape change analyses. Index maps from images of different dates are used to characterize change within the forest land cover. The statistical methods developed by this project can be replicated to continuously map biophysical characteristics of other terrestrial ecosystems.

Keywords: forest, disturbance- forest, land cover change, Tanzania, Africa

Peter V. Hall, Dr, Simon Fraser University. Email: pyhall@sfu.ca; Disconnecting: are seaports compatible with urban sustainability?

This paper considers the technological, economic and institutional transformations that have changed the relationship between coastal cities and their seaports. During the last thirty years, the function of many urban seaports shifted from serving as gateways to their respective regions and associated hinterland, into logistics hubs that facilitate widely dispersed global trade flows. Containerization and the "just-in-time" logistics revolution in freight transportation has brought a significant redistribution of costs and benefits among port workers, neighbouring communities, local industry and global manufacturers and distributors of goods located across the globe. The resulting disconnection of seaports from host localities presents new challenges to the search for urban sustainability. Lessons from the transformed relationship between coastal cities and their sea port can illuminate the dynamics of urban paradigm shift.

Keywords: Seaports, port cities, containerization, logistics, urban sustainability

Peter Hall, University College London. Email: p.hall@ucl.ac.uk; Forward from Polynet: Anatomy of an Urban System

The POLYNET project importantly found that physical or geographical polycentricity was not the same as functional polycentricity: a region like South East England, which at first sight appeared to be dominated by London, was in fact achieving a degree of functional polycentricity because London's very success as a global city was leading it to "export" specialised functions to at least some of the fifty other city regions that constitute this particular Mega-City region. Financed by the Balzan International Prize, a follow-up study will now try to trace the evolution of the entire urban system of England and Wales since 1961, relating it to earlier historical roots. The basic hypothesis is that England and Wales contain other major polycentric Mega-City regions - West Midlands, North West England, Yorkshire, North East England, South Wales - but that they have historically evolved in ways quite different from the recent experience of South East England, and that their future prospects for similar evolution are distinctly less favourable.

Keywords: POLYNET, Urban System, Mega-City Region

Sarah Hall, Dr, Loughborough University. Email: s.j.e.hall@lboro.ac.uk; Practical theory and theorising practice: exploring the economic geographies of 'the case method'.

Following calls to acknowledge the increasingly theoretical basis of contemporary economic life (Thrift 1997), this paper explores the role of MBA programmes as intermediaries between economic theory and contemporary financial services practice. I combine fieldwork conducted in US and UK business schools and university economic departments with research on financial practitioners working in London's financial district, to explore the economic geographies of theory and practice at the heart of 'the case method'. This approach to teaching in business schools was pioneered in Harvard in the 1920s but is now widely used in MBA programmes around the world. 'The case method' involves business school faculty preparing a case study firm or scenario that students work through, typically in groups, learning economic theories and principles through their practical application, rather than through more traditional, lecture based approaches. I use this empirical material to argue that the popularity of 'the case method' is symptomatic of the changing nature of theory itself within contemporary financial service practice as more practical based theories are increasingly prioritised and rewarded. Drawing on literature from actor network inspired social studies of science, particularly MacKenzie (2006), I document the co-production of 'the case method' by both 'economists in the wild' (financial services practitioners) and 'confined economists' (economics and business school faculty). I suggest this points to the rise of a more geographically and culturally situated type of practical theory within financial services in addition to the abstract theories of financial economics more typically associated with the industry.

Keywords: Practical financial theory, 'the case method', London's financial district

Jessica Wynne Hallenbeck, University of British Columbia. Email: JessicaHallenbeck@gmail.com; The Urban Creative Food Economy; Spaces of Cultural Production and Reflexive Consumption in Vancouver

Cities are sites of consumption, but importantly, are also places where consumption is closely aligned with notions of community and history. The urban creative food economy plays an integral role in the formation of new spaces of production and consumption within urban areas. This economy emerges alongside other neo-artisanal industries to form places of visible reflexive consumption, contributing to the cultural capital of cities. This paper is particularly concerned with exploring the relationship between equity, food retailing, and neo-artisanal industries in Vancouver. The main body of this paper examines the question: What are the spatial, social, and cultural consequences of the formation of the urban creative food economy? This research question links economic and social geography theory to empirical fieldwork conducted in downtown Vancouver. The rhetoric of Vancouver as a "livable city" is often incompatible with ideas of social equity, and these tensions play out at the intersection of consumption based placemaking and gentrification processes. As the abstraction of cultural value into market value has tremendous social consequences, it is important to critically assess how the negative impacts of the urban creative food economy can be mitigated through urban planning and policy responses. Vancouver, boasting the highest amount of restaurants per capita in Canada, provides an excellent lens through which to examine the effects of the urban creative food economy.

Keywords: vancouver, food, consumption, equity

Kerry Q Halligan, UC Santa Barbara. Email: halligan@geog.ucsb.edu; Dar A Roberts, Ph.D., UC Santa Barbara. Email: dar@geog.ucsb.edu; Integrating Hyperspectral and Lidar Data for Fine-Scale Characterization of Wildland Fuels in Yellowstone National Park

Fire is a locally and globally important terrestrial process impacting vegetation dynamics and the global carbon cycle and posing human safety and property risks. High quality maps of wildland fuels are a critical component to successful fire modeling efforts for fire suppression, long-term fire planning and carbon modeling purposes. Advances in remote sensing provide for unprecedented analysis and mapping of wildland fuels. Hyperspectral data provide biochemical information on vegetation that can be used to map fuel type and condition. Lidar data provide detailed vegetation structure information which allows for estimation of critical fire parameters such as fuel loads and canopy height. In this research we evaluate the strengths of these data types and their integration for producing enhanced maps of fine-scale fuel patterns in Yellowstone National Park. New methods and tools are demonstrated for retrieving critical fuel parameters from lidar and hyperspectral datasets. Fine-scale maps of critical fuel parameters are generated for eventual inclusion into existing fire models.

Keywords: fire, fuel, remote sensing, hyperspectral, lidar, forest, conifer

David L. Halsing, M.S., U.S. Geological Survey - Western Geographic Science Center. Email: dhalsing@usgs.gov; System Modeling as a Decision Support Tool for Managing Water Resource Vulnerability in a Southern California Watershed

The Water Replenishment District of Southern California manages water resources in two hydrologic basins, the West Coast and Central Basins in southern Los Angeles County. Management activities include ground-water withdrawal, precipitation-based ground-water recharge, water importation, water distribution amongst municipal and industrial uses, artificial ground-water recharge, desalination, and water injection into aquifers to reduce saltwater intrusion. We constructed a system-dynamics model to represent the physical, informational, and economic stocks and the flows between them. Stocks include sources and sinks of surface water and ground water, human population, commercial and industrial facilities, demand for water, and economic and financial costs of water supply, replenishment, imports, and other programs like desalination or conservation. Flows between these stocks represent changes over time in the physical movement of water, number of people or firms, accumulation or reduction of water demand, and cumulative spending. Once we established the proper baseline values for these stocks, flows, and the mathematics of interactions between them, we constructed a user interface that presents water managers with a variety of inputs they may use to assess system response. These inputs may include policy options (conservation programs, increased purchase of external water supplies), demographic changes (increased migration or birth/death rates), and natural hazards (a large earthquake that disrupts water import, storage, or delivery systems). Users can modify these input parameters and calculate changes in ground-water supplies, water budget deficits, or economic impacts resulting from these perturbations. The model should thus provide a useful decision support tool for water management.

Keywords: Modeling-system, decision support, water resources, hazards-earthquake, California-southern

Christopher W Halvorsen, University of Arizona. Email: cwhalvor@email.arizona.edu; Constructing ungovernability: Popular insurgency in Oaxaca, Mexico

Recent events in Oaxaca, Mexico demonstrate the continued relevance of the spatiality of resistance for understanding social movement activism and alternative political projects. In this case, the creation of autonomous spaces is not an end to itself, but a means of transforming society. Through a strategy of spatial reterritorialization, social movement actors are able to construct alternative forms of political organization and to have more power in their relationships with the federal and state governments. We come to see the need for social movements to engage with the state as a heterogeneous sphere, which leads to a complex politics of legitimacy for both the state and social movements. This fluid movement between a politics of demand, in which social movement actors force changes in the state apparatus, and a politics of the act, in which movements construct new forms of social relations in their own sites of activism, represents the dual nature of much activism that attempts to alter spaces of resistance while at the same time negotiating with broader social structures. The broad-based popular movement in Oaxaca that has occupied the state's capital city presents an example of the possibilities of social movement projects that recognize the spatiality of politics and the need to move beyond mere resistance to form creative alternatives.

Keywords: social movements, radical politics, urban space

Sarah J. Halvorson, Ph.D., University of Montana. Email: sarah.halvorson@umontana.edu; "Lurking Evils" and "Native Offensives": Gender, Waterborne Disease and Sanitary Science in the British Raj

In the nineteenth century, the medical advisors of the British Raj pursued various tactics and strategies in an attempt to guard the health of the sons of the empire from what they perceived as a potent and disease-filled landscape of "lurking evils," "choleric attacks," and "native" offensives. This paper expands upon this history in relation to the emergence of a European-oriented sanitary science and policy as it was adopted in the cities of the Indian frontier. Drawing upon an analysis of the British Army Medical Department's Statistical, Sanitary, and Medical Reports of the 1860s, the paper charts the gendered logic underlying the project of mapping waterborne disease and environmental risk that was undertaken by the Royal Commission of the Sanitary State of the Army in India. Looking through the lens of water and sanitation policy, the paper draws attention to a racialized and gendered scientific discourse and sheds light on the interconnections among imperialism, disease, impurity and morality in the constructions of gendered constitutions of waterscape and colonial subject.

Keywords: waterborne disease, gender, British India

Hillary B. Hamann, PhD, University of Colorado at Colorado Springs. Email: hhamann@uccs.edu; Nel Caine, PhD, University of Colorado at Boulder, INSTAAR. Email: cainen@colorado.edu; Mark W. Williams, PhD, University of Colorado at Boulder, INSTAAR. Email: markw@snoobear.colorado.edu; Ken Hill, University of Colorado at Boulder, INSTAAR. Email: kenneth.hill@colorado.edu; Diurnal variations in isotopic and solute concentrations of two alpine headwater streams during snowmelt runoff

Although an ionic pulse from snowmelt has been recognized in early stream runoff from snow-covered catchments, most chemical samples are taken as grab samples on a daily, weekly, or coarser time scale. In order to identify diurnal signals during the period when the ionic pulse may be most pronounced, we collected samples every 4 hours from two alpine, headwater streams in the Colorado Front Range during the first month of three snowmelt seasons. Data from the Martinelli and Saddle catchments demonstrate that an ionic pulse from snowmelt is transmitted to streamwaters, and that diurnal variations in solute concentrations are present. Although magnitudes varied, anions of strong acids showed the largest and most rapid diurnal changes with nitrate increasing by a factor of 4.2 (13.6 $\mu\text{EQ/L}$ to 57.1 $\mu\text{EQ/L}$) and sulfate increasing by a factor of 4.5 (6.7 $\mu\text{EQ/L}$ to 29.9 $\mu\text{EQ/L}$) during a 24 hour period at the onset of melt. DOC and d18O values also demonstrated a diurnal pattern. The magnitude of these, and of most ion concentration changes, decreased rapidly during the first 7 to 10 days of streamflow as discharge increased on the rising limb of the hydrograph. The spatial and inter-annual differences in diurnal solute signals may be explained by annual snowpack and basin accumulation patterns. Our results suggest that grab samples collected early during snowmelt may be subject to larger errors than later in the season, and that pooled samples or more frequent sampling may be necessary for biogeochemical investigations.

Keywords: snowmelt, ionic pulse, hydrology, Rocky Mountains

Jennifer Hamilton, University of Montana. Email: jennifer.hamilton@umontana.edu; Rebuilding in the Midst of Disaster: An Assessment of the Response to the 2005 Kashmir Earthquake

The October 8, 2005 earthquake in the disputed territory of Kashmir was of an unimaginable scale. Many complex forces, both societal and physical, were interwoven to create a devastating situation and humanitarian crisis. The purpose of this research is to assess the damage in the valleys most proximate to the epicenter of the 7.6 magnitude earthquake. The project specifically addresses the scale and scope of damage to critical structures and infrastructure and implications for community response and reconstruction. The guiding questions of this study are: 1. What have been the impacts on the local communities and 2. How do people perceive the process of rebuilding and reconstruction? Two field campaigns were conducted over the course of seven weeks in November 2005 and May/June 2006. The valleys of study were the Kaghan, Jhelum and Neelum. This study relied upon three methodological approaches; repeat photography, interviews and field observations. Repeat photography was used in order to determine structural change (i.e., in the form of further aftershock and landslide-induced destruction or in the form of rebuilding) over the six month period between the two field seasons. Semi-structured short answer interviews were conducted during the second field expedition. Forty individuals (26 men and 14 women) were interviewed in the three study valleys. The interviews focused on the perceived impacts of the earthquake, priorities for rebuilding and perceptions of the rebuilding process.

Keywords: earthquake, hazard, Kashmir, disaster, rebuilding, relief, preception, reconstruction

Paula Hamilton, PhD Student, Department of Geography, Queen Mary, University of London. Email: p.w.hamilton@qmul.ac.uk; Transport Unions in the era of networked capitalism - commonalities and challenges to organising third party logistics companies in the USA, UK and Hong Kong

This paper focuses upon trade unions' responses to the contracting out of logistics functions and the growth of third party logistics providers. It examines common issues and challenges third party logistics providers pose for traditional trade union organisation across multiple scales. A number of embryonic trade union organising initiatives which are both indirectly and directly linked to the third party logistics service sector are also explored. The paper draws upon data analysis from interviews and participant observation with transport and distribution-related trade unions in the USA, UK and Hong Kong and with several global union federations during the period November 2005 to October 2006. It argues that, in the main, trade unions have been slow to comprehend and respond to the current and potential scale and scope of logistics contracting out across all sectors of the economy. It concludes that trade unions continue to struggle to adapt to the challenges posed by the evolving economic paradigm of networked capitalism.

Keywords: trade unions; networked capitalism; logistics service providers; United States, United Kingdom; Hong Kong; transnational corporations; global union federations; labour geography; globalisation

Stuart E. Hamilton, University of West Florida. Email: shamilton@uwf.edu; Christopher Houser, PhD, University of West Florida. Email: chouser@uwf.edu; Natahn McKinney, University of West Florida. Email: nlm5@students.uwf.edu; Quantifying volumetric and morphological changes in barrier islands using an automated comparison of event-paired LiDAR datasets

Topographic data are rarely available in the immediate aftermath of coastal storms. Traditional post-storm analyses consist of manual surveys or aerial photography. Traditional rod-and-laser topographic surveys can take many hundreds of hours to complete and lack the required spatial resolution as area increases. Aerial photography has the temporal facet required by researchers but lends itself to a descriptive analysis rather than providing quantifiable results. Lidar data is increasingly available from a number of differing sources as a base-level dataset for mapping coastal environments. Lidar has the spatial, temporal, and quantifiable qualities that allow for rapid analyses of coastal environments in the immediate aftermath of storms. This paper explores the potential of Lidar datasets and GIS in quantifying volumetric and morphological changes on northwest Florida's barrier islands before and after Hurricanes Ivan (2004) and Dennis (2005). An automated model operating in a GIS environment was developed that allows for rapid analysis of beach erosion, overwash, breaching, dune erosion, structural damage, and overall volume change on barrier islands. Lidar data from before Hurricane Ivan, after Hurricane Ivan, and after Hurricane Dennis are automatically processed and analyzed using cartographic modeling techniques. Results presented include volumetric calculations of sand loss/gain in the nearshore environment following a storm event, a profile analysis of dune structures, and measurements of washover deposits.

Keywords: gis, lidar, hurricane, coastal storms, model, impacts, dune structure, washover

Trina Hamilton, SUNY - Buffalo. Email: trinaham@buffalo.edu; Analytical Generosity and New Political Models: How a Number-Cruncher Conquered Critical Bias

There has been a wellspring of recent writing about new forms of politics, whether they be informal, networked, boomerang, and/or marketplace models. The increasing significance of these forms of politics has generated much speculation about how they measure up against (often romanticized) traditional state-centered politics. While it is clear that these alternate models do not possess the inherent capacities of territorially-organized states in providing public goods, it also seems clear that the current global economy requires more flexible and transnational governance mechanisms. In this paper I will use the example of corporate campaigns (the direct targeting of multinational corporations to "regulate" their social or environmental performance) to explore how quantitative analysis can help overcome critical bias when evaluating these new political models. After my presentation at the last AAG meetings, one of the session attendees commented on what he described as an "analytical generosity" in the number-crunching I presented, contrasting it specifically to the critical urge to either dismiss or herald new forms of politics without much analysis of their actual outcomes. While my research project makes use of both quantitative and qualitative methods, it was critical to my evaluation of the possibilities and limitations of this form of politics to start with the numbers. I will explain how crunching the numbers on a large database of campaigns resulted in more than simply a coarse description of campaign success rates, but also a better theoretical understanding of the informal regulation process.

Keywords: Economic geography, multinational corporations, quantitative methodology, critical geography

Daniel J. Hammel, University of Toledo. Email:

Dan.Hammel@UToledo.edu; *The Great American Money Machine: The New Face of Old Tactics in Predatory Lending*

Land contracts were a standard way of purchasing houses in urban areas for many years before the enactment of a series of Federal Housing Acts in the 1930s reduced the prevalence of usurious lending practices. However, it was not until the housing finance reforms of the late 1960s that poor and minority buyers were able to gain any access to mainstream mortgage capital, and only the regulatory actions of the 1980s and the new markets initiatives 1990s finally opened up mortgage markets to many who had previously been excluded. Since the early 1990s, however there has been a growing concern with subprime and predatory forms of mortgage lending focused upon those groups who composed the "new markets". Toledo, Ohio, with its sluggish economy and segregated housing market, has seen more than its share of mortgage lending problems, including the resurgence of the use of land contracts. In this study I use a large sample of land contracts issued by the now locally notorious Westhaven Group to analyze the spatial pattern of land contract activity. I provide estimates on the amount of capital that Westhaven extracted from Toledo's low and moderate income neighborhoods and follow a brief trail of money and bribes that leads to surprising places. Finally, I examine the policy moral that the story of rise and fall of the Westhaven Group provides to those who fell victim to their aggressive and usurious lending tactics.

Keywords: Housing, Predatory Lending

Benjamin Hammer, Clark University. Email: bhammer@clarku.edu;

From Neighborhood Destruction to the Formation of a Global Entity: An Exploration of the Kendall Square Urban Renewal Program

In response to President Kennedy's mandate for man to reach the moon by the end of the decade, NASA announced in 1962 that they would build their Electronics Research Center in Cambridge, Massachusetts. This decision was a triumph for the Cambridge Redevelopment Authority, which had been attempting to rehabilitate the Kendall Square region since the end of World War II. Former tenement buildings and factories were razed to make way for NASA's complex, as well as for laboratories and offices for science and engineering companies, which had been attracted to the region because of its proximity to M.I.T. and Harvard. The project became embroiled in national politics, with figures such as Ted Kennedy and Donald Rumsfeld challenging each other over the necessity of the center which ultimately led to the abandonment of the complex and its six completed buildings. The NASA structures, along with the Technology Square developments, were conceived with Corbusian ideals in mind, designed to foster uniformity in the form of tall high rises, isolated from the heart of city and its population. What was initially designed to revitalize the district ultimately destroyed the fabric of the community, displacing residents and creating an office-park mentality in what was once a vibrant neighborhood. This work addresses the events that precipitated Kendall Square's redevelopment and the strategies that were implemented to allow it to become the Biotechnology and information technology center that it is today.

Keywords: Urban Planning, Utopian Thinking, Redevelopment

Jan Hamrin, Center for Resource Solutions. Email: ; *Renewable Energy Certificates and Greenhouse Gas Offsets*

The market for renewable energy certificates has been growing rapidly for several years due to a strong interest on the part of commercial, industrial and institutional buyers. This market has been driven primarily by the buyers' interest in reducing their greenhouse gas footprint and showing their constituents they are being responsible environmental citizens. Now we see the market moving from renewable energy claims to more direct carbon claims. What is the relationship between renewables and greenhouse gas reduction? What are the issues and how can renewable energy certificates play a positive role in both voluntary and compliance markets for reducing greenhouse gases?

Keywords: renewable energy credits, carbon credits, carbon offsets

Daikwon Han, Morehead State University, Institute for Regional Analysis & Public Policy. Email: d.han@moreheadstate.edu; *Spatial analysis of breast cancer and health care accessibility in Kentucky*

Breast cancer, the most commonly diagnosed cancer and the second leading cause of death among women, disproportionately affects certain areas of the United States, including many areas within Kentucky. However, these variations are not well understood, and the factors responsible for these geographic variations have not been completely identified. To generate ecological hypotheses of the etiology of breast cancer, we will utilize methods of spatial statistical analysis and GIS to examine the patterns and causes of regional variability of breast cancer rates in Kentucky. We will evaluate the contribution of established

risk factors, environmental risk factors, and screening practices to the regional variability of breast cancer rates. In particular, the association between geographic variations in breast cancer rates and health care accessibility will be further examined, especially for those areas that warrant further detailed analysis of the possible causes of spatial and spatio-temporal variations in breast cancer rates. These regional variations may provide important clues about the etiology of breast cancer, thus leading to more effective prevention and control policy.

Keywords: breast cancer, health care access, spatial analysis & GIS

Ju Hui Judy Han, University of California - Berkeley. Email:

hanj@berkeley.edu; *Missionary Imaginations, Capitalist Deliverance: Korean/American Evangelical Missions in Tanzania and Uganda*

South Korea has recently been catapulted into the status of the second-largest sender of Protestant missions in the world, with nearly 20,000 long-term, resident missionaries in over 160 countries throughout the world. In addition, every year, thousands of South Korean and Korean American evangelicals participate in short-term transnational collaborations that often take the form of relief and economic development projects in the Third World. Based on an ethnography of short-term Korean/American missions in Tanzania and Uganda, this paper examines how the missionaries draw upon South Korea's post-war history of rapid modernization, producing unexpected affinities across geographical differences. The missionaries employ a far-reaching Korean Christian worldview?a global imaginary?in which Korea figures as a privileged actor on the world stage, instrumental in transforming their missionary destinations. Through musical concerts, prayer rallies, economic development seminars, meetings with Christian government officials, and "Christian motherhood" workshops, they actively produce connections between post-war Korea and present-day Africa. I argue that the production of the space of world evangelization is fueled not only by religious convictions but very much by the Korean/American missionaries' faith in the inevitable connection between Christianity and capitalist development, and that geographical imaginations of both the places of missionary departure and the places of missionary arrival inform and shape each other.

Keywords: Korea, religion, evangelical Christian mission, capitalist development, geographical imagination

Luoheng Han, Univ of Alabama. Email: lhan@bama.ua.edu; *Applications of Remote Sensing and GIS in Water Quality Monitoring*

The purpose of this study was to develop a transferable model that can be used to monitor water quality and model the nutrients dynamics using remote sensing and geographic information systems (GIS). The study area is Tallapoosa Watershed, which is located in eastern Alabama and western Georgia. Remote sensing techniques used include close-range hyperspectral sensing and Landsat TM data application. All data collections were conducted during the growing season over a two-year period. The models of estimating major water quality parameters, such as chlorophyll a and Total Suspended Solids (TSS), using spectral reflectance were established. Chlorophyll a maps were derived from the Landsat TM imagery. To model the nutrient loading in the watershed, the Soil and Water Assessment Tool (SWAT) model was adopted. The model computed major nutrients output for each of the sub watershed based on the land use and land cover, digital elevation, soil, and precipitation. The results from this research demonstrated effectiveness of remote sensing and GIS and how these techniques can be used in water quality studies.

Keywords: remote sensing, GIS, water quality, watershed

Songguang HAN, B. Soc. Sci (Hons), National University of Singapore. Email: hansongguang@nus.edu.sg; *A Geographical Analysis of Air Hubs in Southeast Asia*

This paper explores and examines the formation, development and the current role of airport hubs for civil aviation within the context of Southeast Asia. I explain why certain airlines and airports are more successful than others, and how hubbing is used to increase network coverage and reach. The intricate linkages between airlines that use the 6th Freedom rights and airports which situate themselves as hubs will be discussed by looking at the extent to which flag carriers contribute to airport hub formation. I also examine the operations of selected airlines and airports and the pattern of air services through an analysis of spatial networks, establishing the degree of "hubness" of the airports examined. This is achieved firstly by providing a critical understanding to the concept and definition of "hubbing", and subsequently through a network analysis of air hubs using various graph-theoretic measures and other empirical forms of analysis. This paper uses the case study of the Australia-Europe air route (also commonly known as the Kangaroo Route) to illustrate the varying importance and significance of air hubs in Southeast Asia. Finally, the findings are situated within the wider context of regionalization and globalization in Southeast Asia and various policy implications and future scenarios for civil aviation in the region are presented.

Keywords: civil aviation, airport hubs, Southeast Asia, network analysis

Ellen Hanak, Public Policy Institute of California. Email: hanak@ppic.org; *Where the Grass Is Greener: The Value of Lawn Premiums in the American West*

As rapid population growth in the western sun-belt region puts pressure on water resources, conservation is gaining prominence in water policy discussions. Residential water use in the West is high by national standards, given high evapotranspiration rates for landscape watering during the hot, dry summer months. Restrictions on landscaping options in new homes are becoming increasingly prevalent. For existing lots, some utilities are also paying homeowners to replace grass with low-water landscapes. The literature on the capitalization of housing amenities leads us to expect that if westerners value their green lawns, turf restrictions should be reflected in home prices. Using hedonic housing price regressions, this paper explores the amenity value of lawns in the greater Phoenix area, which has experienced considerable variation in turf restrictions. Landscape policies do appear to matter. Yard space in regulated lots is sold at a significant discount in the initial years after the restrictions are introduced. However, this negative effect diminishes over time, as homes subject to regulation form a greater portion of the housing stock. These findings suggest that landscape regulations may be contributing to a shift in homeowner preferences toward low-water landscapes. Such a shift is also implied by the 2003 Phoenix Area Social Survey, which found that preferences for low-water landscapes were higher in newer neighborhoods, where such landscapes were more prevalent. With a diminishing "lawn premium," the attractiveness of turf buy-back programs depends on whether the payment adequately compensates the explicit costs of landscape conversion, not the loss in amenities.

Keywords: landscaping preferences, housing market, water policy

Carol L. Hanchette, Ph.D., University of Louisville. Email: carol.hanchette@louisville.edu; Jong-Hyung Lee, University of Louisville. Email: popopo17@gmail.com; *Asthma, Air Quality and Environmental Justice in Louisville, Kentucky*

The prevalence of asthma in the U.S. has increased steadily during the past two decades. From 1997-2004, the highest prevalence rates were among children 5-17 years of age, with higher rates among females and African Americans. In 2003, the estimated prevalence of childhood asthma in the U.S. was approximately 8.8%. Kentucky's prevalence was 10.2%. We examined inpatient and outpatient pediatric asthma admissions in Louisville, Kentucky for the years 2001-2004 and analyzed their relationship with poverty, housing, and air pollution. We found that there are strong spatial and seasonal patterns to pediatric asthma admissions in Louisville. Spatial patterns coincide with poverty, poor housing conditions and African American race. Seasonal patterns are characterized by a summer trough, followed by a fall peak. We found a positive association between asthma hospitalizations and particulate matter (PM_{2.5}). Poverty, air pollution and African American populations are concentrated in western Louisville, which is close to Louisville's largest industrial complex, Rubbertown. We discuss our findings in the context of environmental justice and examine the question, "which came first, the air pollution or minority and poor communities?"

Keywords: asthma, GIS, air pollution, environmental justice, Kentucky

Max Handler, University of Minnesota - Minneapolis. Email: hand0106@umn.edu; *Political Ghosts? The Lives and Afterlives of Fishing Nets*

When fishing nets are abandoned at sea, they do not simply disperse or disappear. Rather, they can drift through the ocean and continue to fish for many years. These "ghost nets" collect at oceanic convergence zones, ensnaring each other, brushing up against other kinds of plastic debris, and attracting a wide range of foraging marine organisms. Many of those organisms - seals, seabirds, turtles, fish, jellies, and even zooplankton - are harmed when they ingest plastic objects or become entangled in plastic netting. Ghost nets thereby suggest a strange redrawing of the pelagic food web, one in which specific plastic objects take their place alongside biological organisms. The nets are the focal point around which new, plastic ecologies emerge. This melding of technology with biology is made explicit by current ghost net research, which models ghost nets as dynamic natural populations. This paper uses examples from the Arafura Sea and the North Pacific subtropical gyre to ask how politics might engage with such technical-ecological objects. It argues that current political solutions for the ghost net problem are flawed, since they rely on faulty conceptions of fishers as economically rational individuals. A wider and more productive political spectrum is opened up by taking a relational approach to fishing technology, in which agency is dispersed and the materiality of fishing nets themselves comes to the fore.

Keywords: Fishing, technology, ghost nets, marine debris, political ecology

Jim Handley, M.S., University of Wisconsin - La Crosse. Email: handley.jame@uwlax.edu; *Fair Trade Cooperatives and Guatemalan Community Development: Challenges and Sustainability*

Because of Guatemala's altitude and rich, fertile soil, it produces some of the highest quality coffee beans in the world. Its export revenue is Guatemala's primary income source and the coffee industry serves as the country's leading employer. The coffee market has traditionally been characterized by very unequal trading relationships. Small-scale family farms produce over 70% of the world's coffee. However, over 60% of the coffee market is controlled by only four multinational corporations. The Fair Trade movement challenges the fundamental inequities within international market relations, seeking producer empowerment and poverty alleviation. Fair Trade networks are comprised of four general components: producer cooperatives, importers, Fair Trade certifiers, and the retailers that engage in the Fair Trade market. The cooperatives have the potential to positively impact community development in producer communities. They also have significant challenges to overcome in the dynamic and evolving context of the Fair Trade movement. This study explores the role of Fair Trade cooperatives in community development in producer communities in Guatemala and the challenges faced by them.

Keywords: Guatemala, Coffee, Fair Trade

Don L. Hankins, Ph.D., Dept. of Geography and Planning, CSU Chico. Email: dhankins@csuchico.edu; *Prescribed Fire in Riparian Ecosystems: A Fine Scale Process*

Fire has been used for millennia by indigenous peoples of California to maintain and conserve patches of riparian ecosystems. Based on applied research utilizing seasonally prescribed fires, I have studied the effects of prescribed fires on riparian vegetation and small mammal and reptiles within the riparian corridor. The implementation of seasonally-timed prescribed burns allows for creation of a mosaic of burned and unburned vegetation. Within this mosaic I have observed an increase in cover by native vegetation. Additionally, the seasonal application of prescribed fire in the late fall yielded no significant effects to small mammal or reptile use of the burned sites. The implementation of such burning practices can be used to manage and conserve biodiversity within California's riparian ecosystems.

Keywords: Prescribed fire, Conservation, Indigenous land management

Katherine B. Hankins, Georgia State University. Email: khankins@gsu.edu; Emily Powers, University Of Georgia. Email: empowers@uga.edu; *Creating a "livable" city without evidence of the state*

Situated on the 138-acre site of the former Atlantic Steel Mill in midtown Atlanta, Atlantic Station is an example of a new urbanist, mixed-use development. When all phases of development are complete, the 'Live, Work, Play' design of Atlantic Station will host over fifteen million square feet of retail, residential, and office space, and it will include eleven acres of green space. The developers are explicitly drawing on livability discourse in their advertisement of Atlantic Station, but questions remain about what constitutes livable space in a new, privately-managed development. In particular, we ask what the relationship is between public space and livability. Through qualitative investigation including interviews with Atlantic Station residents, consumers, and employees in addition to participant observation, this research reveals the degree to which Atlantic Station provides highly regulated spaces that emphasize walkability and shopping convenience, which are celebrated by residents and consumers alike. Indeed, the "livability" of the development includes a kind of public space where people happily gather among the shops and condominiums under the gaze of private security guards. It is a public space that, by all appearances, has been severed from the state. In this paper, we explore the implications of livable spaces that render the state invisible.

Keywords: livability, new urbanism, the state

James A. Hanlon, Bowling Green State University. Email: hanlonj@bgsu.edu; *Selling the Projects: The Beginning of the End of Public Housing in the U.S.*

In this paper I examine recent trends in the design, management, occupancy, and ownership of revitalized public housing sites in the United States. Since the early 1990s, more than 200 housing projects have been slated for redeveloped into "mixed-income" communities through HUD's HOPE VI program. The replacement housing in these communities includes not only public housing but also a mix of partially subsidized and market-rate units offered for both rental and owner occupancy, the provision of which necessitates the participation of private and non-profit entities. This has entailed "selling the projects" in two closely interrelated respects. First, long-stigmatized public housing sites must be effectively marketed to both prospective (and, crucially, more affluent) residents and to a diverse array of stakeholders including local and state governments, but more importantly, investors and developers beyond the public sector?willing to bear the financial risks of participating in such endeavors.

Second, substantial portions of former public housing sites have been privatized, in that homeowners now inhabit space previously devoted to public housing, and non-public entities now play a central role in housing provision. The emergent trend of “selling” public housing raises important questions about the diminished role of the public sector in maintaining a housing “safety net” and the ability of non-public entities to take on such responsibilities. Preliminary findings suggest that not only does low-income housing provision remain a secondary priority, but also that the imperative to provide such housing is further compromised precisely by the very efforts to revitalize it.

Keywords: urban, public housing, policy

Matthew G. Hannah, University Of Vermont. Email: matthew.hannah@uvm.edu; *The under-scrutinized as a race: biopolitical dividing practices in the age of digital security*

Digital information technologies have opened up new possibilities for the division of social groups into biopolitically distinct categories. Especially since 11 September, 2001, an overriding concern with security has led governments and other entities to place a premium on detailed information regarding the identities, characteristics, locations and movements of human individuals. Those people about whom less information is available thus become a focus of particular concern and, I argue, come to be treated in much the same way that ‘dangerous races’ have been treated over the last 200 years. Constructions of the under-scrutinized in governmental and media discourses often overlap with more traditional characterizations of racial ‘others’, and involve a tangle of cultural, economic and political themes. The controversies over the federal census in West Germany during the 1980s illustrate some of the ways in which the under-scrutinized can be racialized through digital dividing practices, and how this new form of racialization differs from more familiar ones.

Keywords: race, West Germany, census, biopolitics

Cassandra Hansen, University of Nevada. Email: cassie.hansen@gmail.com; *“They Just Don’t Make Storms like This One Anymore”: Analysis of the Anomalous Record Snowfall of February 1959*

Abstract: This study examines the anomalous synoptic scale circulation during February 1959. During this month of irregular weather, a slow-moving low pressure system over Northern California produced a total of 189 inches of snowfall at Mount Shasta, CA over a six day period (13-19 Feb). This unique slow-moving, moisture-loaded storm event is infrequent, and no storm of this magnitude has been recorded on Mount Shasta since 1959. In order to better understand this anomalous weather pattern, upper atmospheric data, from NOAA, along with local snow depths were used to analyze the unique atmospheric components that were responsible for this exceptional storm. Results showed the mixture of cut-off lows and a stationary amplifying high pressure blocks which contributed to the duration and magnitude of this storm event. The surface sea level pressure was recorded as 964mb, a considerable low, along with a coupled jet streak that amplified the entire storm event. These key elements all contributed to the extreme nature of the snowfall of 1959 at Mount Shasta, perfect combination of ingredients to create a record setting storm.

Keywords: Keywords: Synoptic, Cut-off lows, High-over-lows and Jet Streak

Devon A. Hansen, Department of Geography, University of North Dakota. Email: devon_hansen@und.nodak.edu; *Women-Owned Businesses in North Dakota: The Determinants of Small Business Success*

The number of women-owned businesses in the United States has grown remarkably over the past decade. According to the Survey of Business Owners, Women-Owned Firms: 2002, women-owned businesses grew by nearly twice the national average for all firms. This national trend in business ownership is evident in North Dakota. Between 1997 and 2002, women-owned businesses grew 6.3 percent, twice the growth for all firms statewide. The growing entrepreneurial activity of women is a boost to North Dakota’s economy because of the job and income opportunities it creates. Archival data and field survey questionnaires of female entrepreneurs in rural and urban communities are utilized to examine the issues surrounding women’s business ownership in North Dakota. Survey respondents were asked about personal traits, such as education and work experience, and about firm characteristics, such as sources of financing, economic sector of firm, number of employees, and location. Preliminary results indicate that geographic location significantly influences the success of entrepreneurial activities of women. This study concludes with a discussion of the policy implications of these findings.

Keywords: Women-owned businesses, North Dakota

Ellen R. Hansen, Ph.D., Emporia State University. Email: ehansen@emporia.edu; *Practicing Feminism*

I am a feminist geographer and have made activism part of my personal mission. For the past seven years I have held a position at a small state university, in a socially conservative region, in an institution that does not offer a degree in Geography or Women’s Studies. Lack of a major has required me to expand my perspective on what it means to actively practice feminism. I am not only a feminist geographer encouraging other budding (undergraduate) feminist scholars as a mentor, but also a feminist academic with a responsibility to engage in and encourage practices that de-marginalize feminism and feminists on campus. As I see it, these practices include the ongoing work of supporting academic and women-focused programs, and exposing all my students to feminist perspectives that they would otherwise not encounter. I also am committed to work as an activist involved in political issues and other activities that might seem to be unrelated to either politics or feminism. This paper considers how academic activism may tie all these efforts together to provide an outlet for feminist practice and academic activism.

Keywords: feminist practice, academic activism

Høgni Kalso Hansen, Lund University. Email: hogni.kalso_hansen@keg.lu.se; Bjørn Terje Asheim, Lund University. Email: bjorn.asheim@keg.lu.se; *The changing composition of the creative class: the impact on regional policy of sectoral, spatial and temporal variations*

Research in the geography of the creative class has disclosed diversity in its composition. The creative class, as defined by Florida, represents a large and heterogeneous group (between 30-40% of the workforce) and is, consequently, employed in industries drawing on different knowledge bases (synthetic, analytical, symbolic). These groups of talents will have different preferences and trade-offs between firms, occupations, life-styles and places. The composition of the creative class, thus, demonstrates sectoral variations. Furthermore, most sectors display a spatially uneven distribution, which imply regional and national variations in the composition of the creative class. Differences in political-institutional frameworks add to the territorial variations in a variety of capitalism perspective. Finally, both sectoral and spatial variations will change over time due to different paths of economic development in regions and nations. Seen on the background of the sectoral, spatial and temporal variations in the composition of the creative class, the aim of the paper is to analyse which impact this has on the relationship between people vs. business climate in a regional policy context. The paper argues that regional policy must reflect the particularities of requirements of industries when promoting the business climate of regions as well as recognising the varying preferences of the workforce when improving the people climate.

Keywords: Creative class, knowledge base

Matthew C. Hansen, South Dakota State University. Email: matthew.hansen@sdstate.edu; Jiyul Chang, South Dakota State University. Email: Jiyul.Chang@sdstate.edu; Kyle Pittman, South Dakota State University. Email: Kyle.Pittman@sdstate.edu; *Monitoring global and regional croplands using MODIS data*

Monitoring croplands over large areas is a challenge. Variations in seasonality, spatial scale and intensification all limit the accuracy of global, regional and even national scale crop cover mapping. A primary limitation to cropland monitoring using remotely sensed data sets is the lack of frequent repeat coverage at appropriate spatial scales. Data from the MODerate Resolution Imaging Spectroradiometer (MODIS) sensor on board NASA’s Terra spacecraft improve capabilities for monitoring croplands. These data feature daily acquisitions at spatial resolutions of 250 and 500 meters for 7 land bands. By compositing MODIS time-series data to depict the salient, generic features of crop cover phenologies, a mapping method for annual monitoring is being developed. As a prototyping activity, a global cropland mask has been generated using 6 years of MODIS inputs. Current research focuses on specific, key global crop types, such as soybeans. Using available ancillary data sets, soy crop phenologies are being characterized and incorporated into annual global soy cover map generation. Initial results for the United States show that the MODIS data correspond well with National Agricultural Statistics Service census and high-spatial resolution map data sets. Results of the global cropland and soy cover maps will be presented.

Keywords: global, land cover, croplands, MODIS

James Hansom, co-author, University of Glasgow. Email: jim.hansom@ges.gla.ac.uk; Impact of extreme storm waves in the British Isles: modelling the processes of cliff-top erosion and deposition

During major storms in the North Atlantic, wave heights of in excess of 20m are common and have been increasing over the last 30 years. However, in spite of increasing damage to offshore installations, the impact of such extreme waves on coasts is unknown. We suggest that several types of cliff-top feature, such as individual boulder fields and organised boulder ridges, sitting atop 15-20m high cliffs along the North East Atlantic and Northern North Sea coasts of the British Isles are related to the previously unrecorded impact of extreme waves. We calculate that extreme waves from offshore arrive virtually un-attenuated at some coasts with enough energy to be capable of substantial erosional damage. We propose mechanisms to account for both the removal of rock from the cliff face under extreme wave impact at altitudes well in excess of those normally found and for the subsequent transport of boulders inland. We show major storm activity in the historic past to be responsible for the emplacement of the features but that substantial reworking occurs during modern storms in an important coastal process that has been previously overlooked on such coasts.

Keywords: Extreme Storms, waves, cliff-top erosion, model, periodicity

Brian Hanson, University of Delaware. Email: hanson@udel.edu; Roger LeB Hooke, University of Maine. Email: ; Effect of sea level lowering on ELA depression during the LGM

In paleoclimatic studies, decreases in equilibrium line altitude (ELA) suggest a change in climatic temperature. An open question has been whether one should include a correction for the lowered sea level or, alternatively, take the ELA depression at face value. During the peak of the last glaciation, studies of moraines and cirque elevations suggest that equilibrium lines were roughly 900 m lower than at present, implying a 5-6 degree cooling relative to temperatures today. Some have reduced the effective lowering of ELA by noting that sea level dropped on order of 120 m, so ELAs are only 780 m lower relative to sea level. A recent counterargument is that the troposphere would not have undergone such an overall downward shift because water taken out of the oceans would have been stacked up on land as ice. Lacking from this discussion is any attempt at a rigorous analysis of the effect of sea level lowering and ice build up on atmospheric pressure and temperature. Our goal herein has been to make such an analysis. We show that the atmospheric displacement of air by ice partly reduces the correction for sea level drop, it does not completely eliminate it. However, these corrections remain small compared to the errors in estimating paleo ELAs.

Keywords: paleoclimate, sea level, glaciers

Holly M. Hapke, Ph.D., East Carolina University. Email: HapkeH@ecu.edu; "Now is the time of rich people": State-led Development, Social Relations, and the Commercialization of Fish Markets in South India

Over the past five decades, the fisheries sector of Kerala State (India) has undergone a dramatic transformation, in part as the result of state-led development efforts to increase export earnings. This transformation has affected both production processes as well as markets networks and systems for distribution. Fish trading, once an occupation of the very poor, has become big business. This shift has been accompanied by spatial processes creating new and reworking existing structures of inequality. While it may be tempting to view these inequalities as the result of state intervention, a longer term historical perspective reveals 1) that commercialization and market formation pre-date state intervention, and 2) that individual actions and local agency have played an integral role in the particular formation of market relations in this region and sector. Fish markets are not merely sites for the exchange of commodities. Rather they are embedded in social relationships structured by ideologies such as gender, caste, and native place. These ideologies inform individual fish traders' experiences and agency in coping with economic transformation and change. Through a historical analysis of commercialization and the development of fish marketing networks in Trivandrum, Kerala, I will illustrate how state interventions, market forces, and local practices and ideologies intersect one another to produce particular outcomes of economic transformation for particular groups of individuals. In doing so, I will argue that theorizations of state-market interactions are enriched by inclusion of local agency and practices in our analyses.

Keywords: social embeddedness of markets; fisheries; state-led development; India

Jonathan M. Harbor, Purdue University and UCDHSC. Email: jharbor@cudenver.edu; Melissa Dark, Purdue University. Email: ; Deborah Bennett, Purdue University. Email: ; Carrie Davis Todd, Purdue University. Email: ; Interdisciplinary GK-12 teams working with middle school science and math in rural Indiana

The Indiana Interdisciplinary GK-12 combines the interdisciplinary research focus of Purdue University with the rural and small town learning context of three Indiana school corporations. The project aims to improve middle school

science education while dramatically enhancing STEM graduate students' experience and understanding of learning and teaching. Using an interdisciplinary team approach that is central to much current scientific research, and in direct response to needs expressed by a teacher focus group, this project emphasizes authentic problem solving in interdisciplinary themes as a way to engage student interest and develop effective teaching of STEM in middle schools. Our approach is to involve graduate fellows in science, mathematics, engineering and technology, working collaboratively in teams with middle school science and math teachers. Fellows and teachers work together in a summer professional development workshop and then modify/create, test, and implement curricular theme units using a constructivist, inquiry-based approach focused on authentic interdisciplinary problem-solving. Assessment data, examples of activities and excerpts from journal entries by fellows illustrate both the impact of the fellows on classrooms and students, and the ways in which fellows have been challenged by the realities of middle school environments.

Keywords: geographic education, education research, K-12

Carol P. Harden, University of Tennessee. Email: charden@utk.edu; Angela Danovi, University of Tennessee. Email: adanovi@utk.edu; Saskia van de Gevel-Edidin, University of Tennessee. Email: saskia@utk.edu; Ann Tillet, Carpenters Middle School. Email: ; Victoria Headrick, Carpenters Middle School. Email: ; NSF GK-12 Research Collaboration Between University of Tennessee and Carpenters Middle School in Blount County, Tennessee

Two University of Tennessee graduate NSF GK-12 fellows have collaborated with two Carpenters Middle School teachers during the 2005-2006 year, with middle school students participating in ongoing research projects led by the graduate fellows and science teachers. This poster highlights four research projects developed and conducted with middle school students. First, Carpenters Middle School students are inventorying herbaceous biodiversity within the campus wetland and natural area, collecting, identifying, and preserving specimens for inclusion within a school herbarium. This project has introduced the students to plant identification and herbarium collection skills and has resulted in a herbarium at the school. Second, students have been analyzing the radial growth of trees to document forest stand age and recruitment patterns, and to quantify the disturbance regime of Ijams Nature Reserve. Students are also comparing radial growth changes with temperature and precipitation records for the area over the past century. Third, we have begun an erosion study at several locations on the school property. Students use erosion pins to observe and quantify erosion-caused changes in the landscape, and they develop hypotheses about differences in erosion rates between the testing locations. Fourth, students are conducting water quality research using field test kits on samples collected from a local stream. Students test the water samples and maintain data in an ongoing spreadsheet. The projects have introduced students to basic lab equipment and practices and to procedures for acquiring and maintaining data sets for future analysis.

Keywords: education-graduate, education-K-12, environmental history

Lucas Hardy, Muskegon Community College. Email: hurlaky43@cs.com; West Michigan's Big Lake Influence

The purpose of this poster is to showcase the physical attributes of West Michigan and how it impacts the way people in this area live and make their livelihood. The Big Lake, that is, Lake Michigan is the main reason this area is so wonderful. A primary theme of this poster illustrates that unlike the rest of the Midwest, West Michigan has a less continental and more marine climate. This is characterized by a mild summer and a winter maximum for the precipitation. The common factor for our wet winters is locally known as lake effect. Lake breezes provide a cool respite from summer temperatures. This entices tourists to vacation on West Michigan beaches. Lake Michigan provides just the right mixture of mild temperatures and clear skies to promote a literal cornucopia of produce, from cherries in the north, to blueberries in the middle, to grapes in the south, and apples throughout the west. It should be noted that West Michigan is a delight for anyone who loves the outdoors. That applies for all seasons, because here, they have the best of each one. There is fishing and hunting for various game available year round, a tulip festival in the spring, hundreds of miles of sandy beaches both on the big lake and inland lakes to enjoy in the summer, beautiful trees and apple cider in the fall, and in the winter people can go snowmobiling, ice fishing, Nordic skiing and even luge.

Keywords: keywords

Christopher Harker, University Of British Columbia. Email: charker@geog.ubc.ca; *Always house demolitions, never home demolitions: (re)making home-space in Birzeit, Palestine.*

In this paper I will work through two particular occurrences of what are commonly referred to as house demolitions to explore processes of home making and unmaking in the village of Birzeit, Palestine. In doing so, I will argue that a focus on house demolitions when discussing Palestine constructs a space of visibility that is violent, albeit a violence that is carefully anaesthetized (always house demolitions, never home demolitions). As the second of my examples will show however, it is possible to talk and write about Palestine in other registers, which in regards to processes of home-making seek to emphasize duration and the quotidian.

Keywords: Birzeit, Palestine, Home, House, Quotidian Geographies

Grant Logan Harley, University of South Florida. Email: glharley@gmail.com; Philip Reeder, PhD, University of South Florida. Email: preeder@cas.usf.edu; *An Analysis of Cave Sediments from Jennings Cave, Marion County, Florida: Geomorphic Implications*

Since it is known that cave sediments can be used as indicators of geomorphologic changes that occur during karst landscape evolution, an analysis of these sediments can provide primary geomorphic information about transportation mechanisms, depositional history, and landscape and cave formation. This project attempts to provide insight on certain topics regarding Jennings Cave, Marion County, Florida. Before 1,870 years ago, the sediment that was being transported to the collection site, some 100 meters from the entrance, consisted mostly of fine-size to medium-size clay and silt deposits. However, around 1,870 years before present, certain climatic events caused the sediment input to the collection site to change. Unfortunately, little research has been completed on the landscape of west-central Florida, with past research focusing on the Dames Caves area, Citrus County, Florida, and Briar Cave, Marion County, Florida. In-depth research on Jennings Cave and the surrounding environment is necessary in the attempt to understand the evolution of the west-central Florida's karst landscape.

Keywords: geomorphology, cave sediments, Florida

Sophia A. Harmes, University of Delaware. Email: sharmes@udel.edu; *The Benefits of Increasing Food Security Through Sustainable Agricultural Production Based on Traditional Agricultural Methods*

Food security has increasingly become an issue for a large majority of households in developing countries. Scientific advances and agricultural technologies designed in the developed world may not be the right prescription for increasing crop production in Sub-Saharan Africa. This paper addresses this issue by identifying the benefits of implementing traditional agricultural methods as an alternative means to establish sustainable agricultural production to increase food security in the Eastern Province of Zambia.

Keywords: Sustainable, agriculture, food security

John Harner, University of Colorado. Email: jharner@uccs.edu; Edith Jimenez, Universidad de Guadalajara. Email: edith.ejimenez@gmail.com; Heriberto Cruz Solis, Universidad de Guadalajara. Email: hpk99@hotmail.com; *Contradictions in the Ownership Society: Housing and Urban Growth in Guadalajara, Mexico*

State funding programs and a deregulated market in Mexico have greatly increased the number of "popular" houses in the formal market. Yet in spite of these increases, illegal settlements continue to be a major path to home ownership. In this paper, we measure the land area, number of tracts developed, and population in four categories that depict dominant housing development processes and different incomes targeted in Guadalajara, Mexico. We next analyze the contemporary housing landscape. The production of urban space and the resultant urban landscape have changed most dramatically with the implementation of the neoliberal discourse that shifts housing from a public service to an investment commodity. The private housing sector is driving development of increasingly exclusive and segregated enclaves for the wealthy, yet contradictions between these privatized worlds and other forms of housing lessen the ability of the state to consolidate the neoliberal development discourse. The contemporary housing landscape brings to question the ability of these policies to service low income residents and build a sustainable urban environment.

Keywords: Mexico, housing, Guadalajara, neoliberalism

James W. Harrington, Professor, University of Washington. Email: jwh@u.washington.edu; *Skill-Development Pathways*

The objective of the research project is to compare the sources (by type and location) of software professionals' training, across regions, industrial sectors, and personal characteristics. This research takes an institutional approach to the individual's gaining and using occupation-specific skills, and to the local availability of occupation-specific labor (through training and through

migration). The current paper relies on secondary research and a survey of software professionals to determine regional variations in the sources and support of these highly skilled workers.

Keywords: institutions, labor, occupations, regional development, software, training

Andrew J Harris, University College London. Email: andrew.harris@ucl.ac.uk; *From London to Mumbai and back again: gentrification and public policy in comparative perspective*

This paper uses a comparative survey of two similar sized, centrally located and previously predominately industrial areas, Bankside in London and Lower Parel in Mumbai, to explore the role of public policy in a globalised 'third-wave' of gentrification. It firstly traces how the gentrification of Bankside since the mid-1990s has been accelerated by major inputs of public money and the explicit support of national and local government. Similar, it outlines how Lower Parel's rapid transformation over the last five years has been instigated by corporate-governmental alliances and the fashioning of new neoliberal planning agendas often directly modelled on London precedents. However, the paper also highlights the comparable lack of a frame of historical reference for gentrification in Mumbai beyond colonial antecedents, and an accompanying important role for Lower Parel's gentrification in a dramatic fracturing of Mumbai's political and economic landscape. The paper argues that the endemic financial irregularities, violent negotiations and severe dislocation of social reproduction that have characterised Lower Parel's recent gentrification offer salutary lessons for policy-makers - and researchers ? in cities such as London.

Keywords: India, London, gentrification, neoliberalism, postcolonial urbanism

Dylan Reed Harris, University of Richmond. Email: Dylan.harris@richmond.edu; *Examining the Urban-rural interface in South Florida using Landsat imagery*

The population of the greater Miami-Dade region of Florida has risen dramatically in the latter part of the twentieth century. This population boom has increased pressure on the available land in the region, both on resources and available living space. This study examines changes in land use/land cover (LULC) in the southern part of Miami-Dade County between 1986 and 2002. A time series analysis is performed using multi-year Landsat data. Using the Erdas Imagine software suite, LULC classifications are performed on each of six different images acquired between 1986 and 2002, using a combination of supervised and unsupervised classification techniques combined with vegetation indices derived from the remotely sensed imagery. Changes in landscape structure illustrate how increased land utilization can be linked to increased population pressures from the surrounding urban environment.

Keywords: South Florida, remote sensing, GIS, Landsat, urban-rural interface

Glenna C Harris, University of Toronto. Email: glenna.harris@utoronto.ca; *Citizens at school: Ontario teachers' perspectives*

The past decade has witnessed an increased interest in character and values education in public schools, promoted as a solution to classroom challenges faced by teachers and has been framed as education for citizenship. Other school boards often employ similar extra-curricular activities to encourage responsible behaviour development and academic success among their students. Through such programs, character traits such as responsibility and fairness are integrated into school programming in addition to the mandated public school curriculum. In Ontario, many school boards have independently taken up character education as well as similar programs, and in 2006 the Ontario Ministry of Education announced a plan to integrate character education programming in schools across the Province as a method of guaranteeing student success and 'value-added' education in Ontario. As children's citizenship continues to gather interest among educators, such initiatives provide a worthy investigative focus for understanding the school as a space where citizenship is learned. Drawing on qualitative interviews conducted with teachers in 3 different Ontario school boards in 2006, this presentation will examine how citizenship is articulated through curricular and extra-curricular programming in the school, including character education. These experiences lead us to understand how the school functions as a site of learned citizenship, often in tension with Provincially-scaled programming mandates and children's private experiences outside the school and at home.

Keywords: education, teachers, citizenship, values, school

Kimberly Marie Harris, University of Missouri-Columbia. Email: kmb3bd@mizzou.edu; *National Identity and Nationalism in speeches given by Al-Qaeda leaders*

National identity and nationalism have long been utilized by political leaders to control state territory. Stateless terrorist groups such as Al-Qaeda also draw upon notions of national identity to make claims to territory. This study explores how Al-Qaeda leaders Osama bin Laden and Ayman al Zawahiri invoke

images of national identity and nationalism in speeches to further their base and gain more control of territory. We utilize content analysis of transcripts of Al-Qaeda speeches to uncover defined themes of territory and national identity. The findings have implications for our understanding of terrorist goals and the relationship between terrorist leaders and followers.

Keywords: national identity, Al-Qaeda, speeches, qualitative content analysis

Leila M Harris, University Of Wisconsin, Madison. Email: lharris@geography.wisc.edu; Gender and Emergent Water Governance Regimes: Comparative Overview of Gender Dimensions of Privatization, Devolution, and Marketization

This paper provides an overview of themes and approaches based on a comparative reading of the literature on gender dimensions of emergent water governance regimes, specifically those related to privatization and marketization of water resources, and devolution and participatory management regimes. Part of the analysis will involve discussion of institutional issues and approaches, for instances, ways that different governments have responded to directives of international bodies and agreements, such as the Dublin Water Principles, or mandates of the International Monetary Fund. The conclusion will reflect on the body of research on these themes, issues of importance that are revealed by comparative analysis of issues and implementation across contexts, and implications of work for geographic approaches to neoliberalism and nature, and participatory environmental governance more generally.

Keywords: water, neoliberalism, privatization, gender, environmental governance

Philip M Harris, U.S. Bureau Of the Census. Email: philip.m.harris@census.gov; Renuka Bhaskar, U.S. Bureau of the Census. Email: renuka.bhaskar@census.gov; Detailed Place of Birth Reporting Among the Foreign-Born Population of the United States in the 2006 American Community Survey Content Test

What can detailed place of birth tell us about the foreign-born population in the United States? While some attention has been paid to subnational differences in source country characteristics and the selectivity of immigrants, most demographic, quantitative studies of international migration usually focus on country as the unit of analysis. In the United States, much of this country-focused immigration research proceeds with limited information about the socioeconomic characteristics of persons living within those foreign borders. However, because of the social, economic, and demographic diversity within source countries, and as the number of people from a particular country grows, the usefulness of only knowing their country of birth diminishes. Therefore, detailed analysis of foreign place of birth may help to refine assumptions and methods that currently use only foreign country of birth as a component as well as chart migration streams. This paper will analyze responses to the section of the place of birth item that asks for city, town, or village of birth. The analysis will use spatial mapping of respondents' places of birth for Mexico, the Philippines, China, India, and Canada. Data will be used from the 2006 National Content Test of the American Community Survey. We expect the results of this analysis to show disproportionate migration from particular places as well as differences in individual characteristics by detailed place of birth.

Keywords: Foreign-Born, Place of Birth, City of Birth

Trevor M. Harris, West Virginia University. Email: trevor.harris@mail.wvu.edu; L. Jesse Rouse, West Virginia University. Email: jesse.rouse@mail.wvu.edu; Susan J. Bergeron, West Virginia University. Email: sue.bergeron@mail.wvu.edu; Humanities GIS and the Geospatial Semantic Web: toward a convergence of Digital Humanities and Geospatial Technologies

Humanities Geographic Information Science (Humanities GIS) represents a broad range of activities primarily focused on how best to integrate the humanities with geospatial technologies. The significance of location and spatial relationships in the humanities underpins the linkage to a geospatial approach. With the evolution of the Internet built on an emerging Service Oriented Architecture (SOA), Web Services are at the heart of much of the new Web 2.0 growth and it is apposite that humanities computing should be ready to take advantage of the these new technologies. Through the linkage of geo-spatial and web services the potential exists to do more than transition digital humanities along an incremental pathway but to leapfrog into a convergence of Humanities Computing, Digital Humanities, and Humanities GIS. This paper discusses the design and implementation of a server-based Humanities GIS that will integrate and synthesize humanities and spatial data. We propose combining the spatial functionality of GIS with the emerging technologies of the Semantic Web and Humanities GIS utilizing a Geospatial Semantic Web as a platform for integrating and synthesizing the wealth of humanities and spatial data available through the WWW. The platform will serve to integrate, display, and analyze humanities data in a spatially-enabled format and for querying and serving data through a

semantically-linked web interface. Our goal is to allow humanities researchers to leverage semantically-enabled web services from a variety of disparate sources, to integrate these sources within the GIS client, conduct analyses, and display and disseminate the results via Web Services.

Keywords: gis, geospatial web, digital humanities

Jill Harrison, University of Wisconsin-Madison. Email: harrison@drs.wisc.edu; Apolitical Food Politics?: By Turning a Blind Eye to Farm Labor, Alternative Food System Advocacy and Popular Food Literature Risk Missing the Mark on Justice

The recent growth of alternative agrofood system advocacy and the current flood of popular food writing both have undoubtedly brought long-overdue awareness to critical problems in the current food system. One common underlying assumption of authors and advocates is that justice can be found through making the right personal food choices. While alternative food markets clearly help to address some key economic and ecological problems, they fail to confront what is arguably the point of greatest injustice in the food system: the conditions of farm labor. By turning a blind eye to the problematic social relations that form the foundation of most conventional (and many alternative) forms of food production, the recent burst of alternative food system advocacy and popular food literature risk missing the mark on justice in a most troubling way: namely, by promoting an individualized form of politics that absolves the state of its responsibility to ensure the conditions of social justice. Drawing on historical analyses of domestic farm labor markets and my own current research on the construction of farm labor difference and disadvantage, I argue that the reliance on consumption politics and the propensity to sideline labor issues are particularly dangerous within the current anti-immigrant climate - unwittingly reinforcing the nativist and marginalizing work of anti-immigrant activism. The path to justice will surely extend far beyond our food purchasing choices - indeed, beyond the borders of the food system itself.

Keywords: agriculture, food systems, farm labor, social justice, immigration, environmental justice

John Harrison, University of Loughborough. Email: j.harrison4@lboro.ac.uk; Stating the Production of Scales - Centrally Orchestrated Regionalism, Regionally Orchestrated Centralism

Esposued in the language of the new regionalist literature, our conceptual understandings of decentralisation to subnational tiers of governance has been dominated by the dual metaphors of 'hollowing out' (the nation-state) and 'filling in' (at the regional scale). In this paper, I argue that despite the important role that these metaphors have played in providing conceptual understandings of local and regional economic development, their capacity has not been extend beyond a linear and one-dimensional scalar understanding of regionalisation. Drawing upon empirical research that sought to develop a multiscalar analysis of regional institutionalisation, this paper forwards two new scalar notions - centrally orchestrated regionalism and regionally orchestrated centralism. In the first instance, centrally orchestrated regionalism reflects our conventional conceptual understandings of local and regional economic development through the exploration of the relationship between the central state and regions in processes of regional economic development. This paper illustrates how through centrally orchestrated regionalism, the state can promote local and regional economic development while simultaneously preventing it from flourishing. Taking this idea forward, this paper then makes the argument that these same processes of centralisation that characterise centrally orchestrated regionalism are actually present regionally with regional agencies actively centralising competencies from subregional/local partners. Critically then, regionally orchestrated centralism is seen to actively reverse the trend of devolution in order to institutionalise a regional tier of economic governance by reducing the capacity for local decision-making and for locally responsive implementation of policy initiatives.

Keywords: Regional geography, scale, centrally orchestrated regionalism, regionally orchestrated centralism

Michael Harrison, Ph.D., University Of Richmond. Email: mharriso@richmond.edu; The Role of ENSO in the Development of the Precipitation Regime of Easter Island (Rapa Nui)

Easter Island (Rapa Nui in the native tongue) is an extremely isolated island on the easternmost fringe of Polynesia, approximately 3000 km west of the South American continent. Believed to have been settled approximately 1000-1200 years ago, the inhabitants of the island evolved from the seafaring Polynesian island inhabitants further to the west. It is well known that the El Niño-Southern Oscillation (ENSO) affects the circulation patterns over the Pacific Ocean, and it has been further speculated that ENSO-based alterations in the surface winds could have altered the migration patterns of seafaring peoples on the Pacific. In addition, changes in surface winds might be linked to precipitation changes over a given region, which in turn can impact the development

patterns of isolated islands whose primary source of potable water is directly tied to precipitation. This study examines the extent to which ENSO impacts the precipitation patterns of Easter Island. Monthly rainfall data is correlated to several well understood ENSO indices, such as the Southern Oscillation Index (SOI), central Pacific sea surface temperature anomaly data, and the composite Multivariate ENSO Index (MEI). Multiple sets of lag correlations (+/- 36 months) are created for each index. The results show that there are no significant ENSO correlations present in the Easter Island precipitation data, contrary to what might otherwise be assumed given the location of the island within the greater Pacific context. This forces a reevaluation of the role of ENSO in the colonization of the trans-Polynesian region.

Keywords: ENSO, precipitation, Polynesia, Easter Island, hydroclimatology

Bethany I Hart, M.S., Kent State University. Email: bhart4@kent.edu;
Carol J Hochstetler, M.S., Dalton Local Schools. Email:
mchochstetler@earthlink.net; Engage, Interact, And Inspire: A Two-Week Journey Into The Hydrologic Cycle Through Inquiry

Water is a precious commodity, and there is a limited amount of groundwater and surface water available for human consumption. Therefore, it is essential for students to understand the hydrologic cycle and conservation of water at an early age. However, traditional methods of graphical illustration may not be adequate to convey the message of the hydrologic cycle to students. This curriculum unit engages students through authentic activities such as discussions, analyses of real data, laboratory activities, model development, and debates of current environmental issues. Such activities accommodate diverse learning styles and encourage student interaction with materials and peer collaboration. Content includes precipitation, evaporation, condensation, sublimation, water transport and storage, and water conservation; learning occurs through students' critical evaluation of activities and results. Through this process, students become more responsive to the subject and begin to ask more critical questions concerning the world around them. Through the implementation of inquiry-based techniques, students become more engaged in learning by obtaining quantitative and qualitative data, than through rote memorization of textbook facts. When previously presented in a seventh grade classroom, the lessons proved successful by providing tactile, visual, and graphic representations that increased student familiarity with subject matter and enhanced environmental awareness. Such education is of particular interest because it aids in the development of integral cognitive skills and empowers students to become environmentally conscious members of society.

Keywords: water cycle, hydrologic cycle, education, inquiry, GK-12

Rudi Hartmann, University of Colorado at Denver. Email:
rudi.hartmann@cudenver.edu; The Issue and Problems Based Approach to Teaching Regional Geography

One of the oldest traditions in geography, the regional studies tradition, offers a great potential for the introduction of a fairly new approach to teaching geography: the issue and problems based approach. Over the years I have used this approach in many instances, for the one-time introduction of a selected 'problems' theme to a complete course designed for a whole semester, for instance, as an advanced "World Regional Problems" class. What kinds of themes are appropriate for the introduction into the geography classroom, in particular, when regional studies are the main focus? It can be a local/home area studies problem, for instance, employee housing needs in an upscale Colorado mountain resort, or a problem that has importance for humanity as a whole. In many classes, in World Regional Geography as well as in the Geography of Europe, I have introduced the issue of managing memorial sites of atrocities, for instance, of singular massacres and/or forms of genocide of the past in contemporary society. I have devised ways of introducing such 'places of horror' in the geography classroom. Future mega events in a given country, such as the Summer Olympics in Beijing 2008, may be addressed in regional geography classes as well. Finally, issues and problems can be also discussed on a comparative regional level, such as the development of ecotourism in Eastern Africa, Central America and/or Antarctica.

Keywords: Geographic Education, Problems Approach, Regional Geography

Anya Dawn Hartpence, South Dakota State University. Email:
anya.hartpence@mchsi.com; Geography of Debauchery: Historical Geography of Prostitution in Deadwood, SD

The "Wild West" conjures different ideas for everyone familiar with the concept. This paper explores the city of Deadwood's relationship with women settling in the area and the social stratification of prostitution. It will give an historical and often unsettling account of the Wild West's sex industry and provide geographic perspective to Deadwood's red light district.

Keywords: Prostitution; historical geography; settlement; women's studies; Wild West

Joel Hartter, University of Florida. Email: jhartter@ufl.edu; Household and Landscape Level Impacts of Protected Area Establishment: The Case of Kibale National Park

The establishment of protected areas can have long term impacts on the landscape and livelihoods of people living near them. Outside Kibale National Park in western Uganda, rapid population growth, high population density, and heavy reliance on agriculture for income characterize the landscape. Although the park itself is completely surrounded by agricultural land, a network of forest patches, papyrus swamps and other wetland areas is scattered throughout the agricultural landscape that serve as important resource bases. The natural resource dependent livelihoods of these communities are complex and difficult to describe within a single methodological and theoretical construct. Household demographics, local culture, resource availability, and other factors must be considered at multiple scales in order to accurately describe changes in land use and land cover over time. To do this, a more integrated, mixed-methodology approach is necessary. This paper discusses the application of social science and landscape ecology concepts to understand the impacts of park establishment on the surrounding landscape. It further discusses the development of a geographic approach useful in agricultural landscapes to examine both household and landscape level scales.

Keywords: forest fragments, wetlands, parks, human dimensions

Elaine Hartwick, Framingham State College. Email:
ehartwick@frc.mass.edu; Eco-Cosmetics

Eco-Cosmetics has become a new niche market for cosmetic companies, like Aveda, owned by Estee Lauder. Taking a cue from the marketing of "fair trade" coffee, eco-cosmetics are advertised as 'environmental and indigenous friendly'. This paper critically examines these claims. It deconstructs the 'eco' in eco-cosmetics and explores the extent to which the claims made have validity. Is it possible for capitalism to learn from criticism and reconstruct itself in anything approaching a fundamental way?

Keywords: "fair-trade", consumption,

Donna A Hartz, Arizona State University. Email: donna.hartz@asu.edu;
Anthony J Brazel, Arizona State University. Email: ; Lela Prashad,
Arizona State University. Email: ; Brent C Hedquist, Arizona State
University. Email: ; Jay Golden, Arizona State University. Email: ;
Estimating Urban Microclimate Variability at a Neighborhood Scale

Estimations of neighborhood scale air temperatures based upon measurements taken at widely spaced weather stations do not adequately register microscale neighborhood variability. This study shows how the use of remote sensing classification techniques with hand-held infrared thermography and satellite (ASTER) images can produce better estimates of this variability. Data used are from Phoenix, Arizona, an arid city that has experienced explosive growth during the past 50 years. The metropolitan area with a population of over 3.5 million also has a significant urban heat island (UHI) of upwards of 6°C. The city's complex, heterogeneous urban fabric also produces considerable air temperature variability at a neighborhood scale, where temperatures can vary upwards of 3°C in short distances. This combination of techniques show promise in estimating microclimate temperature variability at the neighborhood scale.

Keywords: Urban Climate; Remote Sensing;

C. Mimi Harvey, Denison University. Email: harveyc@denison.edu;
Yeong-Hyun Kim, Ohio University. Email: kimy1@ohio.edu; Keeping the Gateway Shut: Global City-ness and Indonesian Migrant Workers in Seoul

This research examines the absence of immigration in the global city formation of Seoul, the capital city of South Korea. Seoul has been considered an emerging economic powerhouse in the Asian Pacific, owing greatly to the Korean government's mega urban projects to boost the city's international status. However, Seoul in ethnic terms is a strongly Korean city rather than a cosmopolitan one. Almost all residents of Seoul are native-born Koreans, while foreigners make up a mere one percent of the population. We argue that Seoul's lack of ethnic diversity and multiculturalism is an intended outcome of the Korean government's restrictive policies on labor migration and immigration. The Korean government's role in keeping the gateway shut to immigration is examined through a case study of Indonesian migrant workers in Seoul. Since the mid 1990s, an estimated total of 30,000 Indonesian workers have migrated to Seoul, meeting a growing demand for low-skilled, low-wage jobs. They have encountered unmistakable political reluctance to allow migrant workers to settle there. The research draws on a series of in-depth interviews with the Indonesian migrant workers, many of which have become illegal under the strict guest-worker measures, including the Industrial Training System and Employment Permit System. Given a sharp shortage in the domestic labor market, it is very doubtful that Seoul could remain closed to migrant workers in the future. Indeed, migrant communities, including Indonesian one, have begun to emerge in the

outskirts of Seoul.

Keywords: global city-ness, cosmopolitanism, Seoul, Indonesian workers

daina cheyenne harvey, Rutgers University. Email: dharvey@rutgers.edu; daina cheyenne harvey, Rutgers University. Email: dharvey@rutgers.edu; Remembering the Forgetting of New Orleans

The urban trauma inflicted upon New Orleans has unambiguously reminded us that certain spaces in the city are more vulnerable than others, not only physically but also discursively. Climatic events like Katrina push marginalized spaces into the view of the larger society. They force us to try and understand spaces and places that we have been socialized to not attend to or have long ago forgotten. Every urban area has these types of spaces. New Orleans, because of its unique topography, seems to have more of these types of spaces than other American cities. The devastation of these spaces reveals a facet of urbanism that has long been ignored: the crisis of urban memory. While not oblivious to other discussions regarding the rebuilding of New Orleans that center on poverty, race, the shortcomings of various administrators, or the possibility that many of the New Orleans diaspora will not, or perhaps should not return, this paper takes as its starting point the idea that urban analysis needs to be recast and that New Orleans and Hurricane Katrina offer an appropriate framework.

Keywords: space, Hurricane Katrina, urban trauma, urban memory

Francis Harvey, University of Minnesota - Minneapolis. Email: fharvey@umn.edu; Nowhere is everywhere? Towards post-modernist ubiquitous computing-based geographic communication

"There's no there there" quipped Gertrude Stein when she was unable to find her childhood home in Oakland, CA while on lecture tour in the United States. This quote has since evolved to be understood as an indicator of the characterlessness of urban and suburban areas in United States—a vast nowhere resplendent in mediocrity, cheap food, and strip malls. Google Earth enters this scene and fulfills a deeply rooted desire to elevate any strip mall, any shopping center, any 5000 place car park onto a ethereal plane of virtuality within the reach of all networked citizens—erasing geographical difference and turning experience into the process of scale, rotate, click, and zoom through. Google Earth entices localities that aim to be as virtual as any other image of geography on Google Earth and transcend their place-bound constraints. This paper suggests that the allure of Google Earth is significant in changing the political economy of local government self-presentation, but may turn out to have the same staying power of many past innovative technologies used to represent local government in the US, for example, electronic voting and interactive local government television, neighborhood C-Span. However, the commercial orientation of Google Earth products suggests that it may achieve lasting staying power. By making the virtual world of online geographic visualization affordable and attractive, Google Earth affords nowheres everywhere a future place on the screen. Getting beyond the screen and becoming a 'place' remains the challenge for for computationally based communication.

Keywords: Mapping virtuality GoogleEarth

William Harvey, University of Cambridge. Email: wh234@cam.ac.uk; British and Indian social networks: the story of Boston's biopharmaceutical industry

This paper emanates from some extensive micro level empirical research conducted on highly skilled immigrants. The paper analyses the professional networks of British and Indian scientists working in biopharmaceutical firms around Boston. The findings are a result of over two hundred structured interviews carried out in 2006. Despite the global origins of these scientists, their closest professional networks are with people who live locally around the Boston area. Indian scientists network more actively on a local level than British scientists when looking for new job or business information. They also show a greater tendency to network globally, for example they communicate significantly more with people from their home country than British scientists. This is surprising given that biopharmaceutical companies around Boston have many more collaborations with the UK than with India. In addition, British scientists travel to the UK more regularly than Indian scientists. Surprisingly, although British and Indian scientific associations exist within the regional economy, they are not well supported and are relatively insubstantial in size and scope. In spite of the large number of British and Indian scientists working in the Boston area, both sets of people tend to avoid networking within their immigrant groups. This is the opposite of what is taking place in other high technology regions such as Silicon Valley (cf. Saxenian, 2006). This paper provides some detailed explanations of why there are distinct similarities and differences both within and between the British and Indian scientific communities in terms of their professional networking patterns.

Keywords: networks, highly skilled immigration, biopharmaceuticals, Boston, economic geography

Katie Haselwood, University of Nebraska-Lincoln. Email: khaselw1@bigred.unl.edu; Childbirth in Homesteading Communities of the Great Plains: Women's Health and Responses

In the early part of the twentieth century the Children's Bureau sent field agents to rural areas of the United States to report on child health as well as maternal care. The reports on some areas of the Great Plains, especially in the case of Montana, showed that many women had very little access to healthcare facilities and in some cases were giving birth with only their husbands in attendance if not on their own. This paper seeks to examine how childbirth practices differed in the Great Plains from areas through out the nation and how childbirth was handled in homesteading communities as well as more established communities. This study hopes to shed light on women's thoughts about childbirth at this time and how they responded if they resided in a region without adequate health care.

Keywords: Great Plains, Childbirth, Homesteading

John Hasse, Ph.D., Rowan University. Email: hasse@rowan.edu; Evaluating Alternate Commuter Rail Corridors in Southern New Jersey

This analysis examines the geographic characteristics of four proposed commuter transit alternatives for Southern New Jersey. Utilizing Geographic Information Systems (GIS), the study measured the road network distance of each proposed rail line station to individual residences countywide as well as to selected destinations including: schools, restaurants, libraries among others. The results demonstrate that the various routes have substantially different geographic accessibility characteristics and thus different transportation service potentials. The best performing configuration for residential accessibility was NJ-3b with 10% of Gloucester County's population within ½ mile of the proposed stations. The 2nd, 3rd, and 4th configurations were NJ-3, NJ-1 and NJ-2 respectively with 7%, 2% and 1% of Gloucester County's population within ½ mile. Accessibility to destinations also favored NJ-3b with 369 destinations within ½ mile followed by NJ-3, NJ-2, and NJ-1 with 145, 16 and 9 destinations respectively within the half mile distance. Furthermore, the NJ-3 & NJ-3b system would better serve the established town-centers of the county fostering economic revitalization while providing a substantial and viable option for non-auto travel to within-county destinations.

Keywords: transit, GIS, accessibility

Markus Hassler, Philipps-University Marburg. Email: markus.hassler@rub.de; Local and macro-regional production networks in the Thai automobile industry: the impact of changing regulatory frameworks on firm-specific sourcing strategies

Within the analytical framework of global production networks (GPNs), the aim of this paper is to explore local and regional economic development in Thailand. It aims in particular to outline how structures and changes within a national and macro-regional policy framework affect the creation and enhancement of value as well as the embeddedness of economic processes within the automobile industry. It will analyse in particular, the ways in which the changes of the national Local Content Requirement (LCR) has affected the component sourcing strategies of individual global automobile firms operating in different market segments and how they aim to comply to the newly established macro-regional LCR.

Keywords: Economic Geography, Asia, Global Change

Jason M. Hatch, Oregon State. Email: hatchj@geo.oregonstate.edu; Kelley Thomas, . Email: kelley@kbrt.org; Engaging Rural Youth in a Geographic Evaluation of the Impacts of Dam Removal on Sustainability in the Upper Klamath Basin, Oregon

The Chiloquin Dam, built in 1914 by the Bureau of Indian Affairs on the Sprague River in the Upper Klamath Basin to supply the Modoc Irrigation District with water, will be removed in 2008 to improve fish passage. The dam is located in the town of Chiloquin, with a population of 716 people, 30 percent of whom are poor, and more than 50 percent of whom are Native American. Dam removal will have both positive and negative impacts on "the triple bottom line" - ecological, social, and economic sustainability. Is the removal of the Chiloquin Dam an example of sustainable development? This project aims to strengthen the capacity of rural youth in Chiloquin, Oregon to help guide the future of their community and to excite students about the field of geography. Chiloquin High School students will be introduced to a variety of tools for geographic analysis (GPS, GIS, demographic data analysis and interviewing techniques) and will explore the concepts of sustainability and traditional environmental knowledge (TEK) in an assessment of the social and ecological impacts of dam removal on their community. To facilitate this project, a racially diverse (Native American, biracial Black and White, and White) team from Oregon State University comprised of faculty, extension agents and two graduate students will collaborate with teachers to engage students (a third of whom are Native American) in a consideration of sustainable development. Students will present findings to

Chiloquin community members, tribal administrators, and other local officials.

Keywords: sustainable development, water resources, dam removal

Gerhard Hatz, Ass. Prof. Mag. Dr., Department of Geography and Regional Research, Universität Wien. Email:

gerhard.hatz@univie.ac.at; *Growth and Decline in the City of Vienna*

Questions of recycling inner city brownfields and urban renewal have become important issues of urban planning in Vienna that will be discussed and evaluated. The analysis focuses on cycles of growth and decline observed within the last two decades and the instruments and efforts of urban planning and urban governance directed at areas that have to cope with considerable shrinkage. However, the cycles have also created new areas of growth, leaving less attractive locations behind. The "recycling" of abandoned sections of the inner city has required the massive application of instruments of urban planning as well as granting substantial amounts of financial assistance. To countervail the spiral of decline in the inner city residential areas in Vienna, a specific model of "gentle" urban renewal has been developed. Gentle urban renewal focuses on sustainable renovation that directly involves the tenants into the renewal process. The analysis of spatial patterns as well as new concepts for redeveloped brownfield areas are supported by a set of theories, like the application of the spatial product cycle theory or evolutionary economics. The evaluation of fragmented urban planning in Vienna will consider the post-modern paradigm of creating poly-nucleated compact cities. The analysis of cycles of growth and decline reveals the strong linkage of urban planning in shrinking areas to these cycles and the lack of concepts in cycles of decline. Besides, the contradiction between planning efforts of renewal in inner city areas and the demands of the global economy has become a reason for decline itself.

Keywords: growth and decline of cities Vienna

Katarina Haugen, Umea University. Email:

katarina.haugen@geography.umu.se; Einar Holm, Umea University. Email: einar.holm@geography.umu.se; Erling Lundevaller, Umea University. Email: erling.lundevaller@geography.umu.se; Kerstin Westin, Umea University. Email: kerstin.westin@geography.umu.se; *Attitude formation (in place?) and the importance of attitudes for manifest behavior - the case of user's attitudes towards the Swedish sickness insurance system*

To what degree do individuals' attitudes shape their behavior, and to what degree are attitudes formed in a specific geographical context - in place? The starting point for this research is a theoretical discussion of the importance of attitudes and related concepts as well as of place for how people choose to act in different situations. These issues are then applied in a case study of the national Swedish sickness insurance system. Since the late 1990's, the sickness insurance system has been the subject of an intense public debate sparked by a rapid increase in public expenses for the system. The possible illegitimate "over-usage" of the system by individuals has been a distinct undercurrent throughout the debate, and one proposed reason for this potential problem is differences in attitudes within the "client population" - a matter which has, however been largely empirically unknown. This issue is also closely related to observed regional differences within Sweden in the use of the sickness insurance. This research empirically explores the importance of attitudes for the usage of the sickness insurance system in the form of a case study based on a major questionnaire study conducted in 2005 by order of the Swedish Social Insurance Agency. The data is analyzed using statistical techniques (ordinary linear regression and logistical regression). The results show that the usage of the sickness insurance system is in fact related to variations in attitudes, and that attitudes are subject to regional variations.

Keywords: attitudes, sickness insurance, Sweden, importance of place, regional variations

Jake E. Haugland, PhD, . Email: isbree@gmail.com; Bronwyn S Owen, PhD, Truckee Meadows Community College. Email: bowen@tmcc.edu; *Pedogenic Lag Effects Produced by Fine-Scale Cryogenic Process: The Styggedalsbreen Glacier Chronosequence*

A chronosequence with a terminal moraine dating to the mid 18th century is found at the Norwegian glacier Styggedalsbreen. Patches of patterned ground with varying degrees of activity occur along the chronosequence, with activity decreasing with distance from the ice margin. Soil development was studied along the chronosequence in three differently aged terrain units: 1) recently deglaciated (~ 20-30 years); 2) deglaciated ca AD 1930; and 3) deglaciated between AD 1836 and 1867. Within each similarly aged terrain unit, pedogenesis was investigated in regards to three different categories of disturbance: 1) patterned ground centers; 2) patterned ground borders; and 3) relatively stable non-patterned ground. Physical soil properties along with the use of a soil development index (i.e. PDI) show significant ($P < 0.5$) differences in pedogenic development among the three different categories of disturbance within similarly aged terrain units. The

relatively stable non-patterned ground soils have an advanced degree of development (i.e. thicker horizons and higher PDI values) over that of soils within patterned ground. Soil comparisons along the chronosequence also show that soils within patterned ground to be a developmental stage behind that of relatively stable non-patterned ground. Findings therefore suggest that cryogenic disturbance leads to pedogenic diversity and heterogeneity across the landscape, where patterned ground soils are a successional stage behind that of non-patterned ground soils.

Keywords: Pedogenesis; patterned ground; geomorphology; fine-scale; disturbance; chronosequence; Jotunheimen; PDI

Peggy Hauselt, UC Davis. Email: mmhauselt@ucdavis.edu; Richard Plant, UC Davis. Email: replant@ucdavis.edu; *Cultural Water Use in California Rice Production*

Careful water management is critical to successful rice cultivation. Besides meeting the basic evapotranspiration requirements of the rice plant, California rice farmers apply water for many cultural uses such as in seeding, temperature regulation, pesticide applications, salinity management, post-harvest straw decomposition, and waterfowl habitat. While much research has been done on water quality in rice fields less information is known concerning the quantities of water used in California rice cultivation. Most of the cultural practices had not been evaluated with respect to water requirements in California rice. This paper presents the preliminary results of a spatial model of these cultural water uses in California rice production.

Keywords: rice, water, California

Heidi Hausermann, University of Arizona. Email:

hhauserm@email.arizona.edu; Heidi E Hausermann, University of Arizona. Email: hhauserm@email.arizona.edu; *Social organization, Livelihoods and the Environment in Veracruz's Coffee Industry*

In the institutional vacuum caused by State withdrawal and price declines during the early 1990s, Veracruz coffee producers organized in unique ways to negotiate new livelihood opportunities. Based on ethnographic data collected during preliminary dissertation research, this paper discusses the implications of these new modes of social organization for livelihoods and the environment. Moreover, as the State has re-emerged to implement development projects in the coffee sector, government agencies that previously operated in a more top-down manner now must take these new social relationships into account. This paper thus concludes that the social organizations and environmental practices formed in the wake of the coffee commodity crisis are now more directly influencing the State's mode of planning. These findings contribute to recent scholarship from Latin America that demonstrates that agriculturalists are not merely 'victims' of global economic change, but rather are organizing in ways which allow them to claim rights to natural resources and improved livelihoods, while at the same time contesting the more egregious effects of economic and institutional re-structuring.

Keywords: neoliberalism, social organization, coffee, Mexico

Terrence Haverluk, US Air Force Academy. Email:

terrence.haverluk@usafa.af.mil; *Using holistic geopolitics to teach across the curriculum*

Holistic geopolitics integrates geography and other disciplines such as economics, international relations, geology, and climatology by emphasizing each subject's links to global politics. For example, Global Positioning System (GPS) satellites and global GPS systems have traditionally been controlled by the US and Russia, but the Russian system is decaying. The US is now the primary global GPS provider and it reserves the right to shut down the system at any time for security reasons. In 2004, the EU embarked on a "balance of power" GPS initiative called Galileo in order to create an independent GPS system for use in business, planning, and to integrate the EU military structure. The satellites will be placed in geosynchronous orbit at 55 degrees north in order to better service the EU. Other examples provided include plate tectonics, diamonds, and the African diamond wars; tsunamis and the Global War on Terror (GWOT); biomes and ecopolitics; realist geopolitics; critical geopolitics; cultural geopolitics; and feminist geopolitics.

Keywords: holistic geopolitics

Elizabeth Havice, University of California-Berkeley. Email:

ehavice@nature.berkeley.edu; *Accessing Domestic Development: Distant Water Fishing and Tuna Industrial Development in the Western Central Pacific Ocean*

By investigating the nature and conditions of foreign access to the world's most valuable tuna fishery, this paper offers an analysis of the economic and environmental opportunities and constraints that shape the Western Central Pacific Ocean (WCPO) tuna industry and tuna related development opportunities in Pacific island countries (PICs). Specifically, it addresses how access to tuna

resources is secured as a function of three main factors that, when taken as a sum, guide the nature of the industry: 1) intergovernmental and state-corporate relations, 2) resource scarcity, and 3) place specific economic development objectives. Building from these factors, it theorizes how the transnational nature of both the tuna industry and the resource itself create real challenges for resource governance that have the capacity to splinter, rather than unite, Pacific island counties' regional management and development efforts. The paper concludes that despite the global and decentralized nature of the tuna harvest sector, 'access' under conditions of resource scarcity remains the lynchpin of global tuna harvest which dictates the international, regional and national economic and environmental management structures of the tuna harvest sector as a whole.

Keywords: tuna, re-regulation, Pacific islands, environmental management, economic development

Timothy W Hawkins, Shippensburg University. Email: twhawk@ship.edu; Andrew W. Ellis, Arizona State University. Email: dellis@asu.edu; *Assessing the Importance of Antecedent Soil Moisture Conditions for Predicting Reservoir Inflows on the Colorado River Basin*

Soil moisture content across the Colorado River Basin (CRB) was simulated in an effort to assess the importance of antecedent soil moisture on stream flow. A simple gridded climatic water budget model was applied across the CRB on a monthly time step for 111 years. Soil moisture data for were used to calculate soil moisture indices for the Salt, Verde, Upper Colorado, and Lower Colorado sub basins. These indices, in conjunction with numerous hydrologic parameters generated from the model, were used to develop statistical relationships with stream flow for both the Salt and Verde basins. Of these relationships, the strongest relationship with stream flow included soil moisture, seasonal dummy variables, and the cumulative effect of snow melt, rain fall, and evaporation as independent variables. These relationships were then used to examine the potential for developing a stream flow forecast based on these independent variables.

Keywords: soil moisture, Colorado River Basin, stream flow

Dawn Hawley, Ph.D, Northern Arizona University. Email: d.hawley@nau.edu; Samantha Arundel, Ph.D, Northern Arizona University. Email: sam.arundel@nau.edu; *Tablet PC use in Enhanced Communication and Field Skills*

The Tablet PC is emerging as a tool that can enhance diverse disciplinary goals and skills, both in classrooms and on field sites. The Tablet PC presents an opportunity to enhance both communication skills and field data collection using mobile technology while advancing student knowledge in emerging technologies. Examples are first presented in the use of this technology in a public participation course in which no student had used a Tablet PC previously. During the course, students were introduced to various tablet programs. Students then used Tablet PCs to enhance workshop skills using Google Earth images, create community image surveys, and screen peer reviewing to advance visual editing ability and interactivity between groups. Another realm of potential Tablet PC use is in teaching physical/environmental geographies. The Tablet PC is leading to the conceptualized redesign of courses studying the physical environment, particularly in collecting field data to be used with geospatial technologies. Redesign possibilities on the use of this tool in an intermediate GIS course are also presented. Students can utilize the tablets to collect spatial data of their choosing in the field, add attribute data real-time, then prepare the data for web sharing by performing quality control on a peer's dataset, and adding metadata to the files for official use. In this instance, Tablet PCs provide a tool that can increase the interactivity and creativity of course projects, aid in real-time collection of field data that may be useful to various agencies, and aid in students' technological preparation.

Keywords: Tablet PC, educational technologies, GIS, field data collection

Timothy L. Hawthorne, The Ohio State University. Email: hawthorne.20@osu.edu; Mei-Po Kwan, The Ohio State University Dept. of Geography. Email: kwan.8@osu.edu; Mary Ellen Wewers, The Ohio State University School of Public Health. Email: ; Pam Salsberry, The Ohio State University College of Nursing. Email: ; Amy Ferketich, The Ohio State University School of Public Health. Email: ; Electra Paskett, The Ohio State University School of Public Health. Email: ; *Measuring Accessibility to Smoking Cessation Programs in Appalachian Ohio: Considering Individual Perceptions to Care as Measures of Revealed Accessibility*

Having access to preventive health care services is essential to maintaining an individual's overall health. With this being the case, it is important to calculate measures of accessibility to preventive health services, including measures that consider factors that influence an individual's decision to obtain these services. Traditional measures of geographic accessibility to health care services typically use population to provider ratios, straight line Euclidean

distances or travel times. While these methods are all useful for explaining potential accessibility, they often fail to consider other factors such as an individual's perceptions to accessibility and (un)willingness to access care, which may limit access to preventive health services. Thus, measures which fail to account for individual perceptions to care may report measures of accessibility that differ significantly from revealed accessibility measures. This study utilizes data obtained from a sample of Appalachian Ohio residents to understand social, demographic, neighborhood and individual variables that might help explain why some women choose (and do not choose) to enroll in smoking cessation programs. This research compares traditional measures of accessibility to facilities that offer smoking cessation programs with measures that consider other individual perceptions and variables that might limit accessibility to such programs. This presentation makes conceptual contributions to the health GIS and accessibility literatures by measuring revealed accessibility of individuals based upon their perceptions and (un)willingness to utilize preventive health services. The research also highlights the important differences between estimated and revealed measures of accessibility.

Keywords: accessibility, health GIS, revealed accessibility, perceived accessibility, smoking cessation, Appalachian Ohio

James J. Hayes, Indiana University. Email: jamehay@indiana.edu; *Assessing Change in a Post-fire Ponderosa Pine Landscape of North-central New Mexico: Comparing Simple and Complex Measures of Landscape Configuration*

Fire regimes in ponderosa pine forests have been shown to vary from frequent, low-severity fires to rare, stand-destroying fires across the geographic range of ponderosa pine. Theory in landscape ecology and its methods for describing landscape spatial patterns are well suited to help better understand how this variability is related to spatial configuration of forest landscapes. This paper examines the links between simpler measures of landscape pattern and relatively more complex landscape metrics. Classified Landsat ETM+ data are used to compare the proportion of the landscape in landcover classes, observed and expected transition probabilities, and focal analysis of diversity and evenness before and after a wildfire in the Cason National Forest, New Mexico. Landscape metrics including patch density, patch extent, shape index, and interspersed and juxtaposition index are calculated for the same areas. The results of the two analysis approaches are compared. The theoretical links between metrics for describing landscape pattern and the ecological meaning of those metrics are still not well developed. Many metrics covary, have poorly understood statistical distributions, and are consequently problematic for interpretation. Comparing the "simple" analysis of landscape pattern and relationships with commonly used and appropriate landscape metrics can indicate when landscape metrics become necessary and when they only complicate interpretation of results. Better understanding of the relationship between simple and complex measures of landscape pattern will improve theory in landscape ecology and its power to guide choices of pattern measurement tools.

Keywords: landscape ecology, landscape metrics, ponderosa pine, wildfire, New Mexico

John T. Hayes, Ph.D., Salem State College. Email: jhayes@salemstate.edu; *Community Climate Action Plans: A Comparative Study of Selected U.S. Cities and Towns*

Climate change activism by cities and towns at the grassroots level is occurring across the U.S. Local governments are adopting resolutions to become a "City for Climate Protection". CCP is a worldwide campaign of the environmental NGO, ICLEI, which attempts to work with city and county governments across the United States to reduce their energy use and greenhouse gas (GHG) emissions. CCP communities use ICLEI software to conduct audits of energy use and GHG emissions produced by their municipal operations. City governments make numerous decisions every year that affect their energy use: renovating and retrofitting old buildings, purchasing 'green' power, adopting energy efficiency standards, traffic idling ordinances, and hybrid vehicle purchase guidelines, promoting bicycling, mass transit, and walking. All of the efforts cited above are being encapsulated into Climate Action Plans, which guide efforts to plan and implement energy efficiencies and reduction of GHG emissions. CAP's represent a focused approach to reduce a city's "ecological footprint". This paper will survey CAP's from selected cities and towns across the U.S. A range of CAP's were chosen to explore differences regarding energy use planning for the municipal, commercial, industrial and residential sectors. I will compare and contrast the various approaches used in this environmental and global climate impact planning that is occurring at the local level.

Keywords: global climate change, climate action plans, GHG emission reductions, local government, ecological footprint

Allison N Hayes-Conroy, Clark University. Email: ahayesconroy@clarku.edu; **Jessica Hayes-Conroy, Pennsylvania State University. Email:** jsh285@psu.edu; *Taking Back Taste: Feminism, Food Choice, and Visceral Politics*

Appreciation of the political significance of food choice needs to be strengthened. Food choice lacks adequate understanding in three ways; first, food choice tends to be framed as an individual matter, belying ways in which social structures shape decisions made about food. Second, powerful politics are at play at every step of the conventional food system but this multi-scaled politics of food usually remains hidden from the everyday consumer and the everyday academic. Third, adequate understanding of the political importance of food choice may be hindered by an inability to specify the link between the materiality of food choice and the ideology of decision-making in regard to food. This paper addresses this third obstacle to strengthening appreciation of the politics of food choice, and specifically examines the utility of recent work within non-representational theory and feminist urban geography. This is done in order to attempt a more complete disclosure of the play of power in contemporary food systems. Specifically, the work of Foucault is used, modified by feminist urban geography in anticipation of a "breaking open" of the concept of body so that internal body processes may be considered. Examples of eating behaviors are used to specify the role of internal bodily process in food politics and strategically surpass mind-body dualistic thinking.

Keywords: Food, Feminism, Body, Foucault, Micro-Biopolitics

David J Hayward, University of Auckland. Email: d.hayward@auckland.ac.nz; **Nicolas Lewis, University of Auckland. Email:** n.lewis@auckland.ac.nz; *'Regional Dynamics in the Globalising Wine Industry: The Case of Marlborough, New Zealand'*

The rapid expansion of the New Zealand wine industry has rested largely on a specific wine commodity form, Marlborough Sauvignon Blanc. Global demand has provided the impetus for substantial development at the regional level, an increasingly complex industry structure, and for the intrusion of international capital. This paper explores the contests and relations within the industry through commodity chains analysis, wherein recent developments are mapped onto specific nodes in the production sequence. As a result the contemporary situation may be explained through overlapping organizational and geographic framings of these relations: producer versus buyer-driven dynamics; regional-national and global interests; and inter- and intra-corporate strategies. The commercial contest for control of the region-varietal commodity reveals some paradoxical outcomes in which the region is reaffirmed as a site of investment in an evidently globalised industry, and the significance of who controls what fraction of the value chain is reasserted.

Keywords: Wine Industry New Zealand

Peter Hayward, U. of Connecticut. Email: steelershayward@hotmail.com; *Applying the Maximal Covering Location Problem to HIV/AIDS Testing & Treatment Centers in Hartford, CT*

The location and allocation of HIV/AIDS resources can effect the testing and treatment of at-risk populations. Centers which offer HIV/AIDS tests, as well as those which provide treatments to individuals already afflicted with HIV or AIDS, have a specific geography which may or may not reflect the underlying population characteristics in distinct areas. Therefore, determining the possible coverage of these centers and linking this to the optimal coverage is research that is not only valid, it is needed. The maximal covering location problem (MCLP) is a technique applied to public facility location analysis which determines the maximum population that can be covered within a specific distance and a limited number of facilities. The purpose of this research is to apply the MCLP to the location of HIV/AIDS testing and treatment centers in reference to the total non-white population in Hartford, CT. Results provide an indication of the optimal spatial arrangement of HIV/AIDS resources.

Keywords: HIV/AIDS, Maximal Covering Location Problem

Francisco Hazera, University Of Richmond. Email: frankie.hazera@richmond.edu; *Monitoring Stream Flow In Southern Florida Using Remote Sensing*

As population density increases in southern Florida there have been studies that show an increase in water utilization in the Everglades. Using a GIS-based analysis of the area a time series is created to identify whether a significant change in the discharge from Lake Okeechobee into the downstream wetland regions of the Everglades has occurred. The analysis was prepared using Erdas Imagine and ArcGIS. Landsat imagery was used to derive indices and perform an unsupervised classification to identify the differences in vegetation between 1985 and 2000. It is hypothesized that over time Lake Okeechobee will increase in size and that the vegetation of areas downstream of Okeechobee will decrease. This supports the idea that the water from the Everglades is being increasingly utilized by the growing population in the adjacent urban areas and intensification

of agricultural concerns in the region.

Keywords: South Florida, Water, Remote Sensing, Stream Flow, GIS

Julianne Hazlewood, University of California Davis. Email: jahaze@gmail.com; *The Effects of Postcolonial Property and Governance Legislation as Viewed through Aerial Spraying in Southeast Alaska*

This paper uses aerial spraying in Southeast Alaska as a lens to examine how Alaska Native interests are contested and legitimized within postcolonial and state-reinforced tribal-corporate dichotomies. In March 2006, the State of Alaska's Department of Environmental Conservation (DEC) granted Klukwan, Incorporated? a Tlingit Native Corporation established with the Alaska Native Claims Settlement Act (ANCSA) of 1971? a permit to aerial spray herbicides to control for red alder and salmonberry in "their" second growth rainforests on Long Island. In September 2006, the city of Hydaburg, two regional environmental organizations, and three Tlingit and Haida Tribal organizations? established with the 1936 Alaska Indian Reorganization Act? filed suit against the state's DEC because Long Island is Haida traditional subsistence territory. They claim that the DEC ignored the 99 percent of 1,298 public comments opposing aerial spraying because of potential environmental and health hazards associated with the "chemical cocktail". This aerial spraying quandary is inextricably linked to postcolonial re-presentations of property and governance, established through legislation which reaffirms Western notions of property, indigenous territory, and "proper management", and outlines the boundaries of public versus private spheres. In addition, state policies in Alaska Native territories have influenced a political transformation: from the region's indigenous peoples fighting against colonial state governments to ANCSA Native Corporations and IRA Tribal governments sometimes working against each other. Southeast Alaska Tribal governments continue to stand up for Alaska Native sovereignty, a struggle that has existed since the 1880s, and they will not allow their subsistence-based priorities to be undermined.

Keywords: indigenous, property, governance, forest management, Alaska

Canfei He, Peking University. Email: hecanfei@urban.pku.edu.cn; *Industrial Distribution of Foreign Manufacturing Investment In Beijing: The Role Of Industrial Agglomeration And Industrial Linkage*

Theories argue that oligopolistic advantages embedded in multinational corporations and locational advantages in the host economies determine the industrial distribution of foreign direct investment. Most empirical works stress the significance of typical industrial characteristics in influencing the industrial selection of foreign investors, such as industrial concentration, research & development, industrial policies, product differentiation, and scale economies. This paper is to investigate the systematic forces that determine the industrial distribution of foreign manufacturing investment, with a particular interest on the importance of industrial agglomeration and industrial linkage in attracting foreign investment to local industries. Industrial agglomeration and local linkage is presumably assumed to generate significant cost-savings because of sharing markets, easy flowing of information and knowledge and better matching of suppliers and customers. Foreign investment is particularly stimulated to take advantage of the geographical proximity of related enterprises since foreign investors suffer from the disadvantages of alien status. Using a panel dataset of two-digit manufacturing industries in Beijing during the period 1999-2004, this study found that geographically agglomerated industries with strong intra-industrial linkages attract much foreign investment. Previous foreign investments have demonstration effects, information spillover effects and linkage effects, leading to industrial concentration of foreign investment. Investors also highly favor capital and technology intensive industries and are drawn to the most profitable and exporting industries, but avoid industries with high effective wage rates and high entry barriers. The results suggest that the existence of industrial clusters certainly heightens a city's attractiveness to foreign investment.

Keywords: Industrial Agglomeration; Industrial Linkage; Foreign Direct Investment

Chansheng He, Dr., Western Michigan University. Email: he@wmich.edu; **Thomas E. Croley, Dr., NOAA Great Lakes Environmental Research Laboratory. Email:** Tom.Croley@noaa.gov; *Understanding of Water Movement among Glacial, Oasis, and Desert in the inland Black River Watershed, Northwestern China*

The Black River (or Heihe in Chinese) is the second largest inland river in China, located in Northwestern China with a drainage area of 128,000 km². From its headwater to the middle, and lower reaches, glacial, agricultural oasis, and desert make up 21.9, 43.6, and 34.5 percent of the watershed respectively. Annual precipitation ranges from 250 - 500 mm in the glacial and mountain areas to 55 - 200 mm in the oasis of middle reaches and eventually to 40 mm in the lower reaches. While the glacial melts contribute about 10 percent of the surface runoff in the basin, agricultural irrigation water supply in the oasis comes mainly from groundwater withdrawals. In recent years, increasing agricultural

irrigation has been depleting groundwater supplies and shrinking sizes of several lakes in the middle and lower reaches. To address this water shortage problem, we are collaborating with The Chinese Academy of Sciences Cold and Arid Regions Environmental and Engineering Research Institute researchers to understand the water movement mechanism among the glacial, oasis, and desert in the Black River Watershed through field inventory and modeling approach. This paper describes the preliminary work of adapting the Distributed Large Basin Runoff Model (DLBRM) for understanding of water transfer between glacial melts, precipitation, groundwater, streamflow, and evapotranspiration in this large inland river watershed as well as challenges encountered in the project.

Keywords: hydrologic modeling; DLBRM; Black River in Northwestern China; and water shortage

Xueqin (Elaine) He, Texas State University - San Marcos. Email: xh1003@txstate.edu; Samson Eric, Texas State University-San Marcos. Email: es58830@txstate.edu; John Tiefenbacher, Texas State University-San Marcos. Email: jt04@txstate.edu; International Student Risk Perception and Avoidance

This research considers the vulnerability of international students to hurricane hazard, risk, threat, impact and aftermath in the Houston, Texas area. International students at four-year post-secondary institutions in the Houston metropolitan area were solicited to self-report personal information and their perceptions and experiences with hurricane evacuation. A voluntary response instrument was distributed via e-mail to international students through university administrations with an incentive offered for reply. Variables such as English proficiency, duration in the Houston area, age, sex, socio-economic status, parenthood, previous hurricane/cyclone/typhoon experience, and access to media are analyzed to correlate and predict vulnerabilities of this sample of convenience to hurricane scenarios such as watch, warning, and voluntary and mandatory evacuation. Respondents were also asked about perceptions in response to warning events leading up to Hurricane Rita on 14 September 2005 and how the warning event for what turned out to be a false alarm may affect future behavior and vulnerability. The hypothesis that international students are more vulnerable to the hurricane agent than U.S. residents newly arrived in the Houston area and Houston residents in general is analyzed, tested, and reported. Models to mitigate international student vulnerability to hurricanes are abstracted from the data.

Keywords: natural hazards, vulnerability, hurricane, emergency preparedness

Yuanqing He, Dr., Chinese Academy of Sciences. Email: yqhe@ns.lzb.ac.cn; Wenxiong Jia, Chinese Academy of Sciences. Email: ; Climatic and Glacial-Hydrological Features of the upper part of Heihe River Basin, Mts. Qilian

The upper part of Heihe River basin refers to the area between the head of the river to Yingluo Gorge near Qilian County, which is located in a broad valley between Mt. Tuolai and Mt. South Zoulang in Mts. Qilian, with a total area of about 10,240 km². Since 1950's, the temperature has risen to form annual mean values of 0.54° in 1950's to 2.32° in 1990's. The rising amplitude of temperature is higher in high elevation area than that of low elevation area. There are 186 glaciers in the up-part of Heihe River basin, with a total area of 259.35 km². The upper limit of glaciers is 5103 m and the lowest glacier ends at 3560 m. Glaciers mainly distribute in Southern slope of Mt. Zoulang and Northern Slope of Mt. tuolai. The equilibrium lines of glaciers vary from 4350 to 4500 m. The mass balance of glacier Qiyi near the head area of Heihe River was positive in 1970s, with an annual mean value equal to 360 mm water equivalent but the balance in 1980s was equal to 4 mm water equivalent approaching to zero. After then, the annual mass balance were negative during the 2001/2002 and 2002/2003 balance years (-810mm and -316mm respectively), indicating the glacier's response to climate warming.

Keywords: Glacial melts; Climate Change; Inland River; Heihe, Northwestern China.

Richard G Healey, Professor, University of Portsmouth. Email: richard.healey@port.ac.uk; Railroads and 19th Century Regional Economic Growth : Issues for Historical GIS

Based on extensive experience with the development of the N.E. USA Historical GIS, in which railroad-related datasets play a prominent part, this paper examines a number of questions about how historical GIS methods can contribute to an improved understanding of the role of railroads in processes of 19th century economic growth at a detailed regional scale. A first group of questions concerns operational problems associated with the collection and structuring of complex spatio-temporal datasets, and the dissemination of the resulting data resources via both printed and electronic means. A second group of questions relates to the linking of GIS-based research to other topics in the historical geography of transportation, such as the rise of railroads as corporate organisations; the role of interlocking directorates both within and beyond the

railroad sector; local, regional and national sources of financing; and inter-regional forward/backward linkage effects, building on Fishlow's classic work in this area. A concluding section aims to suggest both near-term and long-term areas of potential focus that may form the basis for a research agenda in this area of quantitative historical geography.

Keywords: railroads, historical GIS, regional economic development

Stephen Healy, PhD, Miami University. Email: stephen.healy@gmail.com; "Sexuating the Economy of Care: Towards an ethics of surplus and a geography of Sufficiency"

This paper explores the methodological dimensions of Lacanian sexualization in the context of qualitative research on the U.S. Health Care Reform Debate (HCRD). While Lacanian sexualization is a formal typology of the symbolic order it also has broad applicability to both textual analysis and ethnographic research—it allows for a different approach to both reading and listening. From a psycho-analytic perspective, the arguments for “free market reform advocates” and the “right to care” both rely on masculine sexualized logic. Masculine logic establishes a symbolic order in relation to a constitutive exception that is above the Law. While health care, like other elements of “social reproduction,” is subject to the law of scarcity, productive capital's claim upon social wealth is, of necessity, unfettered. “Capitalism's” need for capital is absolute and, as a consequence, the demand for care must always be constrained and take shape in a discourse that seeks to “optimize” care delivery. Adopting the diverse and community economy framework, developed by J.K. Gibson-Graham, this paper also illustrates the ways in which a care economy is composed of paid and unpaid actors, formal and informal sites, capitalist and non-capitalist class processes. Specifically, I show how stories of paid and unpaid caregivers in the course of my qualitative research accord with feminine sexualized logic wherein the constitutive exception gives way to subjection that is universal and partial. My informants saw at once the finite and particular needs of patients and the range of resources that might be brought to bear in satisfying them.

Keywords: health care, economic geography, community economy, psycho-analysis

Nathan J Heard, MSc, U.S. Department Of State. Email: HeardNJ@state.gov; The New Geography of Treatment, a Response to Global HIV/AIDS

There was no treatment for HIV/AIDS when geographers first joined the international response to the epidemic. Three areas of research emerged where spatial analysis was especially useful: subnational surveillance of HIV prevalence, the identification of optimal location of programs, and the evaluation of programs and policy. With the advent of effective antiretroviral therapies and a large international effort to fund both prevention and treatment, the importance of geographic tools in the global response to HIV/AIDS has only increased. The role of geographers has grown to include program implementation, which requires the coordination of multiple unilateral and multilateral organizations delivering a wide spectrum of services over large areas through community and fixed health facility-based programs. This paper documents the historical realization of the potential role of geography in the global response to the epidemic and points towards additional functions of spatial-analytic information management for USG interagency collaboration and international cooperation.

Keywords: Public Health Informatics, HIV/AIDS, GIS

Jill S. Heaton, PhD, University of Nevada, Reno. Email: jheaton@unr.edu; Kenneth E. Nussear, PhD, U.S. Geological Survey. Email: knussear@usgs.gov; Todd C. Esque, PhD, U.S. Geological Survey. Email: tesque@usgs.gov; Spatially Explicit Decision Support for Conservation

The NTC at Fort Irwin, California, has expanded its base and available training area into USFWS desert tortoise critical habitat. The desert tortoise is a threatened species. Of all the mitigation measures proposed to offset expansion, the most challenging to implement was the translocation of desert tortoises from portions of the expansion area, and the selection of areas where this would be feasible. We developed a spatially explicit decision support system that was objective, open, and scientifically defensible and produced a range of alternative translocation scenarios. These scenarios were designed to identify the best areas to translocate tortoises in light of the immediate threat of expansion and given the magnitude of the conservation and management challenges within the Western Mojave Recovery Unit. We worked closely with a committee mandated by Congress and designated by the Secretaries of Army and Interior to implement this system. Ten criteria were identified for consideration of translocation suitability and seven alternative translocation scenarios were developed. Ultimately a single translocation model was agreed upon and six potential translocation areas were identified. In addition, as a result of the alternative scenarios, areas not previously scheduled for tortoise proof fencing are now scheduled to be fenced. The use of spatially explicit decision support systems are

beginning to play an ever increasing role in natural resource and conservation management. However, in order for these systems to be successful they must tackle real-world management problems with input from both the scientific and management communities, as well as interested stakeholders.

Keywords: conservation and management, DSS, geographic information systems, GIS, Gopherus agassizii, mitigation, National Training Center at Fort Irwin

Alfred Hecht, Wilfrid Laurier Univ. Email: ahecht@wlu.ca; Canadian Regional Growth and Economic Well-Being

Canada has, in part because of its large land mass, substantial variation in economic well being over space. Most data clearly shows that economic well being is low in the eastern part of the country, rises as one moves to the Centre, Ontario, then declines again in the eastern prairies only to increase again in the far western two provinces. This general picture tends to be true if one looks at population growth, income sources, labour participation indicators, unemployment rates as well as other socio-economic indicators. These differences are of long standing. Some can be contributed to the resource sector in various regions of Canada but most to the old manufacturing sector and the new high tech and business sectors. In this paper these regional differences will be summarized and multiple regression models will be presented using 2001 Canadian census Data, to capture the regional positive growth forces.

Keywords: Regional wellbeing, Population growth, multiple regression model, 2001 Canadian Census

Barry Hecht, Balance Hydrologics, Inc.. Email: bhecht@balancehydro.com; Quantitative Analysis of Sediment-Rating Curves in Assessing Changes in Sediment Yield

Analysis of carefully-developed suspended- and bedload-sediment rating curves can allow changes in the sediment yield to be quantified both rapidly and regionally. Curves from 30 San Francisco Bay Area streams developed by Balance Hydrologics staff are used to demonstrate application of these curves in evaluating: (a) pre- and post-project changes in sediment delivery, (b) differences between incising and non-incising streams draining paired watershed, (c) effects of geology and soils on sediment yields, and (d) changes in sediment yields before and after episodic events. Use of bedload rating curves developed with the Helley-Smith bedload sampler over the past 30 years in Northern California streams strengthens validity of these curves in quantifying changes over time and within or between watersheds. Useful analysis rests upon sediment-transport data collected rigorously and over a wide range of flows, possibly supplemented from independent lines of evidence such as reservoir sedimentation or channel dredging records. Electronic data collection and telemetry make it easier to reliably collect sufficient data over periods of (typically) several years to quantitatively address the questions about sediment transport and yield increasingly asked by geographers and professionals in cognate fields.

Keywords: Sediment yield, San Francisco Bay Area, changes in sediment delivery, bedload, sediment-rating curves

Brent Hecht, UC Santa Barbara - Geography. Email: bhecht@umail.ucsb.edu; Drew Dara-Abrams, UC Santa Barbara - Psychology. Email: dara-abrams@psych.ucsb.edu; Nicole Starosielski, UC Santa Barbara - Film Studies. Email: n_star@umail.ucsb.edu; Kirk Goldsberry, UC Santa Barbara - Geography. Email: kirk@geog.ucsb.edu; Julie Dilleuth, UC Santa Barbara - Geography. Email: julie@geog.ucsb.edu; John Roberts, UC Santa Barbara - Computer Science. Email: roberts.john@gmail.com; Keith Clarke, UC Santa Barbara - Geography. Email: kclarke@geog.ucsb.edu; Minotour: A location-aware mobile tour application that weaves a spatial tale from Wikipedia

Wikipedia, the world's largest collaboratively-edited body of encyclopedic knowledge, has been studied very little through the lens of Geography. Accordingly, not much is known about the geographic opportunities presented by such a freely available and massive source of information. It is in this context that we present Minotour, a proof-of-concept, location-aware tour application for mobile devices that frees the content of Wikipedia from existing physical and organizational restrictions by generating narratives relevant to a user's current geography. As such, Minotour is one of the first attempts to place Wikipedia data in real-life, spatial contexts. In order to deliver its unique, spatially-rooted stories, Minotour draws upon interdisciplinary research in GIScience, data mining, human computer interaction, location-based services, and new media narratives. We will discuss the algorithms and data mining techniques used in narrative development and analyze these narratives in the context of new media theory. We will also present the cartographic issues involved in the tour delivery and experience, as well as the effects of Minotour and its Wikipedia-derived content on relationships between space and place.

Keywords: Wikipedia, location-based services, new media narratives, data

mining, mobile devices, augmented reality

Susanna Hecht, Princeton. Email: sbhecht@ucla.edu

David William Hedding, North West University. Email: heddingd@uniwest.ac.za; A First Inventory of Periglacial Features in Western Dronning Maud Land, Antarctica

Due the remoteness of Southern Circumpolar Region, particularly Antarctica, and the perceived absence of ice-free areas on the Antarctic continent, it has received significantly less attention from the scientific community with regard to periglacial studies when compared to the Northern Hemisphere. Few data have, thus, been published on periglacial features in the Southern Circumpolar Region, specifically continental Antarctica, even though substantial ice-free areas exist (~280,000 km²), which are all underlain by permafrost. A need, therefore, exists to create an inventory of the periglacial features of Western Dronning Maud Land, Antarctica. This paper documents periglacial geomorphology found on the Robertskollen, Vesleskarvet, Valterkulen and some nunatiks in the Borge Mountains. Detailed measurements describing the characteristics of patterned ground, depth of sorting, and the existence of permafrost are presented.

Keywords: Antarctica, periglacial, patterned ground, permafrost

Cheryl Ann Hedgman, MS, NGA. Email: Cheryl.A.Hedgman@nga.mil; Modeling boundaries and terrain for improved border management

International boundary management will be more effective when all parties involved have a clear understanding of where the boundary is on the ground and where it is located relative to other local features. It is easy enough to have high-level discussions regarding "notional" boundaries, however, in order to effectively manage people, goods and natural resources in border regions, you must be able to evaluate, analyze and discuss issues with the relevant parties. Using GIS and legal treaty materials, trained analysts can create a border/terrain model or common view for policy makers. While creating the terrain model and interpreting the legal boundary material can be time consuming, once this work is completed, decision makers will have a tool for rapidly viewing various sections of the boundary. Proposed boundary changes can be evaluated with other local data to determine possible negative/positive impacts resulting from those proposed changes. A model of digital boundary data and local terrain can be a critical tool for supplying decision makers with better information.

Keywords: boundaries, political; gis

Mara Hedrich, University of North Texas. Email: mnh0014@unt.edu; The Geography of Viral Hepatitis C in Texas, 1992-1999

This study examines the relationship between viral hepatitis C (HCV), race, gender, and population density in Texas counties. Previous studies related HCV rates to residence in urban areas, race, and gender as common risk markers. HCV morbidity rates in Texas counties from 1992 to 1999 were obtained from the Department of State Health Services (DSHS). Race, gender, and population density data were extracted from the 2000 U.S. Census. Simple linear regression, Pearson's rank correlation, and Friedman's test were used for the analysis. The results indicated that population density was not a significant indicator of HCV rates, but race and gender were significant. African Americans have a much higher risk than Caucasians and Hispanics, and males have higher rates than females. Thus, HCV rates in Texas counties seem to be influenced not by urbanization, but by ethnicity and gender. Previously considered as having low risk for HCV, rural counties in Texas appear to have an equal risk compared to urban counties. Yet, the latter have been the main focus of previous intervention efforts. New intervention efforts in Texas must focus especially on minorities in rural areas.

Keywords: Geography, Viral Hepatitis C, Texas

Michael Heffernan, University of Nottingham. Email: mike.heffernan@nottingham.ac.uk; A Geographical Happening: South Kensington (London) in July 1964

This paper focuses on a precise location (South Kensington in London), a particular time (late July 1964), and a specific event (the 20th International Geographical Congress). The congress was attended by over 2,000 delegates from 65 countries and involved the usual range of lectures and presentations in the network of museums and scientific institutions dotted around South Kensington, as well excursions within and beyond London, exhibitions of maps and photography, and even a 'geographical' film festival. These events provide a revealing snap-shot of a discipline on the cusp of a significant intellectual and technical revolution, but also point to much wider debates, characteristic of the period, about the potential of regional planning and urban reconstruction; the tensions generated by decolonisation and immigration; and the fears created by the geopolitics of the Cold War. These larger debates, which were also rehearsed in media reaction to the congress, had acquired a peculiar intensity in the west London streets in the immediate vicinity of South Kensington where intensifying

social and cultural divisions had generated new and complex geographies of exclusion, anxiety and transgression.

Keywords: London, 1964

Christian Patrick Heidkamp, University of Connecticut. Email: Christian.Heidkamp@uconn.edu; *Credence Attributes and Land Use: Eco-labeled Coffee*

The paper aims to contribute a spatial analytic perspective based on normative economic principles to the recent discussion on an environmental economic geography. It does so via an example aimed at analyzing the land use implications of the emergence of credence attributes in the coffee market. The example of shade grown versus commodity coffee is used to assess how increases in demand for eco-labeled coffee are reflected in the landscape. The research presented extends basic land use theory to incorporate the externality effects implied by consumer demand for credence attributes. The approach taken will be based on two basic and interrelated principles: relative scarcity of suitable land, or 'Ricardian' scarcity and spatial proximity. The research is focused on a coffee producing region in Guatemala.

Keywords: Economic Geography, Coffee, Guatemala, Credence Attributes

Tanya Heikkila, Columbia University. Email: th2063@columbia.edu; Edella Schlager, University of Arizona. Email: bluff2u@aol.com; Meghan Maloney, University of Arizona. Email: maloney.ml@gmail.com; *Transboundary water conflicts and conflict resolution mechanisms in the American West*

In transboundary river basins, conflicts frequently arise across jurisdictions and between water users about how much water can be used, as well as for what purposes and by whom. These conflicts are frequently about problems associated with the interpretation of resource boundaries. This paper seeks to classify the types of boundary conflicts that arise in transboundary river basins and then identify the institutional mechanisms that support the resolution of the different types of conflicts. To better understand the nature of conflicts and how they can be resolved in transboundary river basins, we analyze data from a study of conflicts arising in 15 interstate river basins in the western U.S. that are governed by interstate river compacts. The compacts themselves provide multiple mechanisms for resolving disputes, ranging from compact commissions, to meetings of states water directors, to mediation and arbitration. A variety of other institutional arrangements also exist in these river basins for addressing conflicts - including legislative processes, state courts, the U.S. Supreme Court, and informal discussions. We argue that the type of institutional arrangement selected and whether the actors resolve the conflict is a function of the type of conflict the actors face. This paper will test these assumptions, which improve both our understanding of conflicts in transboundary settings.

Keywords: rivers, boundaries, conflicts

Michael K. Heiman, Dickinson College. Email: heiman@dickinson.edu; *Hydrogen-Based Transportation: Infrastructure, Net Energy, and Greenhouse Gas Concerns*

In his 2003 State of the Union Address, President Bush announced funding for a major collaborative public-private effort to develop a hydrogen "FreedomCar." Designed to ensure freedom from foreign petroleum dependence, the fuel cell vehicle would enable Americans to "drive where they want, when they want, and in the vehicle of their choice." Anticipating concern with greenhouse gas emissions, the Administration suggested that hydrogen produced through nation's abundant coal reserves would be "emissions-free" through carbon sequestration. Drawing upon recent US and European data and using a "well-to-wheels" analysis, this paper challenges these lofty goals and questions whether production of hydrogen from conventional fossil fuel sources offers any significant net energy or emissions advantage. Moreover, carbon sequestration is an expensive energy-intensive process that is not yet commercially viable, with routine escape anticipated and sudden catastrophic release a distinct possibility. If a reduction in greenhouse gas emissions is a primary goal, renewable energy would be better used to displace carbon-based electricity directly in the grid, rather than through electrolysis be converted to hydrogen via a complex and thermodynamically loosing transformation for use in a fuel cell vehicle. Furthermore, plug-in hybrid electric vehicles offer an economically, energy, and environmentally efficient alternative. The paper concludes that the Bush hydrogen agenda appears to be a backdoor attempt to support the coal and nuclear industries through which a majority of the hydrogen would be produced.

Keywords: energy policy, renewable energy, transportation, hydrogen

Franklin T. Heitmuller, University Of Texas at Austin. Email:

ftheitmu@usgs.gov; *Controls on Channel Adjustment of the Llano River, Central Texas: Geologic Transitions and Large Floods*

The Llano River system in Central Texas is characterized by sharp geologic transitions and extreme floods. Upper cobble- and gravel-bed reaches incise the Edwards Plateau, a Cretaceous carbonate upland, and lower sand-bed reaches bisect the Llano Uplift, noted for Paleozoic sedimentary and Precambrian igneous rocks. As a result of the sedimentary and hydraulic controls, channel morphology and other alluvial features are markedly different between the upper and lower reaches. Upper meandering reaches have steep banks and greater alluvial development, including active floodplains, terraces, and abandoned channels. Proceeding downstream, the channel straightens, banks are more gently sloped, alluvial features are less pronounced, and bedrock controls are more numerous. Total-station surveys, aerial photographic mapping, flood-frequency analyses, and sediment sampling and laboratory analyses were used to quantify channel morphology and the associated controls. Interpretations of channel morphology include: (1) the downstream increase in sand load results in less cohesive and gently sloping banks, (2) the downstream increase in bedrock exposures results in a relatively straight channel whose direction is controlled by linear faults and joints, (3) frequent extreme floods have produced a 'trough-like' morphology, especially in the lower reaches, and (4) the highly variable flow regime produces a dual-channel morphology.

Keywords: channel adjustment, fluvial geomorphology, geologic complexity, Texas

Nina Held, Institute for Women's Studies, Lancaster University (UK). Email: n.held@lancaster.ac.uk; *Whiteness in lesbian spaces*

This paper aims to illustrate ways in which whiteness and its performances work as normative in the creation and use of 'lesbian' spaces. It will present findings of ethnographic research carried out in two 'lesbian' bars located in the North West of England. As early as the 1970s black feminists showed some of the ways that whiteness works as the silent and unmarked norm, though it has only recently been explored in the relatively new field of whiteness studies. The workings of whiteness as the unspoken norm are also apparent in studies in the field of lesbian and gay geography. Work in this field tends to neglect the ways in which 'race' and processes of racialisation play out in and are constitutive of sexualised space. White subjects are invariably the focus of analysis, though they are rarely identified as such. In contrast this paper focuses on how in spaces marked as 'lesbian' white bodies represent the somatic norm, whilst other bodies are rendered out of place, invisible and/or exotic, and thus desirable. It argues that these particularised readings of bodies contribute substantially to the racialisation of commercial lesbian spaces. This paper will illustrate how those and other performances construct lesbian spaces as white.

Keywords: whiteness, sexualised space, processes of racialisation

Susanna Heldt Cassel, Dalarna University, Sweden. Email: shc@du.se; *Trying to be attractive. Image building and identity formation in small Swedish industrial municipalities*

Efforts of creating and communicating positive images constitute a considerable part of contemporary regional development strategies. The use of place marketing has become a popular way to promote attractiveness for tourists, business and in-migrants in growth regions as well as in peripheral and economically vulnerable regions across Europe. In this article I explore the employment of place marketing as a development tool in specific local contexts. The study aims at understanding the role of place marketing in municipalities with experiences of negative development. The empirical material used consists of a case study with six small industrial municipalities in the Swedish Bergslagen region. Strategies of image building and place marketing are described and analysed by using a conceptual model of different cultural economy approaches to development. The case study indicates that place marketing should not only be looked upon as a matter of selling the municipality to outsiders such as tourists and potential in-migrants. In some types of municipalities, place marketing is rather a matter of building new images and selling itself to 'insiders' by creating a discourse of attractiveness.

Keywords: Place attractiveness, Regional development, Place marketing, Image, Identity formation, Sweden, Bergslagen

Timothy Edmund Heleniak, University of Maryland. Email: heleniak@umd.edu; *Migration in the Russian Far North during the 1990s*

Russia's transition away from centrally planning towards a market economy has impacted the economic geography of Siberia and the Russian Far North, which in turn has impacted the migration patterns in the region and between the Russian North and the rest of the country. The focus of this paper will be to document the migration patterns of the past decade and a half and to determine whether they are what was expected according to standard migration theories given the economic and social changes that have impacted the region. Peculiarities in migration patterns in the Russian North during this period include a large

element of state involvement including push factors such as the closure of many northern settlements and pull factors such as migration assistance programs. Much of the paper will be devoted to comparing changes to the population of Siberia and the North between the last Soviet census of 1989 and the first Russian census conducted in 2002. Among the characteristics to be examined will be changes in total population by region, ethnic group and language, age and sex, occupation, level of education, place of birth and length of residency, and city and settlement size. Flow data on migration during the inter-census period will also be examined. A final section will examine population trends of the Russian North in the future.

Keywords: Russia, migration, north, Arctic

Robert Hellstrom, Bridgewater State College. Email: rhellstrom@bridgew.edu; Annual Hydrometeorological Variability Within a Tropical Alpine Valley: Implications for Evapotranspiration

Conditions of glacier recession in the seasonally dry tropical Peruvian Andes motivate research to better constrain the hydrological balance in alpine valleys. Studies suggest that glacial mass balance in the outer tropics of the Andes is particularly sensitive to variations between the dry and wet season humidity flux. In this context, we introduce a novel embedded network of low-cost, discrete temperature microloggers and an automatic weather station installed in the Llanganuco valley of the Cordillera Blanca. This paper presents data for distinct dry and wet periods sampled from a full annual cycle (2004-2005) and reports on modeled estimations of evapotranspiration (ET). The transect of temperature sensors ranging from about 3500 to 4700 m revealed seasonally characteristic diurnal fluctuations in up-valley lapse rates that promote up-slope warm air convection that will affect the energy balance of the glacier tongue. Nocturnal rainfall dominated the wet season. Strong solar forcing dominated during both dry and wet periods, but extreme seasonal variations in soil water content and cooler wet season near-surface air temperature suggests the importance of considering the process of ET. Estimates of potential ET using six widely accepted models suggest nearly twice as much for the dry period, and we attribute this primarily to the five times higher dry period vapor pressure deficit. We ran a process-based water balance model, BROOK90, to estimate actual ET, which was nearly 100 times greater for the wet season. These results reinforce the importance of diurnal cloud cover variability in regulating ET in the Peruvian Andes.

Keywords: tropical, alpine, sensors, evapotranspiration, diurnal, seasonal, modeling

Christopher Warren Helm, National Snow and Ice Data Center, University of Colorado, Boulder. Email: chelm@nsidc.org; Ice Divide Migrations in Franz Josef Land

Migrations of ice divides within complex glacier systems are sensitive to changes in individual glacier regimes (i.e., glacier geometries, shapes, or balances). Ice divides, or boundaries of divergent ice flow, as well as glacier extents for several glaciers in the Franz Josef Land archipelago were mapped using historic topographic maps and satellite imagery over the past three decades. Observed movements in the position of the ice divides are thought to be influenced by changes in the external boundaries of the glaciers. Such changes in the position of ice divides in return influence changes in glacier geometries by altering the direction of ice flow. This study examines the dynamics between ice surface topography, glacier extent, and ice divide location in Franz Josef Land. Results depict the relationship between ice divides and glacier extents as well as the sensitivity of ice divide migration to changes in the ice surface topography.

Keywords: GIS, Glaciers, Remote Sensing

Joel W. Helmer, Oklahoma State University. Email: joel.helmer@okstate.edu; Walk Right In: The Origin and Diffusion of State Funded Private Land Access Programs in the United States

Two of the most pressing concerns for state wildlife agencies and the sport hunting community in the United States are declining hunter participation and recruitment. The United State Fish and Wildlife Service's 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation revealed that the number of all hunters declined by 7% from 1991 to 2001, to approximately 13 million. Numerous reasons are cited for the decline in hunting; urbanization, more single-parent families, less connection to rural areas and lifestyles, increasing cost of equipment and licensing, less leisure time, leasing of private land, and changing attitudes towards wildlife. Research also reveals that lack of access to land inhibits hunter recruitment and retention. Since state wildlife agencies rely on license sales for funding and local communities benefit economically from hunting, many states, especially in the Great Plains region, are currently leasing millions of acres of private land for public access. Often referred to as Walk-In Hunting Areas (WHA), landowners voluntarily enroll property and receive a monetary payment and other benefits. Instead of privatization, this is the "publicization" of land to attract hunters, increase hunting license sales, while supporting rural economies. This paper examines the genesis, diffusion, spatial distribution, and

current status of state funded WHA programs.

Keywords: Outdoor recreation, hunting, wildlife management, rural landscape

Gina R Henderson, University of Delaware. Email: ginah@udel.edu; Daniel J Leathers, PhD, University of Delaware. Email: leathers@udel.edu; Atmospheric Processes Associated with Snow Cover Ablation Events and their Effect on the Flood Hydroclimatology of the Chesapeake Bay

The Chesapeake Bay is the largest estuary in the United States and is home to more than 2,700 species of plants and animals. It is a highly productive natural system maintained through a constant influx of nutrients draining from six separate states, and through tidal mixing. The ablation of snow cover is an important element of the hydrologic system for this drainage basin, as variability in the rate or magnitude of snow melt runoff can have major implications on the hydrology of the region. Large flooding events for this basin are considered over a fifty year period based on its primary tributaries, the Susquehanna, the Potomac and the James Rivers. Research utilizing synoptic weather-typing techniques, a physically based snow pack model (SNTherm), and a unique gridded snow cover data set will explore relationships between weather events, rapid ablation and flooding in the Chesapeake Bay watershed. The synoptic-scale patterns responsible for the largest ablation events are identified, and the near surface energy fluxes associated with the synoptic patterns are determined. Sensible and latent heat fluxes are generally the most important fluxes involved in the ablation process during the most extensive hydrologic events. Other fluxes (i.e. net radiation, down-welling shortwave radiation, precipitation etc.) may dominate the energy input to the ablating pack under other specific synoptic types. The importance of snow pack characteristics prior to the ablation episode is also examined.

Keywords: snow cover, snow ablation, flooding, chesapeake

Jason Henderson, San Francisco State University. Email: jhenderson@sfsu.edu; The New Orleans Rebuild Debate: Informing the Urban Future in America

Recent scholarly research on urban disaster recovery suggest that substantial devastation has not led to visionary new city plans or radical changes in urban form and public policy. Rather, recovery planning often inherits pre-disaster planning practices and institutional structures. In recovery, a planning inertia sets in whereby a rush to return to normalcy means urban patterns are not easily altered. As a result, government policies accommodate previously impacted development by shoring up defenses such as raising levees, improving drainage, fire suppression, importing beach sands, or requiring hazard-resistant building codes. As Burby (2006) argues, a "safety development paradox" emerges, whereby unsafe, inherently vulnerable areas are made safe for development in the short-term, yet are also made exposed to catastrophic disaster in the long term. This research asks why visionary new urban plans and radical transformations of urban form and public policy are difficult to implement after disasters, even if physical geography and ecology suggest that inherently unsafe areas should be left undeveloped. The paper explores a case study of New Orleans, Louisiana to consider how to inform future deliberative process about how cities should grow in a way that limits or minimizes future safety development paradoxes. Specifically, the paper examines how political economy, ideology about urban space, and race and class conflict fuse to complicate a forthright discussion about how to rebuild (or not rebuild) parts of New Orleans.

Keywords: urban geography, New Orleans, Katrina

Keith G. Henderson, Villanova University. Email: keith.henderson@villanova.edu; The Impact of Synoptic Weather Events on Autumn Foliage Patterns

Autumn foliage patterns have significant implications both economically and ecologically. The foliage season represents a key period of tourism in the northeastern United States. Patterns of leaf change and leaf drop also act as indicators of the end of the growing season with ramifications on energy and moisture use. Previous research has shown that, while on average the foliage season begins in early October and lasts approximately six weeks, considerable interannual variability exists. Both the timing and duration of the season may differ by as much as three weeks across the Northeast. Temporal variations are generally linked to monthly climate variations. Warm Septembers and wet Octobers tend to both delay and extend foliage changes. However, rapid changes in the state of both leaf change and leaf drop may be associated with individual weather events. For example, Autumn 2006 began as an average foliage season. A series of strong cold fronts in October though, led to rapid transition of leaf color and large levels of leaf drop heralding to an early and abrupt end to the season. In this paper the effects of individual weather events on foliage patterns are addressed by characterizing the frequency and intensity of synoptic events in the Northeast and relating them to large-scale patterns of foliage change and leaf drop.

Keywords: applied climatology, climate variability, synoptic climatology

Victoria Leigh Henderson, BAH (SLAS), MA Candidate, Queen's University. Email: 2dvtvh@qmlink.queensu.ca; *Sounds Like Resistance: Indigenous Community Radio in Guatemala*

This paper focuses on the sociopolitical impact of indigenous community radio in Guatemala. Exploring tensions both within and between landscape and soundscape, I consider the ways in which community radio articulates indigenous resistance to domestic and international hegemonies. My research is limited to not-for-profit community stations that (1) broadcast in whole or in part in Maya languages, and (2) subscribe to a project of concientización, or consciousness-raising, among indigenous peoples. While community radio is a burgeoning phenomenon across the globe, it has particular resonance in Guatemala: first, because widespread poverty, monolingualism, and illiteracy problematize the utilization of Spanish-language media among Maya peoples, who account for approximately half of Guatemala's population; second, because Guatemala is one of only four countries in the world to have fully privatized its radio spectrum, replacing standard frequency licensing with usufructory rights that allow for frequencies to be leased, sold, subdivided, and consolidated in much the same fashion as private property. Drawing on the critical but decidedly under-theorized interstices between geography and mass communications, I investigate the extent to which structural inequities traditionally associated with access to land-based resources in Guatemala are reproduced and/or renegotiated in soundspace. Further, I consider how the privileging of orality through community radio affects indigenous cultural and linguistic autonomy, and I question what the emergence of new media information flows may mean for Maya peoples in terms of local, national, and international power relations.

Keywords: Maya, Guatemala, radio, soundspace, concientización

Michael D. Hendricks, United States Military Academy. Email: michael.hendricks@usma.edu; Joseph F. Harrison, Topographic Engineering Center. Email: ; *Developing a Geospatial Infrastructure to Support Teaching and Research at the United States Military Academy*

This paper describes efforts at the United States Military Academy to improve the geospatial infrastructure and better support students, faculty, and staff. A robust geospatial infrastructure is required for organizations to fully leverage geospatial capabilities. The software component of this infrastructure is addressed through an enterprise site license for ESRI's ArcGIS product line maintained by the Geospatial Information Science program. The academy's Director of Housing and Public Works (DHPW) currently maintains an enterprise GIS covering the installation's geographic data. To fully support the academy, however, geospatial data must also be available in easy to use formats at multiple scales over the entire globe. In addition, to support historical analysis, such as military history and geography, multi-temporal datasets are required. As a result of these requirements, efforts are underway to extend the Academy's current capability beyond the installation by building a multi-scale geodatabase with a global extent that supports unclassified visualizations and analysis. The database at West Point is designed to mirror the Army's Theater Geospatial Database (TGD) and over time, test extensions to the data model. The database provides geospatial information to personnel at West point and at the same time provides a data model testing mechanism to the military.

Keywords: GIS, Database

David Hendrickson, PhD Candidate, Simon Fraser University. Email: david_hendrickson@sfu.ca; *Assessing Consumption: Three Approaches to our Measurement*

Recently, there has been increasing interest in addressing issues related to consumption within sustainability discourse and community indicator frameworks. Consumption refers to human material provisioning that draws on ecosystem services. The central aim of this paper is to evaluate how consumption is measured at the local level through analyzing three diverse community indicator frameworks including: an integrated public engagement process in the Regional Vancouver Urban Observatory, The Natural Step systems framework in Whistler, B.C. and a municipal performance indicator framework in Santa Monica, CA. Objectives of this paper are threefold: 1) to interpret how material consumption levels within these diverse indicator projects are defined and addressed; 2) to assess the use of various indicators for raising awareness about consumption and building capacity to address overconsumption; 3) to identify leverage points to link indicators to policy implementation. Three case sites will contrast commonalities and differences concerning approaches, outcomes and impacts through reviewing the literature, conducting telephone interviews with key informants in each locale and analyzing pertinent policy and planning documents. Governments do not take actions on problems before identifying how to measure them and are often able to ignore matters when demands for change are unfocused. Perhaps this is no more evident than within the role of consump-

tion. This research study attempts to shed light on how three reputed leading sustainability projects are measuring and addressing consumption related issues. Based on an analysis of these three sites, I suggest why consumption needs to be more fully incorporated into sustainability indicator projects.

Keywords: indicators, sustainable consumption, urban sustainability

Reinhard Henkel, University Of Heidelberg. Email: reinhard.henkel@urz.uni-heidelberg.de; *In the shadow of the duopoly: Free churches in Germany*

In the shadow of the duopoly: Free churches in Germany Since the Reformation and the subsequent religious wars, the Roman Catholic and the Protestant Church have dominated the religious landscape in Germany. Their present spatial distribution can still be traced back to the "cuius regio, eius religio" principle of 1555. Until World War I, both were established state churches. In the Weimar Constitution of 1919, state churches were abolished. But the two churches still benefit from special relationships with the state. Apart from the Mennonites whose origin goes back to the radical, "Anabaptist" wing of the Reformation, most of the Protestant free churches came into being in Germany in the nineteenth century. Being subdued and sometimes persecuted, their growth was slow. With about 330.000 adherents, today they form only 0.4 % of the total population of Germany (82 mio.). The biggest free churches are the Baptists, Methodists, Pentecostals, Adventists, the (Congregational) Free Evangelical Church and the Christian Brethren. Due to their history, they display distinct spatial distributions. Some of the free churches are organized as corporations under public law while others are registered under private law. Since 1990, a considerable number of "Russian Germans" (German origin immigrants from the former Soviet Union) came to Germany. Many of them are Baptists and Mennonites, but they usually do not integrate into the German churches because of cultural differences. In addition, many charismatic or evangelical congregations have come into existence in the last decades which are independent and do not join a denominational organization.

Keywords: Geography of religion, Germany, Free churches

Logan A. Hennessy, Ph.D, UC Berkeley, Environmental Science, Policy, and Management. Email: logan@nature.berkeley.edu; *The Contradictions of Global Reforms, Access, and Sustainability in the Mining Sector*

Since the World Bank completed its Extractive Industries Review process in 2003, a number of private, state, and multilateral policy adaptations have emerged in the mining sector. These include the Mining, Minerals, and Sustainable Development project (MMSD), the Bank's Communities and Small Scale Mining initiative (CASM), and various examples of multinational companies adopting social and environmental guidelines for producing their products. At the same time, the resurgence of mineral markets continues to expand the sector and create problems for affected communities. As the capital-intensive attempts at reforming and legitimating the mining sector unfold, it is more important than ever to critically analyze these efforts of self-regulation and understand if and how they are changing the practice of extracting minerals. This paper discusses these approaches to reform in terms of sustaining 'access' to resources and raises the question of whether such developments can be environmentally and socially sustainable.

Keywords: environmental policy, extractive industries, mining, world bank, international aid, natural resources

Kevin Henry, New Jersey Department of Health, Cancer Epidemiology. Email: kevin.henry@doh.state.nj.us; *Use of the spatial scan statistic to identify geographic variation in survival time of colorectal cancer patients in New Jersey (1996-2002)*

In epidemiology and medical geography the spatial scan statistic (SatScan) has become a popular surveillance method to identify geographic variation in health events and disease incidence. In this study we illustrate an application using the most recent spatial scan statistic method designed for survival time data. The study included 42,693 patients diagnosed with colorectal cancer between 1996-2002 who were reported to the New Jersey State Cancer Registry (NJSCR) and who were followed through the end of 2004. We developed an exponential survival model and used the age-adjusted cause-specific survival times to detect areas of short-survival time for patients diagnosed at the regional stage (lymph node), and distant stage. Our results revealed one statistically significant area with shorter than expected survival time for cases diagnosed at regional stage. We also found the cases in this area to have lower SES measures and survival probabilities when compared to the rest of the State. Our results demonstrate the utility of spatial survival analysis as a surveillance method to better assess disease survival patterns which could be the result of community differences in medical treatment, diagnosis accuracy or insurance coverage. Applying the spatial scan statistic every few years could provide a means to assess changes in regional and community level health outcomes.

Keywords: health geography, medical geography, spatial analysis, cluster analysis, cancer

Mary C. Henry, Miami University. Email: henrymc@muohio.edu; *The Impact of Fire on Spatial Patterns in Two Pine Ecosystems*

Ponderosa pine forests of the Arizona Sky Islands and longleaf pine forests of central Florida are both fire prone landscapes. Historic fire regimes of frequent, low intensity fire were similar in these ecosystems despite their distinct locations, climate, and topography. Both forest types are also intermixed with species adapted to stand-replacing fire. In this study, remote sensing-based techniques were used to compare spatial patterns between locations and assess the impact of fire on each landscape. Landsat Thematic Mapper (TM) and Enhanced Thematic Mapper Plus (ETM+) data were obtained for Saguaro National Park (Arizona) and Ocala National Forest (Florida). Spectral vegetation indices were calculated as an indicator of green biomass at each location. Resulting enhanced images were used to calculate Moran's I, and to compare pre- and post-fire spatial heterogeneity. Forest managers could benefit from this information, since forest spatial patterns impact fuel load distribution and the behavior of future fires.

Keywords: fire, Landsat, Arizona, Florida, Moran's I

Kriste Henson, Los Alamos National Laboratory and University of California - Santa Barbara. Email: kriste@lanl.gov; Konstadinos Goulias, Ph.D., University of California - Santa Barbara. Email: goulias@geog.ucsb.edu; Leticia Cuellar, Ph.D., Los Alamos National Laboratory. Email: leticia@lanl.gov; *The Relationship between Population and Land Use for Application in Homeland Security Modeling*

Homeland security applications aim at developing scenarios of events, consequences, and strategies to minimize the impacts of consequences. This, however, requires that we also account for limited resources. Los Alamos National Laboratory has been modeling "population mobility" for use in epidemiological and telecommunication models of terrorist attacks and natural disasters, utilizing TRANSIMS, a transportation software package developed to simulate the movements of individuals between parcel-level locations. At the core the models are "synthetic schedules", which are created based on time-use, activity, and travel surveys. Because it is very time consuming and expensive to collect and prepare surveys for modeling, it has become critical that national sources of survey data be utilized to model the travel patterns of persons at local levels. A new methodology is in the process of being developed that will allow a person's activity patterns to be "transferred" to another person living in a different geographic location. In this paper, the connection between travel behavior and land use, land form, and accessibility are explored to determine what relationships exist that allow for reasonable transferability in space and time. We will identify a select group of land use variables that are essential to define activity and travel patterns for people along with socioeconomic characteristics normally utilized in travel behavior research. Then, it will be possible to design a process to generate synthetic travel patterns by transferring a national travel survey to a local level employing statistical methods. This paper will discuss work in progress and discuss research findings.

Keywords: transportation, land use, activity patterns, security

Ranya Henson, University of Hawaii at Manoa. Email: ranya@hawaii.edu; *Genetic Structure in the Hawaiian Intertidal Zone: Space, Scale and Disturbance*

Issues of scale and disturbance intensity have been poorly examined in most population genetic analyses of marine organisms. To address this problem I investigated patterns of spatial genetic structure in the intertidal echinoderm *Colobocentrotus atratus* in the Hawaiian Islands. I hypothesized that sampling grain would affect measures of population differentiation. Additionally, I expected that high levels of natural disturbance would cause higher rates of local population extinction and recolonization, leading to genetic patchiness, while low levels of disturbance may allow for significant genetic autocorrelation over both local and broad scales. Nuclear and mitochondrial DNA variation were used to assess how the genetic divergence among populations varied across spatial scales and to determine whether the amount or pattern of divergence differed between high and low wave disturbance shorelines. Populations were sampled from three islands in the Northwestern Hawaiian Islands, Necker, Nihoa and French Frigate Shoals, and three islands in the main Hawaiian Islands, Hawai'i, O'ahu and Kaua'i. The main Hawaiian Islands were further stratified into high and low wave disturbance shorelines, and, to examine divergence at the finest spatial scales, the high and low disturbance shorelines of O'ahu were divided into multiple sections. Early analyses indicate that while isolation-by-distance is present at broad spatial scales, chaotic genetic patchiness predominates at more local scales. Furthermore, genetic patchiness occurs at broader scales on the shorelines with the highest level of wave disturbance.

Keywords: biogeography-evolutionary, *Colobocentrotus atratus*, Hawaiian Islands, intertidal, spatial genetic structure

John Heppen, University Of Wisconsin River Falls. Email: john.heppen@uwrf.edu; *Core and Periphery Electoral Changes in the United States 1932 to 2008.*

Core and periphery regional analysis of the United States at the state-level is an useful tool for researching changing regional dynamics in migration, income, and politics. Building upon previous research which analyzes the US into core and periphery regions, this paper regionalized the United States decennially based on per capita income from 1929 to 2000. The country was regionalized as core, near-core, middle, semi-periphery, and periphery regions. The electoral votes or voting power of each region were analyzed to determine the relative strength or power of each region. The analysis revealed that through time the semi-periphery and periphery have gained electoral strength while the core and middle have declined in strength. In presidential elections since 1980, this trend has tended to mean that Republican candidates are candidates of the semi-periphery and periphery while Democratic candidates tend to be candidates of the core and near-core. This constituted a reversal from previous patterns.

Keywords: Electoral Geography, Political Geography, United States

Alison Heppenstall, University of Leeds. Email: a.j.heppenstall@leeds.ac.uk; *Application of Recurrence Plots for Visualising Structures in Complex Geographical Systems*

Recurrence plots (RPs) are a relatively new technique for the analysis of time series data that allows both visualisation and quantification of structures hidden within data. They are particularly useful for graphically detecting hidden patterns and structural changes in data as well as examining similarities in patterns across a time series data set (where there are multiple readings at one point). RPs can be also used to study the nonstationarity of a time series as well as to indicate its degree of aperiodicity. These features make RPs a very valuable technique for characterising complex dynamics in the time domain, a factor reflected in the variety of applications that RPs can now found in ranging from climate variation, music to heart rate variability. To date, little work has been undertaken on developing this methodology for visualising complex spatial systems. This paper will (i) outline the use of RPs for time-series data and (ii) discuss spatial RPs. Work using this methodology will be presented and the applicability discussed.

Keywords: Visualisation; Complex Systems

Steve Herbert, University of Washington. Email: skherb@u.washington.edu; *Trespass Law, Exclusion, and the Nature of Urban Public Space*

In Seattle and other cities, recent expansions of trespass law make the regulation of public space easier and more extensive. A range of new tools allow police officials to clear spaces of those deemed undesirable. I use this paper to accomplish three purposes: to catalogue these new tools and the capabilities they create; to review and extend existing explanations for their increased ubiquity; and to explore some of their implications for how public space is imagined, controlled, and experienced. Whatever their justifications, these new social control mechanisms enable exclusionary practices whose consequences deserve interrogation.

Keywords: Trespass, Public Space, Police, Law, Exclusion

Peter H. Herlihy, Ph.D., University of Kansas. Email: herlihy@ku.edu; Miguel Aguilar-Robledo, Ph.D., Universidad Autónoma De San Luis Potosí. Email: aguilar@uaslp.mx; *The First Bowman Expedition: Methodology and Focus on Indigenous Mexico*

This paper describes the methodology of the First Bowman Expedition of the American Geographical Society, called México Indígena. The prototype project, led by a multinational team of Latin Americanist geographers, focuses on the cultural geography of indigenous populations in Mexico. Free to choose our topic, we are studying neoliberal changes in Mexico's property regime and the gargantuan land certification/privatization program, called PROCEDE. We are building a multi-scale GIS that focuses on indigenous land use and land tenure. We use traditional, archival, and humanistic participatory research mapping (PRM) methodologies with GPS technology and ArcGIS software to build a digital regional geography. We have been careful to document the research in metadata and detailed reports. Our particular odyssey has uncovered the most significant land tenure change in Mexican history, one that will undo the revolutionary ejido and communal land holdings, turning social into private property.

Keywords: Participatory mapping, GIS, Bowman Expedition, PROCEDE, Mexico

RDK Herman, Towson University. Email: dherman@towson.edu;
Inscribing Conquest: Guam and the War in the Pacific National Historical Park

History is written by the victors, and victory is inscribed in the landscape. After four thousand years of independence, the Northern Mariana Islands were conquered by the Spanish in the late 17th century, becoming the first European colonial outpost in the Pacific. Guam, the largest of these islands, became a U.S. possession in 1898 with the Spanish-American War. A half-century of American benign neglect ended with the capture of Guam by Japan in 1941 and the subsequent re-conquest of Guam by American forces in 1944. These events gave Guam a unique place in the American colonial sphere. Unlike the Philippines and Hawai'i, Guam remains a U.S. colony. And with the War, Guam's position on the doorstep of Asia was seen with much greater importance than before. Guam remains an unincorporated U.S. Territory. In 1965, a National Park Service team arrived to determine whether "sites of National significance" existed on the Island. The resulting park focuses on the "War in the Pacific" as a whole, with particular emphasis on the "capture and liberation" of Guam as a United States territory. The Park thus equates "national" with "American," and creates a series of landscapes that inscribe U.S. ownership. But this position is not uncontested by the indigenous Chamorro inhabitants, and the loss of Chamorro land to U.S. military bases remains a contentious issue. This study provides a reading of the Park within the context of American colonialism on Guam, and its role in positioning the island within its uneasy colonial status.

Keywords: Colonialism, Indigenous peoples,

Clare Herrick, UCL. Email: c.herrick@ucl.ac.uk; To the West and East of I-35: Constructing and Preventing Los Dos Obesidades in Austin, Texas

With half the US Latino population residing in Texas and California, Hispanic health is a major public health concern for those states. Consequently, obesity and Type-II diabetes have gained importance as health disparity indicators. Despite being a "critical tool in the working of the state apparatus" (Suarez-Orozco and Paez, 2002: 4), the category of race is one that is not often discussed with reference to obesity prevention policy and programmes. This is a significant omission given that obesity prevention programmes in the US are often targeted at racially-defined as well as behaviourally-defined risk groups. This paper contends that obesity as a 'problem' in Austin is a product of the existing socioeconomic, cultural, linguistic and educational divide in the city, both real and imagined. Austin west of I-35 is felt to be a space of wealth and privilege where people know that they should be active and eat healthily and provision is made for this. The East Side is marked out as a space of difference where the informed consumer is rendered impossible by structural and cultural barriers to prioritising healthy behaviours. The population-scale frame of reference favoured by public health means that when health statistics are presented they often draw upon race as a variable controlling for risk, justifying classifying intervention areas by minority composition. This work uses empirical evidence to support the claim that obesity prevention efforts can legitimately fashion both places and people, perpetuating health disparities and marking out difference in their creation of los dos obesidades.

Keywords: obesity, health geography, texas, hispanics

Melinda Herrold-Menzies, Pitzer College. Email: mmenzies@pitzer.edu; Boating on the Sea of Grass: Western Development, Tourism, Resistance, and Local Empowerment

The development of railway and road infrastructure in Weining County, Guizhou Province, through the Western Development Project has led to a dramatic increase in domestic tourism to the local nature reserve, Caohai, the Sea of Grass. Tourists visit the reserve primarily to enjoy leisurely boat rides to admire the scenery of water and mountains in the summer or to view rare black-necked cranes during the winter. This increase in tourism has offered numerous opportunities for the tourism bureau to extend its power, misappropriate funds, and monopolize tourism revenues. One local community of boat punters, however, has resisted tourism bureau monopolization of tourism activities by pooling its own resources to create its own tourist "port." In this case the Western Development Project has enabled this community to take advantage of local infrastructure development to promote economic development initiatives in spite of opposition from a more powerful, but locally distrusted, government bureau.

Keywords: China, Western Development Project, Ecotourism

Carly Lynn Hertz, M.A., University of North Carolina at Greensboro-Doctoral Student. Email: chertz81@yahoo.com; The Role of Geographic Information Systems in Epidemiology and Public Health

The purpose of this presentation is to demonstrate the use of Geographic Information Systems (GIS) for conducting rapid needs assessments (RNA). RNA is recognized as an essential and important component of any disaster relief operation, and robust GIS applications have great potential for increasing the efficiency and accuracy of this process. This past March, the Public Health

Regional Surveillance Team-5 of North Carolina (PHRST-5), conducted an after-action plan assessment in the counties of Hancock and Harrison Mississippi, which were ground zero regions ravaged by Hurricane Katrina. This assessment determined the perceived effectiveness of the Mississippi Department of Public Health's response to the hurricane by using GIS and other technology. This presentation uses this study as an example of how GIS and a cluster sampling method adopted by the Centers for Disease Control (CDC) can be used conjointly to facilitate the RNA process. The cluster sampling method is a statistical technique for incorporating the size of the population as an important variable into the selection process of locations. Traditionally, public health officials have used this statistical technique with paper maps and questionnaires for determining sampling locations and gathering data in the field. This approach, however, has proven to be time consuming, inaccurate, and cumbersome. Improvements in future RNA can be realized through recent advancements in technology such as GIS, Global Positioning Systems (GPS), and handheld wireless devices.

Keywords: gis, public health, rapid needs assessments

Patrick A. Hesp, Dr, Louisiana State University. Email: pahesp@lsu.edu; Graziela Miot da Silva, Dr, Louisiana State University. Email: gdsilva@lsu.edu; Winds, Coastline Orientation And Barrier And Dunefield Development, Southern Brazil

This paper examines the spatial variation in barrier and dune development along Moçambique beach, a headland bay beach in southern Brazil, and embayments to the south of Santa Catarina Island. Moçambique extends through 600 of curvature, and displays a significant south to north increase in littoral sediment supply, in exposure to prevailing winds and waves, and changes in beach/surfzone morphodynamic type from low energy dissipative, through moderate-high energy intermediate, to high energy intermediate-dissipative. The barrier system extends from a small foredune-blowout complex (protected southern end), to a blowout/parabolic dune complex, to a narrow transgressive dunefield (mid-embayment), to a large-scale transgressive dunefield in the exposed northern end. The system behaves according to the wave-beach-dune model (Short and Hesp, 1982) where the largest dunes are found in the northern, most exposed, dissipative section. Sediment supply is at a maximum here also, but the dune systems do not correspond with Psuty's scheme (2004). The southern beaches display the same northwards wave, surfzone and littoral drift trends, but opposite trends in prevailing winds and dune development. Neither model above applies. We show that regional prevailing wind direction is critical in determining barrier and dunefield development, but tuned very much by coastline orientation, since the degree of exposure to winds and waves also controls dunefield development.

Keywords: Coastline orientation, winds, barrier development, Brazil-south

Paul M Hess, University of Toronto. Email: hess@geog.utoronto.ca; Toronto's Towering Suburbs: Planning for Suburban Highrise Housing, 1950-1970

Critical work on the post-World War Two suburban apartment is poorly developed compared to work on planning the US and Canadian suburbs as low density landscapes of single-family houses. This study helps fill this gap. It examines the planning and development of large clusters of high-rise apartments in the post-World War Two suburbs surrounding the City of Toronto in Ontario, Canada during the period between 1950 and 1970. The study interprets the first generation municipal plans and zoning codes produced in these suburbs after the war, city council minutes, government technical reports, popular media sources, and federal housing policies to understand how apartments were conceptualized in terms of their social role and how planning processes shaped where apartments were located and how they were designed. Findings suggest there were conflicts between apartment development and neighborhood planning policies that emphasized creating protected areas of single family houses. Local municipalities sought apartment development, however, because of federal policy incentives, the role apartments played in financing needed infrastructure such as roads, sewer, and utilities, and because of the influence of profitable development concerns. Modernist design and planning ideas helped municipalities justify and create large zones of apartments that were poorly integrated with other residential areas.

Keywords: suburbs, planning history, apartments, modernism

Markus Hesse, Freie Universität Berlin. Email: mhesse@zedat.fu-berlin.de; Shrinking cities, demographic change, and the politics of urbanization. A discourse analysis

Demographic changes and the associated processes of urban (population, economic) decline appear to be dominant in German urban discourse since the end of the 1990s. Within a relatively short period of time, the urban issue has been shifting from how to organize urban expansion towards how to deal best with the consequences of "shrinking". Accompanied by the de-industrialization of major parts of Eastern Germany or regions, such as the Ruhr Area, a somehow

catastrophic perception of urban development has become popular. In this context, a new urban politics has emerged, putting the current attention for “Stadumbau” (urban re-generation) forward to a particular re-definition of the subject. At the same time, a rising housing occupation is being observed in major city-regions and shaping selected inner-city areas, and a “new urbanism of talent and tolerance” (R. Florida etc.) is gaining considerable momentum. These observations are interpreted as signs of a general urban renaissance. Yet they stand in remarkable contrast to the aforementioned theories and assumptions of urban decline. Against this background, the paper aims at critically discussing the process of agenda-setting in urban planning and politics discourse. The perception of cities as both threatened and reviv-ing entities is considered prototypical for short-term interpretation of single phenomena. It appears mainly metaphoric rather than evidence-based. Instead, a reflected investigation of urban development in a broader context is necessary. In order to conceptualize such approach, the theoretical sketch of urban cycles is preferred, compared to the popular mantra of the “shrinking city”.

Keywords: Urban growth and decline, shrinking cities, urban theory, discourse theory

Amy Hessler, West Virginia University. Email: Amy.Hessler@mail.wvu.edu; Richard Stockton Maxwell, West Virginia University. Email: rmaxwell@mix.wvu.edu; Ed Cook, Lamont-Doherty Earth Observatory, Columbia University. Email: drdendro@ldeo.columbia.edu; Brendan Buckley, Lamont-Doherty Earth Observatory, Columbia University. Email: bmb@ldeo.columbia.edu; Eastern Red Cedar (*Juniperus virginiana*): Millennial Length Tree Ring Records of the Mid-Atlantic Region?

Unlike the western and central United States, the mid-Atlantic region has limited tree-ring records suitable for millennial length reconstructions of climate. A new source of climate history for the region may be derived from isolated stands of eastern red cedar growing in the headwaters of the Potomac River. Stands dominated by eastern red cedar populate the steep slopes of limestone “knobs” on the east side of the ridge and valley province of West Virginia. These are some of the driest locations in the region, receiving less than 90cm of precipitation per year, suggesting that these trees may be sensitive to drought. In this paper, we describe a set of sites that contain live and dead wood with tree-rings that extend back to 500 AD. More than 80 trees were sampled with increment cores (live trees) and cross sections (snags and logs) in an effort to build a long record of annually resolved drought information for the mid-Atlantic region. Results indicate a reasonable relationship with drought that may be suitable for identifying the frequency and duration of extreme drought events in the past. Additional sites containing these long-lived and well-preserved trees may exist in the area potentially allowing for a future network of tree ring sites suitable for climate reconstruction. Results may be especially relevant for the Washington DC metro area, located approximately 150 km east of the study area. The area’s population exceeded 5.9 million in 2005 and gets the majority of its water from the Potomac River.

Keywords: drought, tree rings, mid-Atlantic

Richard Heyman, University of Texas at Austin. Email: heyman@utexas.edu; The White Mississippi

This paper looks at the exploration and discovery of the source of the Mississippi River in the nineteenth century. Through an examination of the geographic and ethnographic work of Jacob V. Brower, who produced the “definitive” study of the source of the river at Lake Itasca in Minnesota, the paper argues that the search for the origin of the river constituted a series of attempts to fix the river as a “natural” object within European ways of knowing, to make it intelligible in ways that made both the river and knowledge of it autonomous from indigenous forms of knowledge, to cleanse it of native presence, to make it white. However, Brower’s work, which is significant because it lead directly to the founding of Itasca State Park in Minnesota as the “headwaters of the Mississippi”, was structured by the irreducible contradiction that “scientific” knowledge of the river is haunted by native presence: knowledge of the river as a unified object was a social construction dating back to prehistory, not a “hydrological fact”. Brower, who had been a young soldier in the 1863 US Army campaign against the Lakota, “solved” this dilemma by embracing arcane theories that the “original” people who settled the region (and who Brower claims were “geographers of no mean ability”) were not “Indians” but whites who were displaced by the Ojibwa and Lakota. Brower’s career as a geographer and ethnologist was an attempt to create an entirely white Mississippi, a natural object purged of native presence.

Keywords: Mississippi River, Whiteness, Nature

Nik Heynen, University of Georgia. Email: nheyne@uga.edu; Don Mitchell, Syracuse University. Email: dmmitc01@maxwell.syr.edu; Cooking up Civil Disobedience for the Hungry: ‘Food Not Bombs’ and the Resurgence of Radical Anti-hunger Politics

For over 150 years, civil disobedience has been at the heart of revolutionary struggles to facilitate emancipatory societal change. Non-violent civil disobedience began with Thoreau’s abolitionist efforts in mid-19th Century Massachusetts, but has also been at the center of numerous other transformative moments in radical history, including Gandhi’s anti-colonial efforts for India, King and Carmichael’s efforts for US civil rights, Tutu and Biko’s anti-apartheid struggles and Walesa’s Solidarity movement in Poland. More recently, one of the world’s fastest growing anarchist social movement’s, Food Not Bombs (FNB), has engaged in civil disobedience for the sake of reigniting radical urban politics that among others objectives, shares free food that would have otherwise been trashed with hungry people in public spaces in 100s of cities throughout the world. As revanchist government agenda’s continue to proliferate throughout these same cities, members of FNB have begun to come under increased surveillance and go to jail for feeding the hungry. This paper will discuss the spatial potential for politics based in civil disobedience to contribute toward ending hunger and poverty by feeding the hungry in public spaces and bring greater attention, social protest and grassroots mobilization against the uneven development and extreme material inequality produced under neoliberal capitalism. After discussing the theoretical and political potential of civil disobedience for renewing radical anti-hunger/anti-poverty politics, we will focus on the growing sense of panic toward radical/grassroots political action and how it has contributed to the increased surveillance and persecution of several chapters of FNB within North America.

Keywords: civil disobedience, public space, radical anti-hunger politics

Abby Hickcox, University of Colorado - Boulder. Email: abby.hickcox@colorado.edu; Watershed Protection Services in Mexico: The Production and Consumption of a Water Market

This paper utilizes a political ecology framework to analyze a characteristically neoliberal payment for watershed services program in Colima, Mexico, also located in the Sierra de Manantlán biosphere reserve. Using a case study of one Mexican ejido, I analyze the commodification of ecosystem services in the creation of a market for watershed protection services. A local-level analysis shows the arbitrary nature of such natural resource commodification, and a study of the processes of commodification reveals the complicated relationship between the legal and extra-legal realities of natural resource regulation. A central question the ejido members and biosphere reserve staff attempt to answer is: Who possesses the rights to this new benefit stream? This question is one of property rights, and an attempt to answer it brings the ejido members to an ambiguous space between their recently titled individual parcels and an invocation of the global, national, watershed, and ejido level commons.

Keywords: Political Ecology, Mexico, Ecosystem Services, Property Rights, Common Property

Michael P Hickey, Tulare County RMA/GIS. Email: mhipkey@co.tulare.ca.us; Calibrating UPLAN (Urban Simulation Model) with GIS Time Series of Land Cover Data

All the counties in California’s San Joaquin Valley are implementing the GIS-based UPLAN urban simulation model in order to estimate the likely impacts of population growth to the year 2050. Tulare County has developed a consistent set of land cover maps, spanning the period 1986 to the present (created by blending GIS data from various sources), and the county is using that data to calculate the various control variables needed by UPLAN. In simple terms, an urban simulation model predicts two things: the AREA OF LAND that will be developed at some future data -and- the SPATIAL DISTRIBUTION of that development. By simulating urban growth in Tulare County from 1986 to 2006, the UPLAN model can easily be calibrated to exactly replicate the quantity of growth. The challenge is to manipulate the control variable in order that the spatial distribution of urban growth duplicates the actual pattern of growth in Tulare County. By measuring the differences between the actual development pattern and the pattern predicted by a specified combination of control factors, it becomes possible to know if a modification of a specific variable improves or degrades the prediction. Thus, through a process of trial and error, it is possible to improve the performance of the UPLAN model on historic data. This process should also provide valuable insights for using UPLAN to simulate future urban growth.

Keywords: GIS, urban simulation, land cover change

Clare Hickman, BSc, MSc, PhD, Research Fellow on the Historic Gardens & Landscapes of England Project, University of Bristol, UK. Email: clare.hickman@bristol.ac.uk; For "the Morals as Well as ? the Health in the Towns": An Exploration of the Relationship Between Ideas of Health and Disease, and the Origins of Parks in England

This paper will explore the connections between notions of health and disease, and the origins and design of open spaces in England in the early nineteenth century. In addition to a description of the relationship between the creation of parks and ideas concerning physical health, it will also explore notions about mental health and the concept that designed landscapes could materially affect the mind. The main focus of the paper will be the early nineteenth-century concept that environmental design could help create healthy bodies and minds. The inclusion of gardens and wider landscapes in hospital and asylum design and their use as part of the therapeutic regime provide evidence for the influence of medical ideas on environmental design. Similar arguments appear to have been used in relation to open spaces as these were perceived to be beneficial in the prevention of disease. The research presented will be interdisciplinary in scope, primarily concerning the fields of medical and landscape history, as well as elements of cultural, social and geographical history. Texts discussed in the paper will include work by leading nineteenth-century campaigners for the provision of open spaces, such as John Claudius Loudon, public health treatises such as Edwin Chadwick's 1842 'Report on the Sanitary Condition of the Labouring Population of Great Britain', articles in relevant nineteenth century-journals such as 'The Builder' and archival sources relating to specific open spaces created during this period.

Keywords: parks, England, medical geography, social history

Matt Hidek, Syracuse University. Email: mahidek@maxwell.syr.edu; Military Doctrine and Integrated Intelligence in the City

Since 11 September 2001, nation states have focused on further developing defensive strategies to protect cities from the threat of political violence. Now commonly known in the United States as "homeland security," these new governmental initiatives have altered the physical terrain of the city through a wide range of defensive strategies rooted in military doctrine. Through an analysis of the National Geospatial Intelligence Agency's 133 Cities Project and the expansion of New York's Compstat program for antiterrorism planning, this paper presents evidence of new forms of integrated police intelligence operations within the city, and their implication for urban governance and community development.

Keywords: urban, security, intelligence, governance

Nancy A. Hiemstra, Syracuse University. Email: nahiemst@syr.edu; Territorialized spaces, tiered citizenship, and Latino immigrants in small town Colorado

Inherent to neoliberalization is the contradiction between increasing economic dependence on immigrant labor and the concurrent social and political rejection of immigrant bodies. The paper argues that this contradiction profoundly influences enactments of citizenship, and explores the ways in which it plays out at the local scale. An ethnographic analysis of social spaces in Leadville, Colorado, where Latino immigration has increased rapidly in the last fifteen years, revealed that particular places are deeply territorialized - hierarchically divided between Latino immigrants and white residents - by constant reinforcement of race, class, and legal difference. The concept of "el rechazo" (rejection) is developed as a means to explore the impacts of this territorialization on immigrants' participation and community engagement. The case study suggests that neoliberal policies are effectively "tiering" local-scale understandings and practices of citizenship in new sites of immigration. The paper concludes by considering ways in which the solidification of social, political, and economic divisions in such sites is reflected in the production of national identity.

Keywords: citizenship, Colorado, immigration, neoliberalization, race

David Higgitt, National University of Singapore. Email: ; Karl Donert, Liverpool Hope University. Email: ; Mick Healey, University of Gloucestershire. Email: ; Phil Klein, University of Northern Colorado. Email: phil.klein@unco.edu; Michael Solem, Association of American Geographers. Email: ; Sue Vajoczki, McMaster University. Email: ; Developing and Enhancing International Collaborative Learning

This paper reviews international collaboration in geography in higher education. Focusing on partnerships between institutions and on collaborative learning courses, we examine collaboration within the context of internationalizing geography curricula. Examples of international collaborations reveal that communication technologies are both enablers and impediments. Most of the examples depend on the connectivity of institutions in the Anglo-American realm. Many logistical concerns confront establishment of initiatives, including a need for faculty mentoring. Key issues for managing collaborations include

dealing with intercultural differences, varied expectations and engagement among students; agreements on outcomes and assessment; and evaluating performance of initiatives. Ongoing financial support may depend on demonstrating educational benefits added by collaboration, yet identifying and measuring benefits to learners is a critical challenge. The subject of geography should be an important part of citizenship and sustainability education. The examples identified in this paper show that geographers are involved in collaborative learning initiatives in many contexts. But does geography itself make a difference? Is its subject matter particularly suited to collaboration and does the location of collaborators influence its likely success? Collaborations are locally situated as manifestations of different place identities, affecting how geographers plan collaborative learning outcomes. Innovations in communication technologies and institutional or personal desires for internationalizing curricula will no doubt lead to further collaborations. In pursuing these targets, the benefits to the learner may be taken for granted. More explicit attention is needed to evaluate the impact of international collaborations on its student participants, in terms of both content knowledge and interpersonal skills.

Keywords: international collaboration, e-learning, geography education

Robert J. Hijmans, PhD, International Rice Research Institute. Email: r.hijmans@gmail.com; A cross-country comparison of poverty in SE Asia

A number of recently completed poverty maps for South East Asian countries was compiled. They all had a relatively high level of spatial desegregation. The maps showed clear differences in the characteristics of the geographic distribution of poverty between countries and also illustrate the potentially large effect of aggregation on these data. We tested a number of variables for association with poverty (e.g., road access, soil quality, population density and climate). While some factors are frequently significant (isolated mountain areas are poorer than more densely populated plains), the explanatory power of other variables varied among countries. It remains to be seen whether these differences are due to variation in policy or to other factors not included in this study.

Keywords: Poverty, gis, Asia

Andy Hilburn, University of Kansas. Email: amhilburn@yahoo.com; What a Road Might Bring: Settlement Dynamics in Ayutla, Oaxaca, Mexico, 1950-2005

Ayutla is located in the rugged Sierra Norte in Oaxaca, Mexico. Prior to the latter half of the 20th century, the village of Ayutla was primarily a market, festival, and administrative center for its respective municipio. Residence within the village for most residents was typically ephemeral and as a result, Ayutla had a relatively low permanent population. In 2005, the townscape of Ayutla appeared much more permanent, reflecting economic, social, and cultural changes seen in other parts of indigenous Mexico. This study utilizes a combination of qualitative and quantitative analyses to illustrate the changes in settlement in Ayutla. Field observation, repeat photography, and interviews comprise the qualitative component. Mexican census (INEGI) data from 1950-2000 were analyzed via combined statistical and GIS procedures according to population, economic activity, household amenities, and indigenous language use to illustrate socio-economic changes. Land cover change detection is investigated as a response to shifting livelihoods and GPS mapping of village land use is helps to describe the current characteristics of Ayutla in regard to historical descriptions and maps.

Keywords: Oaxaca, Mixe, settlement change, indigenous groups

Darlene Hilburn, Syracuse University. Email: drhilbur@maxwell.syr.edu; Racial discourses and racialization: Liberian refugees and race

In this paper, I examine how racial categories are created and policed through a case study of Liberian refugees in Syracuse, New York. As newcomers to Syracuse from a state formed by US former slaves, Liberian refugees encounter US racial categories with a unique perspective, and at the same time their bodies are immediately racialized by others who view them as "black" or "African." I am interested in how discourses form around race and labels, but also the material and social consequences of these discourses. In examining racialization and racial labeling in its discursive, political, and material relations, I will highlight how these processes and outcomes are spatialized in particular places in the city. Changing geographies of "who is where and why" influence and are influenced by the racial order imposed by city residents and government officials as well as memories of home that migrants bring with them. Therefore, not only the scale of the city matters, but also the scales of home, body, neighborhood, and nation.

Keywords: racialization; refugee; race labels; identity; Syracuse, New York

Barbara S. Hildebrant, Educational Testing Service. Email: bhildebrant@ets.org; Sarah Bednarz, Texas A&M University. Email: s-bednarz@tamu.edu; Donald Zeigler, Old Dominion University. Email: dzeigler@odu.edu; Martha Sharma, College Board Consultant. Email: geogsharma@yahoo.com; Ibipo Johnston-Anumonwo, SUNY Cortland. Email: johnstoni@cortland.edu; Tracking the Progress of Advanced Placement Human Geography

Since the early 1950s, the College Board's Advanced Placement program has offered top high school students the opportunity to obtain college credit for courses completed in high school. Today, nearly 15 percent of all graduating high school students achieve a score of 3, 4 or 5 on an Advanced Placement examination. Across the country, Advanced Placement is being promoted as a vehicle to enhance the quality and rigor of high school education. Participation in Advanced Placement courses is also increasingly a prerequisite for admission in competitive colleges and universities. Advanced Placement Human Geography (APHG) is now in its sixth year and firmly established in the College Board's AP program. APHG has grown steadily from 3,272 tests at the first test administration in 2001 to 21,003 tests in 2006. In 2001, 305 schools offered APHG. By 2006, the number of schools participating in the program had increased to 890. Using a variety of thematic maps, this poster examines the dynamics of growth of APHG throughout the United States, changes in patterns of participation, state and regional patterns in performance, and linkages between high school APHG students and the colleges they attend.

Keywords: Geography Education

Lynn Hilgendorf, University of Wisconsin Eau Claire. Email: lynnhilgy@gmail.com; Lisa J. Theo, University of Wisconsin-Eau Claire. Email: theolj@uwec.edu; Respect for Resources: The Creation of the Willow Flowage Scenic Waters Area

The recent influx of new residents to Wisconsin's Northwoods has created a new community dynamic. Previously, neighbors knew each other and often didn't mind sharing resources such as hunting on another's property. New arrivals tend to be more protective of their property but not necessarily of the resources. We will use the Willow Flowage just north of Tomahawk, Wisconsin to demonstrate the historical respect for resources in the Northwoods. We will document the history of the creation of this wilderness area and the conflicts over land use and land management. The Willow Flowage Master Plan created by the Wisconsin Department of Natural Resources will serve as the main source of data. In addition, newspaper archives from the Wisconsin State Historical Society Library will help to decipher the opinions of the different actors (local residents, elected officials, paper mill managers, and Wisconsin Department of Natural Resources personnel) involved during the land acquisition period. We will also examine the methods used to find common ground.

Keywords: Willow Flowage, Historical Geography, Wilderness, Resource Management, GIS

Kenneth W. Hilker, Western Michigan University. Email: k4hilker@wmich.edu; Kathleen M. Baker, PhD, Western Michigan University. Email: kathleen.baker@wmich.edu; Dave Lemberg, PhD, Western Michigan University. Email: david.lemberg@wmich.edu; Urban street tree diversity and ash tree replacement

Biodiversity is of increasing concern in urban systems because of its impacts on sustainability of the environment and perceptions of aesthetics within a community. Similar to the epidemics of chestnut blight and Dutch elm disease in the 20th century, emerald ash borer is currently causing the widespread removal of a common tree species from the urban forest. Both green ash (*Fraxinus pennsylvanica*) and white ash (*F. americana*) have been popular street trees in cities throughout the U.S. Removal of these species and decisions regarding replacement planting will have implications with regards to urban biodiversity and regional susceptibility to further epidemics. In this study, we examine species diversity within an urban street tree dataset using various biodiversity metrics. We calculate the impact of potential loss of ash trees to the emerald ash borer infestation on the spatial patterns of biodiversity in the region. This analysis is in preparation for the creation of a spatially explicit model to recommend replacement tree species to maximize the biodiversity of urban forest.

Keywords: Street trees, biodiversity, urban forest, emerald ash borer

Jennifer L. Hill, University of the West of England. Email: Jennifer.Hill@uwe.ac.uk; Conserving tropical rainforest: a role for ecological education?

There has been much rhetoric that interpretation is an important element in the promotion of environmental conservation and sustainable tourism, largely by educating visitors and by prompting more responsible tourist behaviour. This has rarely been tested empirically and there has been less evaluation of tourist understanding of biodiversity. Research presented here applied inferential statistics to questionnaire and quiz responses in order to evaluate whether

educating visitors about biological diversity during a visit to tropical forest in Australia increased their levels of satisfaction and knowledge above those achieved from the experiential encounter alone and whether this encouraged more positive attitudes towards ecosystem conservation and/or more sustainable behavioural intentions. Results indicated that interpretation had little impact on the emotive encounter of visitors with nature, but those visitors who received biodiversity information rated their perceived learning significantly higher than those who did not receive information. There was a significant difference in actual learning between the two groups of respondents. Visitors who received biodiversity information gained significantly higher results in a biodiversity quiz compared to visitors without biodiversity information and this was largely new learning that took place on site. There was no support that on-site interpretation of biological diversity, including pertinent threats and conservation issues, altered visitor attitudes towards ecosystem conservation and sustainable tourism, but it did seem to reinforce visitors' already favourable conservation attitudes and behavioural intentions. The results should aid site managers in their quest to provide both a satisfying tourist experience and one that supports ecosystem conservation.

Keywords: Tropical forest, biodiversity interpretation, visitor education, conservation, ecotourism

Troy D. Hill, Yale University. Email: Hill.Troy@gmail.com; Colin Polsky, Clark University Graduate School of Geography, HERO program. Email: cpolsky@clarku.edu; Development and Drought in Suburbia: A Mixed Methods Rapid Assessment of Vulnerability to Drought in Rainy Massachusetts

This study presents evidence that towns in suburban eastern Massachusetts are routinely restricting water use in years with plentiful rainfall. It then assesses the relationship between these suburban droughts and residential development. Focusing on the suburbs of Boston, seven towns were selected based on their degree of sprawl-style growth. Multivariate regression models demonstrate that water restrictions are increasing in duration, controlling for climate. Qualitative interviews suggest that residential development is playing a central role in increasing sensitivity to suburban drought, though other factors are also important. Long-term planning and integration of land use and water management emerged as two key paths for attenuating development's impacts.

Keywords: vulnerability, suburban drought, suburbanization, central/eastern Massachusetts, water resource management, mixed methods

Ken J Hillis, University Of North Carolina - Chapel Hill. Email: khillis@email.unc.edu; Dark Visions, Sunny Spaces: Enlightenment Spatial Strategies and the L.A. Film Noir

Los Angeles manifests key ideals first cultivated within the European Enlightenment public sphere, and a number of "Los Angeles" films depict the spatial practices that flow from implementing these "visionary" ideals in this desert city's built form. Such films noir as *He Walked By Night*, *In A Lonely Place*, and *Kiss Me Deadly*, depict how the city's vastness and reliance on communication technologies are unanticipated monuments to a reworking of Enlightenment theories that extend subjectivity and space yet also promote their mutual division and everyday lived isolation. Los Angeles is the formal outcome of an ideology equating space with the visible. In 1912, railroad magnate Henry Huntington proclaimed it would become the most important American, if not world, city because, like infinitely extensible Cartesian space, it could extend in any direction "as far as you like." The consequent sprawl of bungalows and roadways and the city's reliance on communication technologies promoted adopting surveillant communication technologies that earlier L.A. spatial practices, equating privacy with salvation, were intended to avoid. Extending Habermas' public sphere theory, I trace L.A.'s reliance on transportation and communication technologies in its production of "a place in the sun" organized according to an idea of nature as real estate. I rely on films noir as evidence that Los Angeles, the first fully modern city, embodies empiricist concepts of space and reality as independent, divisible and ordered, and I analyze these films as ironic visual monuments to a place founded on the ideal of the conceptually disembodied masculine eye.

Keywords: Los Angeles, film noir, Enlightenment space

Matthew Himley, Syracuse University. Email: mhimley@maxwell.syr.edu; Mining, Mobilization, and Resource Governance in the Peruvian Andes

Literature on neoliberal forms of natural resource governance has drawn attention to the increased participation of social movements and other non-state actors in the governance of extractive industries. This paper presents findings from preliminary research on the role of grassroots social mobilization in the governance of mineral resources in the Peruvian Andes. Following the adoption of neoliberal reforms in the 1990s, which liberalized both investment and property rights regimes, the region has witnessed a spike in mining investment, the expansion of the mining frontier, and the construction of the numerous

'mega' mines. This surge in mineral development has, however, been highly contested, particularly by residents of agrarian communities whose livelihoods are directly impacted by mining activities. Throughout the Andean region such communities have mobilized to demand greater participation in decisions about mining and a more equitable distribution of the costs and benefits - both economic and environmental ? of extraction. Using as a case study the Pierina Project, a large-scale open pit gold mine in the department of Ancash, this research investigates the interrelations between (1) the impacts of mining on local farming communities; (2) how these communities have mobilized to exercise control over mining activities; and (3) the influence of this mobilization on the formal and informal 'rules of operation' governing extraction. Based on initial findings, I suggest that community mobilization has achieved limited success in influencing mining activities; however, these efforts remain circumscribed by extremely asymmetrical relations of power and property.

Keywords: resource governance, political ecology, Peru

Derrick Hindery, Ph.D., California State University, Northridge. Email: dhindery@csun.edu; *Regulatory Challenges to Protection of Marginalized Communities' Groundwater from Gasoline and Perchlorate Contamination*

This paper will examine how loopholes in regulations such as California's Proposition 65 can disproportionately expose marginalized populations to perchlorate and gasoline leaking from underground fuel tanks, chemical companies, and Department of Defense facilities. It will explore the extent to which such contamination varies across different demographic groups, and use case-studies to investigate relationships between industry, regulatory agencies, politicians, and civil society in the southwestern U.S.

Keywords: environmental justice, cultural ecology, political ecology

Ellen Hines, Assistant Professor, San Francisco State University. Email: ehines@sfsu.edu; Kanjana Adulyanukosol, Phuket Marine Biological Center. Email: ; Mickmin Charuchinda, Eastern Marine and Coastal Resources Center. Email: ; *Conservation Of The Dugong (Dugong Dugon) And Irrawaddy Dolphin (Orcaella Brevirostris) On The Eastern Coast Of The Gulf Of Thailand*

The dugong (Dugong dugon) is a marine mammal whose survival is critically endangered by the proximity of its habitat to nearshore human settlements. Outside of Australia, the with the largest estimated dugong population, dugongs only survive in fragmented population groups in the Eastern hemisphere. Neither the number of dugongs remaining in these groups nor the range of its habitat is known outside of incidental sightings and the reports of fishers. This project was conducted in 2003-2004 to locate dugongs and assess their numbers and the location of population groups along the eastern Gulf of Thailand in Thailand. We carried out aerial surveys, concentrating our efforts in Rayong, Chanthaburi, and Trat provinces. In Thailand two interview teams were formed that included the principal investigators as well as personnel from Phuket Marine Biological Center in Phuket, and the Eastern Marine and Coastal Resources Center in Rayong. In 2003 and 2004, these teams conducted 250 interviews with local villagers on their observations of the way of life of the dugong and its role in the lives and history of local people. While numbers of dugong sightings were not high, we saw Irrawaddy dolphins in groups of up to 30, with a minimum of 16 animals seen in one day to a maximum of 71. In Trat especially, we recommend immediate consideration of coastal management strategies to protect what we believe to be a hot-spot of coastal bio-diversity.

Keywords: dugongs, dolphins, Thailand, endangered species conservation, community interviews

J. Dwight Hines, UCSB. Email: jdlines@anth.ucsb.edu; *Permanent Tourism: Whiteness, Rural Gentrification, and the Postindustrial Pursuit of Experience*

Rural gentrification is dramatically affecting much of the Rocky Mountain West; rapidly infusing white, middle-class patterns of thought/practice into previously industrial/working-class areas. The hastening of rural postindustrialization that this process inspires highlights the contrasts between the newcomers' visions of the Rockies as a landscape of consumption/recreation and the natives' attempts to maintain access to public-lands as sites of production. In this paper, based on over two years of ethnographic fieldwork, I explore rural gentrification as essentially a white, middle-class phenomenon that bears striking similarities to the "white flight" from the inner cities of the 1950s and 60s that inspired the US's rapid and dramatic suburbanization; both of these styles of migration contain pronounced racial undertones. Rural gentrification, however, I propose must also be seen in light of what Dean MacCannell has described as the rising priority of experience (over commodities) written into the process of the postindustrialization of US society. In pursuing novel experiences as criteria of self-worth and social status rural gentrifiers increasingly practice life as previous generations engaged in tourism. In so doing, they seek to reserve the places in which they live from the ravages of industrial production and preserve

them for aesthetic and recreational practices. The advent of this form of permanent tourism, in turn, prompts profound political contests over local, state, and national land-use policy, in which concepts of local heritage (as an important marker of difference and as a saleable commodity), the environmental consequences of development, and "sustainability" are common themes.

Keywords: whiteness, rural gentrification, postindustrial

Sally Hines, University of Newcastle. Email: sally.hines@ncl.ac.uk; *Tran(s)sexualities: Beyond the Binaries of Homo/Hetero Normativity*

This paper explores how transgender narratives of sexual identity, desire and practice trouble the categories of homo/hetero sexuality at both a conceptual and a substantive level. Whilst a heteronormative model of transgender assumes that, post gender transition, trans people will identify and practice as heterosexual - the MtF will assume a female heterosexual identity and the FtM will practice as a heterosexual male - analyses of transgender within many stands of lesbian and gay studies assume homo relationality by positioning transgender women and men as gay men or lesbians. This paper will argue that both these theoretical frameworks neglect the distinct specialities of transgender men and women. Drawing on a recent ESRC funded research project on transgender practices of identity and intimacy, the paper will explore the ways in which transgender narratives of sexuality signpost movement across, between and beyond the spaces of homo/hetero sexuality. The paper will suggest that, rather than representing a dominant hetero or homo sexuality, tran(s)sexualities often bring fluidity to the interplay of gender and sexuality so that notions of gender expression and sexual identity are far from straight-forwardly performed. The paper concludes by reading the potential for varied and contingent sexual identities and practices through gender transition as a marker of post homo and hetero normativity; indicating how contemporary sexualities may transgress these binary understandings.

Keywords: Gender, Sexuality, Transgender

Kenneth M. Hinkel, Department of Geography, University of Cincinnati, Cincinnati, OH 45221. Email: Kenneth.Hinkel@uc.edu; Benjamin M. Jones, SAIC, U. S. Geological Survey, Alaska Science Center, Anchorage, AK 99508-4650. Email: bjones@usgs.gov; Wendy R. Eisner, Department of Geography, University of Cincinnati, Cincinnati, OH 45221-0131. Email: Wendy.Eisner@uc.edu; Chris J. Cuomo, Institute for Women's Studies and Department of Philosophy, University of Georgia, Athens, GA 30602-3647. Email: cuomo@uga.edu; Richard A. Beck, Department of Geography, University of Cincinnati, Cincinnati, OH 45221-0131. Email: beckrd@ucmail.uc.edu; *Assessing Thaw Lake Drainage Processes in Northern Alaska*

Thousands of lakes are found on the Arctic Coastal Plain of northern Alaska. Developed in continuous permafrost, these thaw lakes and associated drained thaw lake basins are the dominant landscape features and cover 46% of the 34,570 km² western Arctic Coastal Plain. Lakes episodically drain by a variety of processes including coastal erosion, bank overtopping, stream meandering and headward erosion, and lake coalescence. Comparison of Landsat MSS imagery from circa 1975 to Landsat-7 ETM+ imagery from around 2000 demonstrates that 50 lakes partially or completely drained over the 25 year period, suggesting landscape stability. The lake-specific drainage process can be inferred in some cases, and is partially controlled by geographic settings conducive to active erosion such as coastal or riparian zones. In many cases, however, the cause of drainage is unknown. High-resolution aerial photographs for the Barrow Peninsula extend the record back to around 1950, and mapping spatial time series illustrates the dynamic nature of lake expansion, coalescence and drainage. These historical images demonstrate that humans have inadvertently or intentionally triggered lake drainage near Barrow village. Efforts to understand landscape processes and identify drainage events have been enhanced by interviewing Iñupiaq elders and other practitioners of traditional subsistence lifestyles. Individuals can often identify the year and process by which individual lakes drained, allowing greater dating precision and accuracy in assessing the causal mechanism. Indigenous knowledge has also provided insights into events, landforms and processes not previously considered or identified.

Keywords: Alaska, frozen ground, lakes, remote sensing, indigenous knowledge

Sarah E. Hinman, Louisiana State University. Email: shinma1@lsu.edu; Andrew Curtis, Louisiana State University. Email: acurti1@lsu.edu; *Creating a Geographic Information System of Consecutive Typhoid Fever Seasons in Washington, D.C., 1906-1909*

Following the completion of infrastructure improvements in 1905, typhoid fever rates in Washington, D.C. unexpectedly increased. For mitigations purposes, the United States Public Health and Marine-Hospital Service conducted four investigations between 1906 and 1909 to better understand the origins of typhoid in the city. These studies included dot maps of typhoid case locations at

two-week intervals for 1906, 1907, and 1908 and monthly intervals for 1909. These point locations were used to construct a geographic information system (GIS) displaying the spatial distribution of individual typhoid cases. The creation of this typhoid GIS allows for the investigation of urban typhoid at a localized geographic scale. This paper will describe the creation of this GIS from project inception to the results of the spatial analysis which provided insight into the geography of typhoid in an urban setting, and the utility of certain types of spatial analysis. Additionally, this GIS allows visual comparisons to be made between typhoid and other common infectious disease, like diphtheria and scarlet fever, that were mapped at the same scale in the early twentieth century. Studies of this type makes use of GIS tools unavailable when the original data were collected to investigate potential patterns of typhoid fever that were invisible a century ago in order to better understand the geography of urban typhoid in general.

Keywords: GIS; medical geography; typhoid fever; historical geography; Washington, D.C.

Sarah A. Hinton, San Diego State University. Email: shinton@rohan.sdsu.edu; *A Spatial Analysis of Fertility in Accra, Ghana Using the K-Function*

Demographers generally expect fertility decline to originate in cities and diffuse to rural areas. However, intra-urban fertility variation has recently been demonstrated. This disputes a simple urban vs. rural dichotomy, and suggests fertility may exhibit significant clustering or dispersal patterns within cities, which may be related to the distribution of specific human and social capital variables. This paper explores the existence and distribution of spatial variability in fertility and ethnicity in Accra, by applying the K-function statistic to fertility rates calculated at the neighborhood level. The aim is to evaluate K-function as a tool for investigation of spatial distributions of demographic variables. Demographic data sets available for Accra include the 2000 national census, Ghana Demographic and Health Surveys from 1998 and 2003, and the 2003 Women's Health Survey of Accra. The geographic information consists of a digitized ArcGIS boundary shapefile of Enumeration Areas. The statistic assesses whether the distribution of points at a given distance from a known point is clustered or dispersed, as compared to a random distribution, without regard for the point value. In this research the statistic is adapted by aggregating the individual level fertility data to Enumeration Areas as the proportion of women having a birth in the last year. The top and bottom quartiles of the fertility data are extracted, and their patterns investigated with K-function. The paper concludes with a comparison of results from K-function, and other global and local clustering statistics.

Keywords: K-function, fertility, Accra, Ghana

John Hintz, Bloomsburg University of Pennsylvania. Email: jhintz@bloomu.edu; *Endorsing Nature: A Pragmatist Alternative to Discourse Analysis*

In this paper, I present environmental pragmatism as both a pragmatic (or practical) and pragmatist (theoretically defensible) basis for an analysis of environmental problems. I begin my formulation of environmental pragmatism by revisiting Kate Soper's distinction between "nature-endorsing" and "nature-skeptical" perspectives. Following this, I present a brief overview of the existing environmental pragmatism literature (including its cursory treatment within the geographic literature). Finally, I make the case that environmental pragmatism can serve as a theoretically defensibly middle ground between the poles of uncritically boosterist positions such as (some) conservation biology and self-styled "critical" approaches such as discourse analysis that too often leave geographers unable to find an assertive stance from which to speak about and even for the protection of nature.

Keywords: environmental pragmatism; nature-society geography; discourse analysis

Vanita M. Hipskind, University of Cincinnati. Email: hipskiv@email.uc.edu; *Land Use Pressures in the Midwestern United States: Implications of Urban Development on Historic Cemeteries*

This preliminary research asks to what extent land use pressures for urban development force the isolation, obstruction, and disinterment of early cemeteries now isolated in built up areas. Cities within a one hundred mile radius of Cincinnati, Ohio, that are experiencing either rapid growth or urban renewal, are the focus of fieldwork conducted in 2006 and 2007. Specific issues involved in transferring sacred space to secular uses include: legal frameworks (including wills and power of eminent domain), disposition of remains, historic preservation, cemetery ownership, date of last interment, degree to which a cemetery is being properly maintained, financial status, and surrounding land use.

Keywords: Urban geography, urban development, cemeteries, disinterment, historic preservation, urban land use

Akira Hirano, Japan International Research Center for Agricultural Sciences (JIRCAS). Email: akhirano@jircas.affrc.go.jp; Tsend Oyunbileg, Mongolian State University of Agriculture. Email: agrogis@yahoo.com; Magsar Erdenetuya, National Remote Sensing Center of Mongolia. Email: m_erdenetuya@yahoo.com; *Establishment of a Baseline for Future Grassland Monitoring in Mongolia*

Despite the fact that grassland forms the basis of much of Mongolia's economy, no good understanding of its long-term dynamics has been established up to now. Satellite image data, particularly well-calibrated ones, have potential for evaluating vegetation trend at regional to continental scale. The purpose of this study is to examine the recent vegetation trend in order to establish a baseline for current and future grassland monitoring in Mongolia. We used Global Inventory Modeling and Mapping Studies (GIMMS) normalized difference vegetation index (NDVI) dataset to depict spatial distribution of positive and negative vegetation trends. The dataset was well corrected for calibration, view geometry, volcanic aerosols, and other effects not related to actual vegetation change. We computed vegetation trend at each pixel location for the period from 1981 to 2003 using 23 annual maximum NDVI values. Results showed that trend was not uniform over the country. Clusters of negative trend were found in the northern mountain areas, near border with China, around big cities, and around abandoned agricultural lands. They were speculated to be due to the recent wildfire and logging for building constructions, new developments around road networks, rural-to-urban land use conversion and overgrazing, land degradation caused by haphazard cultivation under then Soviet control, respectively. We carried out ground survey with real-time GPS tracking and verified much of the abovementioned assessments to be reasonable. We concluded that a strip of positive trend found along 45-47 degree North latitude is related to large scale climatic changes associated with global warming.

Keywords: mongolia, grassland, vegetation trends, normalized difference vegetation index

Paul D Hirsch, Georgia Institute of Technology School of Public Policy. Email: ph108@mail.gatech.edu; Bryan Norton, PhD, Georgia Institute of Technology School of Public Policy. Email: bryan.norton@pubpolicy.gatech.edu; *Spatial Bounding in Action: Choosing Sub-state Boundaries for Water Planning and Management in Georgia*

Environmental problems, the interesting and troublesome ones at least, encompass multiple spatial scales and multiple social perspectives. Managing socio-spatial complexity typically involves defining, developing, and reifying spatial "bounds" that serve to impose conceptual and institutional structure on what might otherwise be an unruly mess. Far from being a merely technical consideration, spatial bounding entails the discursive construction of linkages between technical explanations, normative evaluations, and policy solutions. This study follows the deliberations about spatial bounding through the 2006-2007 state-wide water planning process in Georgia, a process that will inform the demarcation of new sub-state boundaries that will guide future water policy and planning in Georgia. The Georgia process provides a unique opportunity to study "spatial bounding in action." This paper will discuss the initial phase of multi-stage research, which involves the identification and characterization of a finite number of "bounding rationalities" that inform and infuse ongoing deliberations about the appropriate spatial boundaries for managing Georgia's water issues.

Keywords: environmental policy, planning, water, scale, boundaries

Philip Hirsch, Associate Professor, University of Sydney. Email: p.hirsch@geosci.usyd.edu.au; *Revisiting frontiers as transitional spaces in Thailand*

This paper explores the notion of frontiers as "in-between" spaces that define particular transitions. Three contexts of frontier and their rapidly changing nature form the basis of the analysis. Agricultural frontiers (typically between farmland and forest) are defined by new relations of production and interplays between conservation, shifting modes of agriculture and natural resource use and management. Peri-urban frontiers (between countryside and city) are taken beyond their desakota/chaan-meuang locations to a more generic interplay between urbanity and rurality in defining livelihood and identity. National frontiers (between nation states with sharply different political and economic conditions) are transcended from above in the form of new regionalisms, and from below in migrations and other transboundary influences and flows. The paper proposes the frontier as both a spatial and temporal heuristic for understanding societal transitions in Thailand.

Keywords: frontier, agrarian transition, periurban, Thailand

Rachel A. Hirsch, Ph.D. Candidate, University of Western Ontario. Email: rhirsch@uwo.ca; Jamie Baxter, Ph.D., University Of Western Ontario. Email: jamie.baxter@uwo.ca; Christine Brown, M.A., University of Western Ontario. Email: christine.brown01@sympatico.ca; Municipal pesticide policy change, science knowledge, and advocacy coalitions in Calgary and Halifax

Concerns over the safety of pesticides have led to federal pesticide policy evolution in Canada; however, the last decade has also seen widespread municipal-level changes in the form of bylaws restricting cosmetic pesticide use. Different pesticide reduction policies have been adopted by various Canadian cities, all with the goal of protecting public health. At the extremes are, for example, voluntary reductions in chemical pesticide use in Calgary, Alberta; as opposed to, a cosmetic pesticide ban in Halifax, Nova Scotia. The processes underlying such divergent pesticide reduction policies remain unclear. Our main objective is to better understand Canadian pesticide policy evolution by applying an 'advocacy coalition approach' and to explore the use of 'science knowledge' as an agenda-setting tool. Our parallel case studies consist of qualitative interview data from the policy makers themselves, collected from pesticide advisory committees in Calgary and Halifax, and a content analysis of local newspaper articles. Findings indicate that both national events and grassroots activism have helped solidify opposing anti-pesticide and pesticide industry coalitions. Scientific uncertainty is used to legitimize opposing 'protectionary' and 'precautionary' policy narratives of the chemical industry in Calgary and the anti-pesticide coalitions in Halifax respectively. As well, policy brokers (e.g., the media) are both necessary and influential players who help negotiate opposing viewpoints leading to more tractable policy outcomes and ultimately policy change. A contextual understanding of competing advocacy coalitions proves to be a useful framework for understanding how divergent policies have emerged in Calgary and Halifax over time.

Keywords: hazard geography, policy-change, pesticides, advocacy coalitions, media, Halifax, Canada

Sonia Hirt, Virginia Tech. Email: shirt@vt.edu; The Compact vs. The Dispersed City: History of Planning Ideas on Sofia's Urban Form

This paper explores stability and change in the evolution of significant urban planning ideas over the 125-year-long history of the City of Sofia as Bulgarian capital. It argues that two fundamental and closely intertwined planning dilemmas—how to reconnect the city with nature and how to define the city's role in the metropolitan region—have provided the framework within which planning debates on Sofia's form have evolved over time. Both dilemmas are, of course, well known from the history of planning in Western contexts. And while the strategies to solve them have shifted over time, the dilemmas have proven to be remarkably persistent. In response to these dilemmas, different visions, shaped by both local conditions and dominant foreign theories, were proposed in Sofia at different times. Some promoted a compact city, while others advocated a dispersed form. The case of Sofia demonstrates the significance of the city-nature and the city-region relationships in the evolution of planning thought. It also points to the difficulties which arise when local ideas of how to organize these relationships are inspired by international models made for cities with different historic experiences. The paper relies on primary and secondary sources. These include the series of Sofia's master plans; scholarly, archival and media accounts of Sofia's planning; and related meetings protocols, published interviews, books and articles by the chief actors in the planning processes. It also uses several drafts of the latest plan, Sofia 2020, and nearly two dozen in-person interviews with planners involved in its writing.

Keywords: urban planning, urban geography, Bulgaria

Russell Hitchings, University of Hull. Email: r.hitchings@hull.ac.uk; Urban outdoor practice and the professional office worker

When people spend time outdoors, we know that several social benefits can often follow. Yet western societies now collectively spend over ninety percent of their time within buildings. It is with this contradiction in mind that it may be timely to reconsider how easily personal wellbeing and environmental experiences are able to combine within the actual lifestyles of particular groups today. This is especially the case when the right combinations of these elements are increasingly recognised as central to the promotion of both sustainable societies and liveable cities. This paper is interested in the routine embodied practices of professional office workers in terms of how they handle the changing outdoor conditions presented by the cities in which they work. Such an examination has the potential to make a number of useful impacts. Firstly, by analysing the experiences of an expanding social group that spends long periods indoors, it may be possible to reconsider the potential unfamiliarity associated with routine outdoor encounter and the means by which we may promote a healthier urban experience. Secondly, by starting with daily routines, instead of specific spaces, this approach usefully recasts urban nature debate in both research and policy terms by highlighting the crucial importance of local climatic conditions and how

people handle the embodied issues that come along with them. Thirdly, by underlining the contextual nature of patterns of practice, it illustrates how gradually evolving cultures of personal environmental adaptation could suggest some interesting new means of fostering better urban futures.

Keywords: cities; outdoor; practice; officeworkers; climate

Elise Ho, University of Toronto. Email: elise.ho@utoronto.ca; Children's Environmental Perceptions and Perceptions of Climate Change

This paper presents the results of a doctoral study on children's perceptions of environment, environmental risk, and climate change. Open ended interviews and children's illustrations were used to understand the perceptions of children aged 11-12, living in urban, suburban, and rural regions of Ontario. Adults' perceptions of environment and environmental risks have been studied with a variety of applied and academic goals, which include refining public education efforts, understanding risk-taking behaviours, and quantifying willingness-to-pay. Studies specific to climate change have revealed a variety of misconceptions related to pre-existing cultural models and environmental beliefs. In addition, climate change is communicated to the public through a variety of informed and misinformed media, governments, scientists, and popular culture. Misconceptions can be detrimental to effective mitigation and adaptation. Children's risk perceptions are often disregarded, as they are not part of the voting public. However, if we are to look towards the future and aim for a sustainable environment, we ought to also look to the next generation for their ideas, and concerns. This paper concludes that children tend to use cultural models similar to those used by adults, which result in common misconceptions of climate change and environmental issues. The children exhibited a concern for the environment, but also either a lack of knowledge of environmental issues and climate change, or confusion regarding causes and effects.

Keywords: Environmental education, children, perceptions, risk, climate change

Kong Chong Ho, National University of Singapore. Email: sochokc@nus.edu.sg; Keeping the State and Capital Away from Civic Spaces?

If civic spaces are sites for the associational life of the community, there is an assumption that such sites should exist independently from state and capital, as in the case for civil society. But is this really possible when civic spaces are physical sites where intrusions are frequent in everyday spatial practices? And is it desirable in reality to make such clear distinctions between the three types of agents? In this paper, I explore a number of physical sites around cities in Pacific Asia where there are conflicts between community vis a vis the state and capital. But these antagonisms represent a base point or threshold, for my paper also raises the possibility of the potential for collaboration between capital and community for a collective good and the conditions under which such collaborative projects survive. Collaborative examples may be understood as intersections between capitalist and civic spaces, with the overlapping of the activities and people embedded in the two spaces. I want to understand these intersections as an evolutionary process whereby certain features of community seep into capitalist spaces and how capitalist initiated efforts may possibly find root in civic spaces.

Keywords: civic spaces, state, capital, community, globalization, cities, pacific asia

Yujeung Ho, University of Pittsburgh. Email: yujeung@yahoo.com; The contribution of the high-technology industry to the regional economic growth at different positions in the distribution of region's size

This study investigates how the high-technology industry affects to the regional economy growth at different positions in the distribution of region's overall size using the county level data. Under the economic base theory, the high-technology industry is an important export sector, in the sense that this industry tends to respond the broader external demand and generate the higher multiplier effects than local sector. This theory implies that this industry could account for the growth in whole regional economy. Among several possible variations associated with the contributions of the high-technology industry, this study focuses on the local market size and the degree of diversity on the grounds that the formation of multiplier effects can depend on the scope and scale of a region. Indeed, this study also examines the possible different effects between the manufacturing sector and service sector. Therefore, this study explains the regional economic growth with the linkage of the specialization of high-technology industry and local market size. In this sense, this study complements to previous studies and extends the understandings for how the high-technology industry leads to regional economic growth.

Keywords: the high-technology industry, regional economic growth, the economic base theory

Bruce W. Hoagland, University Of Oklahoma. Email: bhoagland@ou.edu; A Public Land Survey map of Oklahoma, circa 1870

In 1870, U.S. deputy surveyor Ehud Darling left Fort Arbuckle to establish the Initial Point for the Public Land Survey of present-day Oklahoma. Southeast of the Fort he erected a sand stone monument measuring 54'x18'x18' and commenced a survey that continued into 1871. The 1870 survey did not include all of the state, but only the Chickasaw Nation, western Oklahoma, and lands held by smaller tribes in the northeast. The plats and survey notes produced by the General Land Office surveyors are a rich source of information for modern scholars on vegetation, settlement, and transportation networks in the 19th century. This paper reports the results of a project that digitized the 1,264 plats compiled during the 1870-1871 survey. All features present on the plats were assigned to categories (e.g., vegetation, hydrology, settlement, transportation) and digitized using ArcGIS. This database serves as an important baseline for studies of landcover change and settlement.

Keywords: Oklahoma, Settlement, Land use

Jay S. Hobgood, Ohio State University. Email: hobgood.1@osu.edu; Factors Leading to the Quiet 2006 Atlantic Hurricane Season

There were 27 named tropical cyclones over the Atlantic basin in 2005, which made it the most active hurricane season in the historical record. A combination of above normal sea surface temperatures, a favorable large-scale pattern and little vertical wind shear contributed to the extremely active season. Although the sea surface temperatures were cooler in 2006, they were still above normal. The large-scale pattern also shifted between 2005 and 2006, but most indicators at the start of the hurricane season seemed to point to another active year in 2006. However, persistent upper level troughs created very high wind speeds over the primary development region and the resulting wind shear prevented the development of most tropical disturbances. As a result only nine named tropical storms formed over the Atlantic in 2006 and the season would be classified as slightly below normal. Warming sea surface temperatures in the central and eastern equatorial North Pacific may be the precursor to an El Niño. This study attempts to determine the factors that produced the much less active hurricane season. El Niño indices from several regions of the Pacific Ocean were examined and the position and strength of large-scale atmospheric features were investigated. The results show that a complex interaction of factors led to the unexpected decrease in activity over the Atlantic basin in 2006.

Keywords: tropical cyclones, hurricanes

Shawn C Hoch, Indiana University. Email: shoch@indiana.edu; Gilbert C Liu, MD, MS, Indiana University. Email: gcliu@iupui.edu; Jeffrey S Wilson, PhD, Indiana University. Email: jeswilso@iupui.edu; Comparing Spatial Measures of the Built Environment

Background: Research on the association between physical activity, health, and the built environment often employs a delineation of relevant space surrounding a location (e.g., a person's home). Approaches for defining relevant space include Euclidean and network buffers, census geographies, grids, and nearest location comparisons. Analytical comparison of these different methods is lacking. Methods: This presentation compares five spatial measures of the built environment surrounding residential points including: (1) an 805m x 805m grid, (2) 1-kilometer Euclidean buffers, (3) 1-kilometer street network buffers, (4) distance to nearest network location, and (5) sums of distances to nearest three network locations. Built environment variables surrounding residential locations of 3,901 children in Indianapolis, Indiana are assessed in support of an ongoing study on childhood obesity. The first three methods of spatial delineation are used to assess variation in net residential density, street connectivity, the distribution of food sources (i.e. supermarkets & fast food restaurants), and measures of greenness (NDVI). Methods four and five are also used to assess proximity to food sources. Mean values for each measure are compared using t-tests across the socio-demographic variables of African-American / white and privately / publicly funded health insurance. Expected findings: We hypothesize that significant differences exist across the five approaches depending on variable construction. For example, street network buffers should capture restrictions of automobile travel, while Euclidean buffers may more accurately reflect the less restricted pedestrian movement of children. Moreover, results should differ systematically across the four socio-demographic groups.

Keywords:gis, health, physical activity, built environment

Michael E. Hodgson, University of South Carolina. Email: hodgsonm@sc.edu; How Many People Live Near the 'Coast'? as a Measure of Risk

It is estimated and often cited that more than half of the U.S. population lives "near the coast." What is the implication of this to hazards? Many assume the population residing near the coast must be at risk to hurricane force winds and flooding. Is half of the U.S. population really at such risk? This research explored the hypothesis that population "near the coast" are at risk. Specifically,

in this study definitions of "the coast" and "near" are examined across a range of spatial scales (e.g. block, block group, etc.) of analysis. The locations of population were then compared to historic measures of hurricane and flooding occurrences to more formally determine the population at risk.

Keywords: GIS, Hazards, Risk

Michael Hodson, SURF Centre. Email: M.Hodson@Salford.ac.uk; Simon Marvin, SURF Centre. Email: S.Marvin@salford.ac.uk; Urban Transitions to Low Carbon Futures: Cities and Corporates Building New Political 'Spaces' for 'National By-Pass'

This paper addresses an issue of increasing contemporary salience: the role of large cities in addressing climate change. Cities perform a central role in the production of greenhouse gas emissions, are highly vulnerable to the consequences of climate change and can potentially provide a key context for addressing climate change. Yet there has been limited critical and thematic reflection on the emerging and active role of cities in undertaking socio-technical transitions to low carbon futures. Consequently we argue that large cities are sites for the reactive interpretation of international climate change initiatives and are actively seeking to cultivate systemic transitions within the socio-technologies of the city to low carbon futures. But central to this shift is a need to more critically understand how large cities are actively engaged in creating new political spaces to fulfil their aspirations. We therefore analyse the "Large Cities Climate Leadership Group" and the "Clinton Climate Change Initiative" to highlight the ways in which large cities are seeking to 'co-operate' with each other and with corporate interests to translate their aspirations into actuality and the tensions and trade-offs this exposes. We highlight three themes: (1) the building of partnerships of large cities and their underpinnings; (2) the negotiated and collective aspirations emerging from these partnerships; and (3) an explicit strategy of national-level 'by-pass' in building (horizontal) relationships (with other cities and corporate capital) in generating the necessary resources to translate the aspirations of cities into actuality.

Keywords: cities, low carbon futures, new political spaces, systemic transitions

Paddington Hodza, National Geospatial Development Center, WVU. Email: Paddington.Hodza@mail.wvu.edu; Trevor Harris, West Virginia University. Email: Trevor.Harris@mail.wvu.edu; Collaborative soil boundary mapping in an immersive GIS environment

Soil scientists have traditionally used analogue imagery, topographic maps, and reports to conceptualize the soil-landscape relationship model, and interpret and manually draw soil boundaries onto 2D maps. This time-consuming, labor intensive, and expensive process necessarily impacts the completion rate of the national soil survey and the implementation of soil map updates. In this paper we propose an innovative approach that brings the logical and cognitive semantic worlds closer together to enhance and advance the soil mapping process. A loosely-coupled GIS-supported immersive visualization (GIS-IV) system is used to provide a stereoscopically-enabled 3D CAVE environment in which multiple soil scientists may be collaboratively 'immersed' in the collection, interpretation, and the digital delineation and attribution of soil boundaries. The results of this intuitive mapping process are discussed in terms of verifiable outcomes including collaborative advantages, mapping cost, time and labor savings, soil map accuracy, and GIS-IV system usability.

Keywords: Immersive GIS, Digital Soil Mapping, Geovisualization

Paul D Hoeffler, The Ohio State University. Email: hoeffler.2@osu.edu; Darla K Munroe, The Ohio State University. Email: munroe.9@osu.edu; Overcoming data constraints for utilizing GIS as a component of multi-method research in data-poor regions

Although myriad spatial data are available to support research in specific areas?particularly in the global North?there remain many regions for which GIS-accessible data are absent or of low quality. In such cases, researchers must generate digital data in order to describe, for example, the physical environment or population characteristics. This presentation reviews some of the technical procedures required to produce accurate information under data-poor conditions, as demonstrated by a case-study describing a remote location in eastern Honduras. The methods and considerations outlined may be of interest to those working with indigenous peoples, those using participatory GIS more generally, or who otherwise work in data-poor areas. Issues include preparing and processing hard-copy materials, software considerations, geo-referencing, digitization, quality assurance, and assessing error propagation. Cost-surface networks will be employed and evaluated as a method for situating individual actors within a landscape. From these surfaces an environment in which both past and future activities may be spatially modeled is produced. Our methodology is markedly different from the common practice of investigating the relationships between people and resources primarily through remotely-sensed geospatial data. This approach will allow the dynamic activities of individuals to be incorporated with

traditionally static data sets, keeping primary focus on the human component of nature-society inquiries. Use of these techniques will allow researchers focused primarily on process-based aspects of geography to expand the tools available for both analysis and product generation (e.g. maps, illustrations, and animations) as computational capacity increases and innovation continues.

Keywords: data generation, geo-referencing, digitization, GIS, data-poor sites, cost-surface networks, behavioral geography

Steven Hoelscher, University Of Texas at Austin. Email: hoelscher@mail.utexas.edu; *Photography, Urban Space, and the Historical Memory of Atrocity*

This paper explores the relationship between historical memory, urban space, and photography, by way of a case study. Specifically, I examine the public art of the Guatemalan photographer and human rights activist, Daniel Hernandez-Salazar. As one of a growing number of Latin American artists committed to combating the "institutionalized forgetfulness" of human rights violations throughout the hemisphere, Hernandez-Salazar uses a place-specific public art to help his society remember its difficult past. The way forward, in post-war Guatemala as in so many other places around the world ravaged by atrocity and institutionalized violence, must first wend its way through the minefields of the past. The obstacles to such a project are great, and here is where photography becomes essential: camera images of atrocity?of practices so horrific that they challenge standards of decent and civilized behavior?are often called upon to represent the unrepresentable. Photographs of the calamitous and reprehensible bear witness to a past that, to most people, seems unreal. The authority of Hernandez-Salazar's photographs to bear witness to war-torn Guatemala's past is aided immeasurably by their insertion into urban space. Beginning in April 1999, one year after the assassination of the country's leading human rights advocate, Hernandez-Salazar annually inserts dozens of poster-size photographs throughout the capital city. The installations, famously known as the Angel Series, are like ghosts haunting graves of the murdered, fortresses of the powerful, bastions of the complicit. In every case, photography and urban space mingle to produce effects that are striking, and memorable.

Keywords: Memory, Public Art, Urban Space, Latin America

Lawrence A. Hoffman, University Wisconsin Eau Claire. Email: hoffmala@uwec.edu; *The Changing Face of Wisconsin Dairy: Culture Change & Local Livelihoods in Western Wisconsin*

As Wisconsin's traditional family farms are challenged by an increasingly competitive national market, area dairy farmers are being forced to consider global realities. Increasingly, dairy farmers are tapping foreign labor resources in the face of disappearing local labor. As a result, Western Wisconsin's dairy sector is becoming increasingly dependent upon a growing Latino work force. Realization of this dependency has led to the exploration and creation of innovative approaches, including novel cultural and social programs aimed at facilitating relationships between Latino labor, dairy farmers, and local communities. As immigration debates rage, evidence suggests that, on a local scale, acknowledging the importance of migrant labor to the regional economy and building local/Latino relationships improves the viability of Western Wisconsin dairy farms and their communities as well as the working conditions and livelihood prospects of Latino dairy workers. Questions remain as to what changes to the traditional family farm and languishing state-wide milk production mean to the identity of Wisconsin as "Dairyland."

Keywords: migrant labor, Wisconsin, Mexico, dairy

Dianna M Hogan, United States Geological Survey. Email: dhogan@usgs.gov; William Labiosa, United States Geological Survey. Email: blabiosa@usgs.gov; Richard Bernknopf, United States Geological Survey. Email: rbern@usgs.gov; Paul Hearn, United States Geological Survey. Email: phearn@usgs.gov; Anne Wein, United States Geological Survey. Email: awein@usgs.gov; David Strong, United States Geological Survey. Email: dstrong@usgs.gov; Caroline Hermans, United States Geological Survey. Email: chermans@usgs.gov; *Development and Conservation in South Florida: An Ecological Index for Decision Support*

Changing land use in Miami-Dade County, Florida affects the hydrology, ecology, and recreational attributes of Biscayne and Everglades National Parks. Local decision makers must reconcile the need to protect park ecological health in an atmosphere of increased pressure to develop adjacent lands. In an effort to better inform the land use decision making process, the U.S. Geological Survey is developing the Ecosystem Portfolio Model (EPM) as a Geographic Information System-based tool that integrates natural science with economic information. This presentation will focus on the development of an ecological index for use within the EPM decision support framework. This index is designed to help resource managers communicate the ecological function and value of land in south Florida, and to support their ability to evaluate and comment on the environmental consequences of specific development proposals in the watersheds

of the National Parks. It is a multi-criteria index that combines available scientific data with expert judgment, and is developed in communication with National Park Service staff and their stakeholders. The index-based EPM is being used to evaluate the southern coastal wetland areas between Everglades and Biscayne Parks, the ecological function expected from the preferred scenario of the Miami-Dade Watershed Study, and the restoration versus development plans in the Bird Drive Basin area. These analyses are expected to provide an improved understanding of the implications of protecting ecosystem functions for Federal stewardship interests in south Florida.

Keywords: environmental geography, ecological index, decision support, Florida, land use

Briavel H. Holcomb, Rutgers University. Email: holcomb@rci.rutgers.edu; *"One Laptop Per Child": A preliminary assessment.*

Early in 2007 Negroponte's initiative to bring \$100 laptops to developing places will begin field operation. A progress report on the OLPC project discusses its role, potential and limitations in reducing global spatial inequalities.

Keywords: digital divide, e-education

Andrew Holden, Buckinghamshire Chilterns University College. Email: andrew.holden@bcuc.ac.uk; *The relevance or irrelevance of environmental ethics? Do they matter in tourism*

Tourism relies upon a variety of natural resources (NRs) to provide its attractions and for its development. These include the atmosphere, mountains, forests, wildlife and water. Whilst tourism can be used as an agent of NRs, its negative impacts have been copiously observed and recorded. Yet to sustain tourism and for tourism to act as a sustainable medium for human development it is essential that resources be conserved. This paper examines the threats that tourism can pose to NRs. It is suggested that owing to the diversity of user-groups of NRs connected with tourism, the spatial spread and the difficulty of disaggregating the negative impacts of tourism from other anthropogenic sources, coercive measures to control stakeholder behaviour are difficult to always implement. Given the complexity of the tourism system, which juxtaposes the humans and nature together in various situations, technical solutions based on technocentric approaches to resource management are also unlikely to be universally successful. Consequently, the ethics that govern human interaction with nature and the extent to which behaviour manifests itself as being resource-conserving behaviour (RCB) or resource-destructive behaviour (RDB) will be critical in determining the impacts on NRs in the context of tourism. Based upon aspects of government and corporate policy, and consumer behaviour, this paper considers the role of environmental ethics in tourism. This analysis is based upon a theoretical framework developed from the literature within the field of environmental ethics.

Keywords: environmental ethics; natural resources; tourism

Meg Holden, PhD, Simon Fraser University. Email: mholden@sfu.ca; *Indicator Projects as Social Technology in Urban Communities*

This paper frames community indicator projects as social technology projects, meaning that they have social, political and cultural roles that go well beyond their instrumental roles in the generation and display of quantitative data. As social technology, community indicator projects influence and are influenced by relationships of power, cultural difference, public value, and within and between professional communities. These relationships must be better understood in order to improve the impact of community indicator projects and other indicator and performance measurement systems as these grow in popularity in cities around the world. Case data from a public participation process for the development of a new set of regional sustainability indicators are qualitatively examined for evidence of the use of the indicator development process as social technology. This evidence, drawn from the public study group process conducted as part of the pilot work of the Regional Vancouver Urban Observatory from October 2005 - April 2006, suggests lessons for other local practices as well as for the scholarship of the role of knowledge in public policy as a whole.

Keywords: urban indicators, sustainable development, Vancouver, public participation

Curtis D. Holder, University Of Colorado at Colorado Springs. Email: cholder@uccs.edu; *Geographic variability of leaf water repellency in Guatemala and Colorado*

Fog persistency and high precipitation totals contribute to the unique ecohydrology of tropical montane cloud forests. The persistence of water droplets on leaf surfaces in cloud forests inhibits photosynthetic carbon exchange because carbon dioxide diffuses slower in water than air. Adaptations that reduce water retention on leaf surfaces may increase photosynthetic capacity of cloud forests. The objective of the study was to determine if 12 cloud forest species from the Sierra de las Minas, Guatemala have a higher degree of leaf water

repellency than 12 species from tropical dry forests in Chiquimula, Guatemala and 12 species from foothills-grassland vegetation in Colorado (USA). Leaf water repellency was measured as the contact angle between the leaf surface and the line tangent to the water droplet passing through the point of contact between the droplet and the leaf surface. Leaf water repellency was significantly different between the three study areas; however, leaf water repellency of 12 species in the Sierra de las Minas was lower than 12 species in Chiquimula and 12 species in Colorado. Leaf water repellency of abaxial surfaces of all species in the cloud forest was greater than leaf water repellency of adaxial surfaces. The low values of leaf water repellency in cloud forest species may be influenced by presence of epiphylls or the loss of epicuticular wax on the leaf surfaces because of high precipitation totals and longer leaf life-span. High leaf water repellency in dry climates may be an adaptation to increase hydrological inputs underneath the canopy.

Keywords: cloud forest, Colorado, Guatemala, leaf surface, leaf water repellency, leaf wettability

Clare Holdsworth, University of Liverpool. Email: clare.holdsworth@liv.ac.uk; *Young's peoples spatial and social mobilities: transitions in the transition to higher education*

One of the most anticipated and regretted outcome of the recent expansion of higher education in England is the concomitant shift towards local recruitment of students, as opposed to the 'traditional' pattern of mass migration and leaving home to go to university. Observers fear that this will create a two-tier education system, distinguishing between those students who can afford to move away and those 'forced' to stay local. What is apparent in this discourse is the importance placed on the spatial practices of young people's transitions to adulthood, and how the ideal of going away to university offers an opportunity for these to be realised. In contrast widening participation policies have promoted the importance of accessibility of local institutions and outreach teaching programmes, to take the university to the people rather than vice versa. This paper will consider the implications of these two opposing discourses, in the light of recent policy changes in HE in England and will explore the perceived and actual relationships between students' spatial and social mobility.

Keywords: student, mobilities, higher education, widening participation

Dan Holiday, Gulf Coast Geospatial Center. Email: dan.holiday@usm.edu; Dr. Greg Carter, Gulf Coast Geospatial Center. Email: greg.carter@usm.edu; Dr. Richard Gould, Naval Research Laboratory, SSC. Email: rick.gould@nrlssc.navy.mil; Dr. Hugh MacIntyre, Dauphin Island Sealab. Email: hugh.macintyre@disl.edu; *Harmful Algal Blooms in Mobile Bay and the Mississippi Sound: A One Year Comparison of Remote Sensing and In Situ Data*

Harmful algal blooms (HABs) are comprised of phytoplankton accumulating at biomass levels that negatively affect co-occurring organisms and the food web. Some HAB species produce toxins while others create anoxic or other environmentally stressful conditions. To date, eight toxin-producing HAB species have been detected in coastal waters of the northern Gulf of Mexico. These include the diatoms *Pseudo-nitzschia* spp. and the dinoflagellates *Karenia brevis*, *K. mikimotoi*, and five members of the genus *Prorocentrum*. This study investigates the use of satellite remote sensing (MODIS Aqua sensor) to detect and predict environmental conditions leading to the formation of HABs in the turbid coastal waters along the Mississippi and Alabama shores. Phytoplankton populations and water quality were monitored at three to six week intervals at 17 locations in Mobile Bay and the Mississippi Sound beginning in July, 2005 and continuing through June, 2006. In situ and satellite-derived water properties included surface temperature, salinity, concentrations of chlorophyll-a (Chla), colored dissolved organic matter (CDOM), total suspended solids (TSS), and nutrient levels. Simple curvilinear regressions determined relationships between phytoplankton cell count and water properties (both measured and satellite-derived). In general, counts of dinoflagellates, chlorophytes, and cryptophytes correlated positively with temperature (r -squared = 0.37 to 0.92) and Chla, TSS and CDOM (r -squared = 0.42 to 0.63) while diatoms exhibited inverse relationships with salinity, temperature, and Chla. These preliminary results are being used to develop a prediction model for HABs in coastal waters of the northern Gulf of Mexico based on daily to weekly satellite observations.

Keywords: Remote Sensing, Gulf of Mexico, HABs, MODIS

Ryan Holifield, University of Minnesota. Email: holi0023@umn.edu; *Traditional Tribal Lifeways, Human Health Risk Assessment, and the Composition of Common Worlds: Environmental Justice in and beyond Indian Country*

Recent work by Bruno Latour, Isabelle Stengers, and other science studies scholars invites us to rethink politics as the progressive composition of common worlds. Drawing on an empirical study of human health risk assessment at a hazardous waste site on the Leech Lake Reservation in northern Minnesota, this paper asks how such a reconceptualization of politics suggests new directions for

critical approaches to environmental justice. The Leech Lake Band of Ojibwe seeks a risk assessment and remediation that will honor the Band's treaty rights to ensure that all land within reservation boundaries which may in the future revert to the Band is clean enough to support traditional cultural activities and practices of hunting, fishing, ricing, and gathering. On one level, the Band's appeal for an approach to risk that protects traditional tribal lifeways may appear to have little significance beyond the lands known legally as Indian Country. However, I argue that the Band's efforts also point toward a politics of environmental justice dedicated to the production of "common environments," capable of existing outside the dominant socio-ecological projects of neoliberal capitalism. From this perspective, the Band's seemingly particularistic struggle hints at a more widely applicable conception of environmental justice as the "just composition of common environments."

Keywords: environmental justice, American Indian reservation, actor-network theory, risk assessment, United States

Edward C. Holland, University of Colorado at Boulder. Email: hollande@colorado.edu; *Geography and Nationalism in Dagestan*

This paper will present and interpret findings from survey work carried out in the Russian republic of Dagestan in 2005, focusing specifically on manifestations of nationalism among the territory's five largest populations. In apposition to the wider literature on nationalism and national identity in geography, which has primarily focused on the position of minority nationalist movements within the context of majority-controlled states, this work will investigate nationalism in a multi-ethnic territory, where complex ethnic intermixing or porous ethnic identities are present. In such polities a variety of nationalist movements can coalesce, depending on, among other factors, the degree of autonomy sought, the methods used to achieve such political control, and the interplay between the different ethnic groups and their political agendas. One such area that has the potential for such a range of nationalist outcomes is Dagestan. Home to thirty-four nationalities, Dagestan is the most ethnically diverse of Russia's twenty-one ethnic republics. Incursions by Chechen rebels, a corrupt, clan-based regional government, and poverty have all recently destabilized the republic. In light of this situation, Dagestan would appear to be susceptible to nationalist organization in its potential plurality of forms. Yet currently no significant nationalist movement has developed there. To address this situation, the paper will survey the preexisting literature on nationalism within the republic in order to test a set of preliminary hypotheses regarding the topic.

Keywords: Political Geography, Nationalism, Dagestan, Russia

Margaret Buck Holland, University of Wisconsin-Madison & Center for Applied Biodiversity Science. Email: mybuck@wisc.edu; Katrina Brandon, PhD, Center for Applied Biodiversity Science, Conservation International. Email: kbrandon@conservation.org; Miroslav Honzak, PhD, Center for Applied Biodiversity Science, Conservation International. Email: mhonzak@conservation.org; *Connecting conservation success, protected area effectiveness, and changes in community-level poverty in Costa Rica, 1986-2005*

Conservationists and social scientists are concerned with the relationships between protected areas and human welfare. This presentation provides findings for these relationships in Costa Rica, examining whether protected areas provide a net social benefit to those living in the "area of park influence" - defined as communities within or adjacent to parks. Social benefit is defined holistically, in both quantitative and qualitative terms, and measured through observations of quantitative change in human welfare (estimated through the construction of a poverty index), access to services (health, education), and access to markets. This analysis focuses on using deforestation, land use conversion, and fragmentation as proxies for the effectiveness of Costa Rican protected areas in conserving biodiversity. We perform a change detection analysis on all Costa Rican forested protected areas and 10-km buffer areas around each park using Landsat TM and ETM+ imagery, from the 1980s through 2005. The optimal change detection method is selected through testing three different algorithms. Each protected area and buffer is scored according to its level of effectiveness in mitigating forest loss and fragmentation, and this park score is incorporated into a statistical comparison of park effectiveness alongside change in poverty, (as measured by a composite human welfare index). Poverty is assessed at the census segment level for both proximate and resident communities. A main objective of this analysis is to present the relationship between the observable life-cycles of land use/cover change in and around protected areas and the changes in community-level poverty over time.

Keywords: poverty, human welfare, Latin America, Central America, Costa Rica, remote sensing, deforestation, change detection, protected area, park

Seneca D Holland, University of Georgia. Email: sdh17@uga.edu;
Framing the Commons: Commercial Water Bottling and Local Empowerment

Mark Giordano has observed that geographers have rarely applied their methods towards an explanation of the commons. This claim although valid is disturbing in that issues of the commons or common pool resources are intricately linked to ideas of resource use, human environmental interactions and spatial relations; concepts well grounded in geographic thought. This paper aims to bridge the gap between commons research and geographic thought by examining how residents in a North Florida community, when faced with the commercialization of the commons (groundwater in this case) by way of bottling frame issues of the commons and how these collective action frames are then implicated in a politics of scale.

Keywords: water bottling, politics of scale, commons, Florida, resource geography

Gail Hollander, Florida International University. Email: hollande@fiu.edu;
Globalizing groves: Spanish olive oil and protected designations of origin

This paper focuses on the Mediterranean olive oil commodity chain to look at the interplay among regulations at the global, supranational, national and regional levels. We do so through a case study of one of the olive producing regions in Spain. We analyze the changes undergone by a particular form of food labeling?origin?as a response to the pressures exerted by the globalization of the agrofood system. While historically certain kinds of foods and places were intimately interlinked, neoliberal reforms have created the conditions for a formalization of linkages. Protected Designation of Origin (PDO) is designed to commodify previously existing geographical imaginaries as well as newly created ones, associating products with the values attributed to a region. We consider the historical, cultural and political economic factors that help to explain why Spanish olive producers are employing PDO labeling at this time. Finally, we contrast the place-based imagery invoked by these labels with recent transformations in the geography of production, finding that there are marketing synergies that extend beyond the food system to other modes of "consuming" the landscape in the environs of Jaen, Andalusia.

Keywords: Spain, agriculture, food

Steven R. Holloway, PhD, University Of Georgia. Email: holloway@uga.edu;
The Promise & Peril of Collaborative Multi-Method Research

Collaborative cross-disciplinary multi-method research holds great promise for the future of critically meaningful quantitative research. Establishing and nurturing the linkages necessary for this type of research is demanding of time and energy, however, and there are inherent risks associated with such ventures. I offer here a tentative heuristic model that centers on iterative and collectively reflexive application of multiple research methods. This approach can help individual scholars to break out of the boxes that too often characterize our work. The approach also foregrounds the epistemological and ontological tensions that necessarily accompany multi-method research by seeking to maximize the chance that productive and creative responses can be forged. To illustrate both the promise and peril of this style of research, I report on an ongoing longitudinal research project with which I have been involved for the last several years. Based on my experiences, I offer a cautionary yet optimistic status report. I conclude by offering a set of general pragmatic suggestions for creative, engaged and meaningful research that involves quantitative research as part of collaborative multi-method approach.

Keywords: Collaborative Research, Cross-Disciplinary Research, Multi-Method Research

Brian P. Holly, U.S. Census Bureau. Email: brian.p.holly@census.gov;
Audrey E. Clarke, US Economic Development Administration. Email: aclarke@eda.doc.gov;
Self-Employment in Services: A Geographical Assessment

Recent analyses of productivity, employment growth, and economic dynamism have focused on the role of small businesses in the U.S. economy. Small businesses are the source of much innovation and job generation. An overlooked, but increasingly important, contributor to economic growth is the self-employed segment, which consisted of over 19 million establishments in 2004 with recorded sales or receipts of US \$887 billion. The self-employed consist of individual proprietorships, partnerships and corporations, which tend to have low entry and operating costs, and are less capital intensive than their employer counterparts. They rely on technology and acquired skills for successful operation but vary considerably in their productivity. This paper examines the sectoral composition, growth, and geographical distribution of the self-employed from 1997 to 2004, with particular emphasis on services. A regional shift share-analysis and regression models are used to estimate regional levels and change in the self-employed. Results show that individual entrepreneurial activity varies

widely within the US and is linked to differences in industrial composition, human capital, unemployment, and regional endowments.

Keywords: self-employed, services, productivity, shift-share analysis

Molly Holmberg, University of Colorado - Boulder. Email: molly@mollymaps.com; Kenneth E. Foote, University of Colorado-Boulder. Email: K.Foote@colorado.edu;
Journalistic Cartography on the Web: A Comparison of Print and Online Maps

This article compares the use of maps in seven major U.S. newspapers in print and online formats during a two-month sampling period. Recent advances in interactive, multimedia, and web-based cartography offer new possibilities for integrating maps with news stories. This article asks how these new technologies are being used and how maps in online and print editions differ. The research found that interactive and multimedia maps are not widely used in online editions and, indeed, online maps are not always well integrated with stories. Furthermore, the disparity in size and resolution between print and online editions leads to a range of compromises involving the absolute and relative sizes of maps, placement on the page, and position with respect to text. Interviews with newspaper staff indicated that lack of staff and time and the separation of production between print and online editions often prevented better integration and use.

Keywords: journalistic cartography, online journalism, online maps, interactive maps

Cindy L Holmes, University of British Columbia Okanagan. Email: cindyleholmes@shaw.ca;
Destabilizing Homonormativity and the Public/Private Dichotomy in "Lesbian Domestic Violence" Educational Discourses

Community-based educational materials and workshops are a common feminist approach to addressing violence in lesbian relationships. This paper explores the racialized exclusions in the public/private dichotomy in community-based educational discourses about "lesbian domestic violence". I examine how the public/private dichotomy in these discourses masks how the construction of each space, and the violences within them depend on one another. I investigate how a universal lesbian is constructed, normalizing certain identities and knowledges while subordinating others. An examination of community-based educational materials and interviews with queer educators illustrates how the public/private dichotomy produces exclusions and makes certain forms of violence enacted on certain bodies unthinkable and unintelligible. I argue that an exclusive focus on violence in the private sphere breaks down around race and conceals the relationship with public violences. While these discourses challenge heteronormative constructions of violence, they have relied on a simple conceptual framework that has had the effect of promoting a dominant narrative or regime of truth privileging white, middle-class lesbian experiences. My research highlights the need to destabilize this homonormative construction of lesbian relationship violence by re-conceptualizing violence in same-gender relationships from an anti-colonial framework and seeking new narratives that reflect an interlocking social analysis. This paper argues for a spatial analysis of violence in lesbian relationships that pays attention to the violence enacted on bodies at different sites and from multiple sources. Attention to the socio-historical construction of spaces, bodies, identities and violence is needed in future research and education about same-gender relationship abuse.

Keywords: Domestic violence, lesbian, whiteness, public/private, discourse

John Holmes, Queen's University. Email: holmesj@post.queensu.ca;
Tod D. Rutherford, Syracuse University. Email: trutherford@maxwell.syr.edu;
Carmen Reis-Martinez, Queen's University. Email: carmen.reis@gmail.com;
Power Asymmetries within Industrial Clusters: Case Studies from the Industrial Mould Industry in Canada and Portugal

Research on industrial clusters has emphasized the embedded nature of networked production systems, scale, and the wider institutional context within which clusters develop. However, there is a growing recognition that the role of entrepreneurial innovation in cluster formation is not fully understood and simply cannot be 'read off' from policies or institutions. Indeed, entrepreneurs may well be the active creators of such institutions. This paper examines the role of entrepreneurs and institutions in the development of industrial clusters. In particular, we focus on the challenges posed by the asymmetric power relationships that can arise due to the development of larger firms within the cluster, relationships with external customers, and the cluster's integration into the 'knowledge pipelines' of transnational corporations. The analysis draws on recently completed interview-based research into the formation and evolution of two internationally-important clusters in the industrial tooling industry: the automotive tool, die and mould industry in Windsor, Ontario and the more diversified industrial mould making cluster in Marinha Grande, Portugal. In each cluster, interviews were conducted with tool makers and representatives of institutions that support the industry. Both clusters have similar histories of

skilled tradesmen who established dense networks of small but highly innovative firms and in the process became successful entrepreneurs. Today, both clusters are faced with tensions and challenges resulting from the asymmetric power relationships that have developed subsequently: between different sized firms within the Marinha Grande region; and, in Windsor, between the mould makers and their large transnational customers in the automotive industry.

Keywords: industrial clusters, entrepreneurship, industrial mould industry, Canada, Portugal

Ashley Holt, UC Berkeley, Environmental Science, Policy & Management. Email: ashleyh@nature.berkeley.edu; *Plague in California, 1900 - Present: Exploring the intersection between pathogen, animal, and human geographies*

Current scholarship maintains that the plague bacillus, *Yersinia pestis*, was first imported to the United States in the early part of the 20th century, when infected rats were inadvertently transported from Asia by ships docking in San Francisco. Since 1900, 446 human cases of plague have been recorded in California. While the first plague outbreaks in California were concentrated around the port towns of San Francisco and Los Angeles, during subsequent decades the disease spread across the western United States, and human plague cases were recorded in coastal, inland, and mountain counties. In this study, we map the spread of human cases across California, as well as the geographic distribution of both carnivore and rodent hosts, in order to understand spatial patterns of disease incidence.

Keywords: Health geography, disease mapping, GIS, California

James B. Holt, MPA, PhD, CDC/ Centers for Disease Control. Email: JGH4@cdc.gov; Jacqueline W Miller, MD, Centers for Disease Control and Prevention. Email: JMiller5@cdc.gov; Timothy S Naimi, MD, MPH, Centers for Disease Control and Prevention. Email: TNaimi@cdc.gov; Daniel Z Sui, PhD, Texas A&M University. Email: sui@geog.tamu.edu; *A Geographic Analysis of Religious Affiliation and Alcohol Consumption in the U.S.*

Excessive alcohol consumption claims approximately 75,000 lives annually and is the third-leading preventable cause of death in the U.S. This study explored state-level correlations between current or binge drinking and religious adherence among US adults using data obtained from the Behavioral Risk Factor Surveillance System and the American Religion Data Archive. There was no significant correlation between overall religious adherence rates and current or binge drinking rates in the general population, and states with higher adherence rates were significantly more likely to have high proportions of binge drinking among current drinkers. However, there was a strong inverse correlation between the adherence rate and both binge and current drinking in the Southeast, and a strong positive correlation between the adherence rate and both current and binge drinking in the Midwest and Northeast. These regional differences were largely explained after stratifying by major religious denominational groupings. States with high Catholic adherence rates tended to have higher rates of current and binge drinking, while states with high Evangelical Protestant adherence rates tended to have lower rates of current drinking and binge drinking. The ratio of binge drinkers among current drinkers was similar in Catholic- and Evangelical-predominant states. These findings suggest that the relationship between religion and alcohol may be denomination-specific, and challenge the lay perception that religious adherence per se is associated with less alcohol consumption and less excessive drinking among those who drink. This analysis underscores the need for individual-level data to more fully examine the relationship between religion and alcohol consumption.

Keywords: alcohol drinking, binge drinking, religion

Louise Holt, University of Reading. Email: L.Holt@Reading.ac.uk; *Young People with Socio-Emotional Differences: Theorising Disability and Destabilising Emotional Norms*

This paper explores the implications of an empirical study of the experiences of young people with a range of mind-body-emotional differences to theorising disability. In particular, it is contended that young people with emotional differences are frequently the most disabled via normalised expectations of development. The experiences of these young people, who often are not labelled with specific diagnoses, destabilises accepted social models of disability, by questioning the necessity of impairment to disability. I contend that challenging the residual biologism of social models, which cast impairment as integral to disability, facilitates examination of a broader range of mind-body-emotional differences. Further, illuminating the experience of people (dis)abled via norms of emotional and social expectations, enhances debates about emotions and affect; illuminating and denaturalising norms of emotional comportment within specific socio-spatial moments within broader social relations. This denaturalisation can highlight how such norms are gendered, classed and

racialised, and simultaneously suggests the potential for contestation and transformation.

Keywords: disability, emotional differences, emotional geographies, young people

Eric Holthaus, Columbia University. Email: emh2134@columbia.edu; *The Social Justice of Weather: Hurricane Risk Management for Development in Latin America and the Caribbean*

With an active Atlantic hurricane era upon us, the risk of hurricane-related losses in Latin America and the Caribbean is enhanced (Emanuel, 2005). This study introduces the Hurricane Vulnerability Index (HVI), a simple model of socioeconomic and meteorological vulnerability designed to quantify hurricane mortality risk. Following previous examples (Kaly et al, 2004; Dilley et al, 2005), an assessment of hurricane mortality risk is made for each country in the region by comparing indicators of vulnerability to observed mortality rates in recent hurricane events. Statistical analysis of the HVI shows that social factors (like literacy rate and life expectancy) influence hurricane mortality more than hurricane frequency or intensity, with social factors explaining 41% of the variance in observed hurricane-related deaths per storm compared to 29% for storm strength and intensity alone. In fact, an exponential relationship is shown between vulnerability and hurricane mortality. Based on this analysis, recommendations are given for hurricane risk management to reduce deaths in the most vulnerable countries, primarily by increasing attention given to hurricane-related social vulnerability, as other recent studies have also recommended (Shultz et al, 2005; Cutter and Emrich, 2006). Although previous studies (Cutter et al, 2003; Pielke et al, 2003) have compiled similar multidisciplinary vulnerability indices, this is the first study to produce an index examining both social and physical vulnerability in Latin America and the Caribbean that focuses on mortality risk from hurricanes.

Keywords: hurricanes, latin america, hazards, vulnerability, development

Carlos Andres Holz, (c)PhD, Biogeography Lab, University of Colorado - Boulder. Email: holzc@colorado.edu; *Fire History of *Pilgerodendron uviferum* (*Guaitecas* Cypress) in the Temperate Rainforests of southern South America*

The temperate rainforests of western southern South America (south of 42° S) have experienced widespread wildfires in recent times. However, we are uninformed as to the natural role and scale of the modern fire history in the region. Here, one of the dominant tree species is *Pilgerodendron uviferum*, an endemic, slow growing, and long-lived species, and the southernmost conifer worldwide. Due to a history of massive burning, *P. uviferum* is listed on the International Union for the Conservation of Nature and on the Convention on International Trade in Endangered Species. The goal of this ongoing research is to examine the role of fire, the influence of climatic and human activities on fire regimes, and the vegetation response to fire in *Pilgerodendron uviferum* temperate rainforests of southern South America (south of 42° S). To address these questions, I use a multi-scale research design that seeks both top-down and bottom-up explanations of fire history, climatic and human influences, and stand dynamics in these forests. At regional and meso scales, I examine the historical role of fires (i.e. frequency, severity, extent) prior to, during, and post-establishment of Euro-settlers across the region, and the influence of interannual and interdecadal climate variability on these fires. At a meso- and stand-scales, I investigate the vegetation responses the most recent fires episodes. Finally, at a stand scale, I am developing new habitat-specific models of the post-fire stand development patterns and regeneration dynamics of these forests.

Keywords: Fire Regime, Climate variability, Human Impact, HRV, Patagonia

Collin Homer, United States Geological Survey. Email: homer@usgs.gov; Jon Dewitz, SAIC, USGS EROS. Email: ; Joyce Fry, SAIC, USGS EROS. Email: ; Mike Coan, SAIC, USGS EROS. Email: ; *Completion of the 2001 National Land Cover Database for the Conterminous United States*

The National Land Cover Database (NLCD 2001) is a Landsat-based set of data layers created for the United States by the Multi-Resolution Land Characteristics Consortium (MRLC), let by the U.S. Geological Survey. The recent completion of NLCD 2001 at 30 m resolution for the conterminous United States (Alaska, Hawaii and Puerto Rico are in progress) provides several independent data layers that can be directed at a wide variety of applications. Completed data layers include: (1) normalized Landsat Thematic Mapper ? and Enhanced Thematic Mapper Plus (ETM+) imagery for three time periods per path/row; (2) elevation, slope, aspect, slope position, and other ancillary data; (3) per-pixel estimates of percent urban imperviousness and percent tree canopy; (4) a land cover product with 16 land cover classes and (5) a product that identifies land-cover change between 1992 and 2001. NLCD 2001 provides a comprehensive land characteristics database for the Nation, designed to support

many potential applications. All NLCD 2001 data layers are available for free download from the Internet.

Keywords: Remote Sensing, Landcover, Tree Canopy, Imperviousness, Landsat

Fan Hong, Wuhan University of China. Email: hfan2@gmu.edu; Hong Fan, National Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing of Wuhan Univ., 129 Luoyu Road, Wuhan, China, 430079. Email: fan_hong@x263.net; Qinghan Liang, National Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing of Wuhan Univ., 129 Luoyu Road, Wuhan, China, 430079. Email: qhlian@lams.edu.cn; Qifeng Zhao, National Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing of Wuhan Univ., 129 Luoyu Road, Wuhan, China, 430079. Email: zqf2002@hotmail.com; Liping Di, Center for Spatial Information Science and Systems (CSISS), George Mason University, 6301 Ivy Lane, Suite 620, Greenbelt, MD 20770, USA. Email: ldi@gmu.edu; A High performance Communication Program for a GPS-based Vehicle Tracing Mobile Platform

With the development and integration of the Internet and mobile communication, we are entering a new era of mobile information. When users utilize GIS in motion, this GIS is called a mobile geographic information system or Mobile GIS. Global Position System (GPS) based vehicle tracking is an important application of mobile GIS. The application has generated many new problems challenging current GIS researchers. One of the problems is system inefficiency and poor reliability, caused by massive and frequent interruptions of communication, limited resources and poor schedule. This problem is the bottleneck that impedes Mobile GIS systems' performance. This paper discusses how to avoid the bottleneck by making a single server efficiently support multi-user communication. First we introduce the architecture and function of our mobile platform and analyze some bottlenecks then, we present detailed strategies and methods for how to use Microsoft's I/O Completion Port (IOCP) model to implement the Winsock 2 communication server program. We prove that this server program can improve the efficiency, flexibility and robustness of the single communication server, especially for large-scale communication. Finally, this paper summarizes the results of some application experiments and other results using this platform.

Keywords: Mobile GIS, LBS, IOCP

Eirin Hongslo, University of Life Sciences, Norway. Email: eirin.hongslo@umb.no; Why can't we become rich, like the white man is? Marginalisation and resistance to stock limitations in Namaqualand, South Africa

Carrying capacity planning has been an influential tool in rangeland management in South Africa and has remained important during recent land reforms. As part of a land tenure reform process in 2000-2002, the management plan in Concordia, one of the former coloured rural reserves, was rewritten. Although serious effort was put into changing the plan, and a series of consultative meetings in the communities was arranged, the new plan ended up looking astonishingly similar to the old one, particularly concerning livestock limitations. In interviews with Concordia, farmers argue that this is far from enough to achieve a decent livelihood from farming. The continued application of stocking limitations can be understood in several ways. This paper investigates why carrying capacity, as a management tool, maintain such a lot of discursive influence decades after betterment planning was abandoned and why alternatives were not explored. It asks whether it represents a form of continued technocratic and political marginalisation. The arguments posed by some farmers mainly refer to livelihoods and economic development. Although a limit on stock numbers is maintained to secure grazing for the poorest of the poor, the fixed stock reiterates the divide between commercial and communal farmers, a divide that most other policies seek to overcome. The author of this paper recognises the need for planned management of communal resources. However, there are a number of reasons for rethinking carrying capacity as the main management tool and in particular how it is applied in more community-based planning.

Keywords: Betterment planning, Namaqualand, rangeland management, political ecology

Catherine A. Hooley, Ph.D., Pittsburg State University. Email: chooley@pittstate.edu; Timothy J. Bailey, Ph.D., Pittsburg State University. Email: tbailey@pittstate.edu; Wasteland or Wonderland? Abandoned Mine Land and Economic Development Potential in Southeast Kansas

This paper examines the diversification of economic development opportunities following the natural revegetation of abandoned mine land in two counties of southeast Kansas. The legacy of coal mining has left a distinct landscape in the counties of Cherokee and Crawford. For decades, the barren terrain was considered waste land unsuitable for agriculture and served as a

deterrent for economic development. More recently, however, natural revegetation processes have altered the physical appearance of the land, and in so doing, created more desirable settings. As a result, economic opportunities have begun to present themselves in the form of recreational and residential developments rather than primary and secondary activities. Changing attitudes toward the relics of the mined land features have affected change and growth. Results indicate that the mined landscape continues to impact the economy of the region.

Keywords: abandoned mine land, rural development

Dawn Hoogeveen. Email: dhoogeve@sfu.ca; Bling Bling: Diamonds and Canada's North

A key contribution geographers have made to the study of diamonds is 'resource war' literature that concentrates exclusively on diamonds in Africa. 'Conflict' or 'blood' diamonds have been criticized for their relationship to the fueling of civil wars. Canadian diamonds on the contrary are marketed as 'pure as ice' and 'conflict free'. Diamonds currently play a vital role in the Northwest Territories economy. The increasing amounts of staking and prospecting taking place across Canada's north lead to questions regarding the adequacy and follow up of legislation that monitors diamond mining practices. This paper examines different ways of looking at Canadian diamonds in the light of these issues.

Keywords: resource geography; diamonds; Canada's north

Barbara Hooper, Dr., Radboud University Nijmegen. Email: b.hooper@fm.ru.nl; Space Matters but is it Matter or Space?

A dominant feature of Soja's work has been his call for a radical restructuring of western ontologies in which space assumes, with being and time, a central position and the essential connection between spatiality and being is given ontological priority. The goal of this paper is to problematize Soja's restructuring efforts through an interrogation of his undeveloped assertions that time and space represent the objective form of matter and that time, space, and matter are inextricably connected. My particular focus is upon the consequences of dropping matter, and more significantly the agency of matter, out of his analysis. Working speculatively, I suggest that Soja does not analyze space but matters which have been spaced/timed into being, and that had this been recognized a very different idea of being and being-in-the-world would have emerged. This alternative, matter-centered ontology would disturb all ideas of self-contained beings and becomings and would work towards a general reconsideration of space and time as socially produced spatializing/temporalizing techniques for mastering the immanent agency of matter? i.e. patternings, quantification, organization, standardization, and so forth which isolate, fix, and pacify matters that are interactive, complex, emergent, irregular, unruly. This more permeable way of conceptualizing being has political as well as theoretical consequences: once it is accepted that the spaces and times produced between matters are foundational ontological fantasies and that matters of all sorts (including rocks) act upon human matters, then ideas of human agency and intentionality and thus human politics require radical revision.

Keywords: matter, space, ontology

Frank Hopf, Texas A&M University. Email: fhpf@neo.tamu.edu; Bernard O Bauer, University of British Columbia Okanagan. Email: bernard.bauer@ubc.ca; Mark Lorang, University of Montana. Email: mark.lorang@umontana.edu; Douglas J. Sherman, Texas A&M University. Email: sherman@geog.tamu.edu; The history, present and projected future of the mid-channel islands in the Sacramento River Delta.

The Sacramento River Delta of California has undergone significant development and changes during the Holocene. The rate of change increased greatly with the human population explosion that started with the nearby discovery of gold in 1849. Large sections of the delta were converted to agricultural use by the augmenting the height of the natural levees. As a result, the periodic inundations by flood waters and flood sediments were restrained. The islands behind the augmented levees subsided to elevations below normal low water levees forcing landowners to slowly convert the levees into dams. Also during the last century, the channels have been modified and new ones created to facilitate moving about 20% of the total fresh water south to the southern California water supply system rather than west to San Francisco Bay and the ocean. This channel and levee building effort left behind, or in some case may have created, numerous small mid-channel islands. These small islands remain responsive to the modified fluvial and tidal forces processes while the bulk of the delta has been largely isolated or protected from those processes. They also represent some of the last riverine aquatic habitat in the delta and are therefore extremely valuable. This study looks at the historic record largely through maps and remote imagery and studies the active fluvial processes by analyzing up to eight years of quarterly erosion measurements to illuminate the past, understand the present, and project the potential future of these critical remains of the natural delta.

Keywords: fluvial, levees, river deltas

Peter E Hopkins, Lancaster University. Email: p.hopkins@lancaster.ac.uk; *Global politics, national identities, local life: the perspectives of a young Scottish Muslim man*

Through engaging with the lived experiences of a young person whose voice is usually silenced, often unheard and frequently distorted, this paper investigates how youth transitions and masculinities are mediated by the geographies of racism and religion. I do this by exploring the life and times of Kabir, a young Muslim man living in post-devolution urban Scotland. This paper considers how scale is constructed, struggled over and used to mark out Kabir's life - to assign him to categories, to shape his identities ? in different times and places. Engaging with a range of issues framed as global, national and local in character, I consider how this framing shapes Kabir's experiences of neighbourhood, home and personhood. One of the main arguments of this paper is that, whilst Kabir might resist, struggle and connect with scales beyond the local, his personal identity and political future is rooted in his lived and material cultures that are positioned close by; his sense of self and community is critically shaped by the scales 'closest in'; the markings on his body; the placing of his home; and the character of the street. So, through exploring his understandings of, and responses to, September 11th 2001 and July 7th 2005 (global), his opinions about devolution, racist politics and national identities (national), and the significance of home and mosque (local), I analyse how Kabir shapes, creates and resists aspects of his cultural identity, and responds to wider geopolitical transformations and spatial changes.

Keywords: Islam, youth, identity, nation

Corina Höppner, Swiss Federal Research Institute WSL. Email: corina.hoeppner@wsl.ch; Jacqueline Frick, Swiss Federal Research Institute WSL. Email: jacqueline.frick@wsl.ch; Matthias Buchecker, Swiss Federal Research Institute WSL. Email: matthias.buchecker@wsl.ch; *Social impacts of participatory landscape development in Switzerland*

Participation has become an important issue in Swiss landscape development. As an alternative to the conventional top-down approach in landscape planning, new planning instruments such as the Landscape Development Concept (LDC) have emerged. An increasing number of municipalities start to elaborate such concepts, and in the course of it they apply different participatory techniques such as workshops, round tables and information events in order to involve stakeholders and a wider public. While ecological effects of these innovative planning processes have been studied largely, we still do not know about their social effects such as trust and commitment building. Thus, the aim of our study is to assess these effects on persons and groups involved. The examination of social - and often called "intangible" ? effects is methodologically challenging and ideally requires a mixed-method design. In order to assess changes of participants' trust-related beliefs and their intention to participate, we sent a questionnaire to participants of a municipal LDC (n = 35) before and after the planning phase (i.e., repeated measurement) and conducted semi-structured interviews (n = 11) with participants. We found that different participatory techniques have different effects on participants' trust in other participants and their confidence in the planning process itself. In our presentation we first discuss methodological considerations and then highlight possible pitfalls in interpreting the results of quantitative trust measurements, specifically regarding the concurrence of positive and negative effects. Finally, we show, why long-term participation strategies are essential for landscape planning processes.

Keywords: participation, landscape, trust, Switzerland

André Horn, Dr, University of Pretoria. Email: andre.horn@up.ac.za; *From Segregation to Fragmentation: the Changing Racial and Income Structure of the Post-apartheid City*

The apartheid city was highly segregated in terms of racial and income distribution. There was also a strong correlation between race and income. Since the early 1990s, the population and income structure showed significant changes as a result of regional migration and black economic empowerment. 'Integration' and 'development' also became key elements of urban planning policy. To what extent has the aim of urban social integration been achieved? Are new socio-economic spatial patterns emerging? These questions are analysed in the City of Tshwane metropolitan municipality in South Africa. Various types of segregation, desegregation, integration and re-segregation are identified. The emergence of a black elite as well as a black middle class is also visible alongside growing white poverty. It is nevertheless argued that despite significant socio-economic changes urban segregation was merely replaced by urban fragmentation. In conclusion, the 'fragmented city' is explained in local and global context.

Keywords: urban geography, social morphology, post-apartheid, South Africa, planning

Diane P. Horn, Birkbeck College, University of London. Email: d.horn@bbk.ac.uk; Kaiming M She, School of the Environment, University of Brighton. Email: K.M.She@bton.ac.uk; Paul Canning, Rivers and Coastal, Atkins Water. Email: Paul.Canning@atkinsglobal.com; *Performance of nourished mixed sand and gravel beaches*

Many of the beaches on the UK coast that constitute the main defence against erosion and flooding are composed of highly permeable sediments, usually a mixture of sand and gravel. This paper reports on the results of a research project on the effect of permeability on the performance of nourished mixed sand and gravel beaches. Laboratory experiments showed that under the same wave conditions, mixed beaches have reduced volumetric changes, less onshore transport, and more offshore transport than gravel beaches. This is because the presence of sand in a mixed beach significantly reduces the permeability of the beach, impairing the water flow within the sediment media. Numerical modelling and laboratory experiments showed that the hydraulic conductivity of the sediment and the groundwater level both have significant effects on the evolution of the beach surface. A lower groundwater level leads to increased onshore transport and a higher groundwater level to increased offshore transport for both accretionary and erosional conditions. A series of analytical equations relating the porosity, hydraulic conductivity and bulk density of a bimodal sediment mix to the percentage of sand were validated by laboratory tests which showed that cliffing is most likely to occur when the mixture contains 30-36% or more sand. The case studies identified two particularly problematic performance issues: loss of crest height and width, generally due to the transport of sediment from the upper beach to the lower beach, and cliffing, particularly in newly recharged material.

Keywords: beach, nourishment, sedimentology

Sally P. Horn, University Of Tennessee. Email: shorn@utk.edu; Kenneth H. Orvis, University of Tennessee. Email: orvis@utk.edu; Lynn J. Champion, University of Tennessee. Email: champion@utk.edu; Henri D. Grissino-Mayer, University of Tennessee. Email: grissino@utk.edu; Carol P. Harden, University of Tennessee. Email: charden@utk.edu; Linda C. Kah, University of Tennessee. Email: lckah@utk.edu; Claudia I. Mora, University of Tennessee. Email: cmora@utk.edu; Colin D. Sumrall, University of Tennessee. Email: csumrall@utk.edu; Kristin T. Rearden, University of Tennessee. Email: krearden@utk.edu; *Bringing University Research to Rural Middle Schools in East Tennessee: The University of Tennessee GK-12 Earth Project*

Far too commonly, science is presented in elementary and secondary classrooms as a body of arcane knowledge handed down by inaccessible, distant authorities known as scientists, rather than as a process of investigation and discovery that is fun and exciting and that makes a scientist of anyone who participates. Funded by NSF, the University of Tennessee GK-12 Earth Project focuses on bringing the excitement of research and discovery to rural middle school science classes in east Tennessee. Ten graduate students from the Geography Department and the Earth and Planetary Sciences Department serve as GK-12 Fellows in seven schools spread across four school districts. Each Fellow is paired with a Teacher-Partner selected from highly committed participants in past summer workshops in the natural sciences. The project has a strong focus on the science of climate and environmental history, and most of the Fellows are engaged in graduate research on natural archives of environmental history, including tree rings, sediments, soils, fossils of various kinds, and stable isotopes. GK-12 Earth Fellows work closely with their Teacher-Partners to develop and carry out hands-on science activities that expose rural middle school students to the Fellows' own unfolding research, to other research at the University of Tennessee, and to broader initiatives such as the Integrated Ocean Drilling Program.

Keywords: authentic research, climate history, education-graduate, education-K-12, environmental history, GK-12, global change, University outreach

Mark W. Horner, Florida State University. Email: mhorner@fsu.edu; Joni Downs, Florida State University. Email: jad05m@fsu.edu; *Examining the sensitivity of hurricane disaster relief plans to population demand assumptions*

Hurricane disaster planning involves the staging of relief goods at accessible locations in urban areas that are to be distributed to people following an event. Accessible locations for staging relief goods are determined based on assumptions about the spatial distribution of populations in need. For example, some people evacuate their residences while others remain behind. Additionally large grocery stores or shopping centers may remain open during a storm, providing goods to nearby populations, while more distant populations may require delivery of relief supplies. In this research, we examine how assumptions about these and other demand considerations impact modeling hurricane disaster relief goods provision. Specifically, we explore how alternative techniques for estimating relief goods

demand impact the placement of distribution facilities. To accomplish this task, we formulate a multi-commodity goods distribution model that optimally sites relief staging facilities. Then we explore how spatial variation in population demand impacts relief facility locations.

Keywords: spatial modeling, disaster relief, GIS, hurricanes, facility location

Howard Horowitz, Ramapo College. Email: hhorowit@ramapo.edu; Wordmaps

Although the tradition of visual poetry goes back to ancient history, the explicit linkage of poetry and cartography is relatively recent. Adel Haft describes examples from around the world published since the 1960s. Over the last two decades, I have created such integrations and call them "wordmaps". Each wordmap has its own fusion of text and image. Some are "literal": the names of locations are positioned in the text corresponding to their map locations. "Manhattan", first visualized in a vivid dream and then fitted into place with the precision of cartographic production, is an example of an explicit wordmap. "The Oregon Coast" incorporates geography, history, and poetry of place into a recognizable map, produced with the assistance of skilled cartographers. Earlier wordmaps were more abstract in their geographic representation. "Redwood Creek" flows across the page but does not attempt to represent the Northern California watershed literally; "Idaho" has the shape of the state, but the internal text does not function as a map. "The Wallkill Watershed" flows north from the bottom to the top of the page, and tributary texts flow into the main text as streams flow together on the land. Other wordmaps are organized around geological features ("The Reading Prong" and "Dune").

Keywords: poem, map

Leah S. Horowitz, Ph.D., University of Leeds. Email: leah@env.leeds.ac.uk; "It's Up to the Clan to Protect": Cultural Heritage and the (Micro)political Ecology of Conservation in New Caledonia.

Political ecology is a new and promising field, yet proponents have inadequately explored its potential for application to real-world problems. I argue that academics have a duty to use their analytical skills to contribute to government and non-government organizations' understandings of the political, economic and socio-cultural contexts of environmental issues. Reciprocally, data gathered through such analysis can enrich theoretical frameworks. This paper will explore these ideas through the case study of community-initiated conservation in New Caledonia. Local community members independently initiated discussions about creating protected areas. The provincial government asked me to determine the degree to which these initiatives could be supported by formal institutions. I found that most community members supported the proposed conservation projects for the economic development benefits they expected. However, they also saw these projects as an opportunity to strengthen their cultural identity through respect for, or reinforcement of, customary authority structures. Meanwhile, this desire led to intracommunity tensions as people argued over who within the community held the positions of customary authority. I argue that community members may harness conservation projects to their own political or cultural agendas - on a national and/or very local scale. Therefore, people may be more interested in supporting conservation projects that they perceive as furthering their political, cultural or micropolitical goals. In attempting to empower local people through natural resource management projects, conservationists should be aware of the importance of considering precisely who within the community will be empowered, who will be disadvantaged, and what conflicts this may cause.

Keywords: natural resource management, community-based conservation, political ecology, Melanesia, environment

Kathrin Horschelmann, University of Durham, U.K.. Email: K.Horschelmann@durham.ac.uk; Youth and the geopolitics of risk after 11th September 2001

What constitutes 'the political' has been conceived primarily in terms of the actions of the state in international relations theory and geopolitics. This is despite recognising the often severe effects of geopolitical events, such as interstate war, on civilians and children. In the cases that form the basis of this paper, neglecting the voices of those seemingly on the sidelines of international conflict reinforces a sense of political disenfranchisement. The paper focuses on perceptions of risk after the WTC attacks of 11/09/2001 by British Muslim students aged 16 to 18. For students with hybrid locations in diasporic communities, attachment to people and places in different parts of the world has meant that the effects of these events have been felt strongly in both a direct and mediated way. The research presented here shows that young people's fears about increased racism and potential terrorist attacks were secondary to their concerns about the effects of terrorism and of military conflict on others in distant places. Their interpretations of political responses to 11th September 2001 also show an ability to critique and subvert political discourses rarely recognised in debates on

youth political agency and even in research on popular geopolitics.

Keywords: Critical geopolitics, youth, political agency, risk

Gareth C. Hoskins, University Of Wales, Aberystwy. Email: tgh@aber.ac.uk; Joanne Francis Maddern, Dr, University of Dundee. Email: J.F.Maddern@dundee.ac.uk; Regulation and Commemoration in the production of mobility at two US Immigration Stations

This paper discusses two sites that played a crucial role in the production of mobilities in the United States. Ellis Island, New York and Angel Island, San Francisco functioned as federal immigration stations and worked as strategic locations regulating the movement of people journeying to the East and West coasts during peak immigration years. Today these locations have been historicized as national heritage with million dollar budgets and thousands of visitors annually. More importantly, they have acquired symbolic status in the portrayal of the peopling of America. These two immigration stations and the processes surrounding their objectification as "history" have immense significance for contemporary epistemologies of mobility not least because they play host to a series of reconciliations about movement as a simultaneously alienating and legitimating condition.

Keywords: Ellis Island, Angel Island, memory, mobility, citizenship

Sheikh M Nazmul Hossain, SAIC/USGS. Email: hossain@usgs.gov; Collin Homer, USGS. Email: homer@usgs.gov; Joyce Fry, SAIC/USGS. Email: fry@usgs.gov; Jon Dewitz, SAIC/USGS. Email: ; Conterminous United States Land Cover Results from the 2001 National Land Cover Database

Developing a 16-class land cover layer for the National Land Cover Database (NLCD 2001) using Landsat satellite data has been a major effort by the Multi-Resolution Land Characteristics Consortium (MRLC). Now the Land Cover layer for the conterminous United States has been completed and hundreds of potential users will need this information to analyze various land cover characteristics. This paper reviews the methods used in creating the NLCD 2001 land cover products, including stratification by mapping zones, decision tree classification from imagery, ancillary data, derivatives and training data, and multi-team data processing. Results and characteristics of the final product are reported, including summary results for each class, as well as the overall product.

Keywords: land cover, decision tree, satellite data

Peter Hossler, University of Georgia. Email: phossler@uga.edu; The Abandonment of the City: The Erosion of the Health Care "Safety-net" in Milwaukee

I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm (Lasagna, 1984, modern Hippocratic Oath). The Hippocratic Oath, has served as the foundational paradigm for the medical profession in the United States. While the institutions and technologies of medicine have changed greatly since Hippocrates, the guiding framework for physicians he developed has remained. This is exhibited in the practice of reciting the oath during medical school graduation ceremonies. However, the onset of modern capitalism commodified the human body, while creating assembly lines of health in the form of hospitals, clinics, and Academic Medical Centers (AMC). This process has, like all other processes of commodification, created two classes of bodies; those with the financial capital to achieve health and those without. AMC's have historically helped narrow this gap by caring for the poor and uninsured. This paper examines the increasingly precarious role of AMC's as they face mounting pressure to collaborate with private entities in order to educate medical students and provide services to the community. I will use a case study from Milwaukee to investigate these contradictions. In Milwaukee a public/private partnership within the Milwaukee Clinical Campus (MCC) has resulted in a contraction of the MCC's role as community resource serving underserved neighborhoods. It has also marginalized activists voices opposing the inequality created by the capitalized U.S. health care system.

Keywords: health care access, political economy, activism, urban

Ellen Hostetter, University of Kentucky. Email: ellenhostetter@hotmail.com; Representations of a Racialized Landscape: Public Housing and the HOPE VI Program

This paper analyzes representations of racialized landscapes in discourses of public housing that helped shape HOPE VI, a 1992 HUD program dedicated to transforming public housing into neighborhoods that blend with mainstream America. Analysis of newspaper articles and the Congressional Record, as well as interviews with government officials involved in the creation of HOPE VI, shows a reluctance to directly address issues of race and public housing. Instead, the discourse surrounding public housing focuses on the landscape's aesthetic qualities and evokes the emotions of disgust and fear. I argue that public perceptions of race and poverty, underpinned by disgust and fear, are projected onto landscape. Emotive descriptions of landscape become a vehicle for addressing issues of race

and are, therefore, an important part of racialization. This process has material implications for the creation of national housing policy: emotive descriptions of landscape are used as a justification for the transformation of public housing developments and the lives of public housing residents.

Keywords: public housing, HOPE VI, landscape, emotion

Jacqueline A. Housel, SUNY at Buffalo. Email: jhousel@buffalo.edu; *The Role of Regulation and Social Practice in the Production of Racialized Place*

This paper explores the connections between perceptions of racialized spaces and how individuals (as members of groups) negotiate urban spaces. Initially, this problem was investigated through a series of neighborhood discussion groups that relied on structured dialogue to discuss racial profiling in highly segregated Buffalo, New York. Based upon observations of the study circles, I identified two population groups known to have suffered indignities in their dealing with police, but were marked very differently. One research focus was Black men and how they negotiate space (particularly with regard to white suburbs and police profiling). The second focus was elderly whites living in 'their' neighborhoods that are now almost all Black to see how their daily activity spaces are shaped by their experiences with police and their perceptions of their neighborhood. To capture the interrelationships between regulation of space and movement in/through/around space, I employed multiple research methods/tools, including, participant observation, focus groups, surveys (included cognitive mapping), and solicited travel diaries (supplemented with interviews). These methods, along with an intricate theoretical framework built from interdisciplinary work on race and space, provide context-rich understandings of the construction and maintenance of not just residential segregation seen on 'color line' maps, but also the everyday shaping of embodied, experienced, racialized places.

Keywords: place identity, races, critical race theory, qualitative methods

Chris Houser, University of West Florida. Email: chouser@uwf.edu; *Linking Dune Morphology on a Barrier Island to Transverse Bars on the Inner Shelf*

The morphological response of a barrier island to the elevated water levels and storm waves of a hurricane partly depends on the height and extent of the foredune, and the presence of secondary dunes. Prior to Hurricane Ivan, the height of the dunes along Santa Rosa Island in Northwest Florida exhibited considerable variability alongshore. Empirical orthogonal function (EOF) analysis was used to reduce pre-storm LiDAR data into characteristic cross-island profiles. Cross-correlation analysis between the eigenmodes of the pre-storm morphology and the island width revealed a statistically significant but lagged correlation. The largest dunes tended to be found at and just east of the backbarrier cusped headlands, while the smallest dunes were found at the narrowest sections of the island. The pre-hurricane height of the foredunes was also found to be correlated with the offshore bathymetry. The largest dunes tended to be associated with a dissipative profile, while the smallest foredunes (and the absence of secondary dunes) tended to be associated with a reflective profile. The variation in offshore bathymetry is shown to be associated with transverse bars on the inner shelf and it is argued that the resulting bathymetric highs and lows create alongshore variation in storm energy. Areas with a reflective profile are prone to breaching, which lowers the elevation of the island to the watertable and leaves a heavy shell lag. This creates a supply-limited environment and slows the rate of post-hurricane dune recovery compared to sections of the island with a dissipative profile.

Keywords: Dune Morphology, Geomorphology, LiDAR, Barrier Island

Donald Houston, Dr, Dundee University Library. Email: d.s.houston@dundee.ac.uk; *Reconceptualising the Spatial Mismatch Hypothesis*

The spatial mismatch hypothesis postulates that employment deconcentration within US metropolitan areas goes some way toward explaining higher unemployment and lower wages among ethnic minority groups, since these groups are more likely to reside in central city areas. However, little consensus has emerged on the importance of spatial mismatch in explaining disadvantage in the labor market. This paper argues that this conflicting evidence is the result of the variety of methods used to test the spatial mismatch hypothesis. More pertinently, attention is drawn to a number of hitherto uncovered flaws with some of these methods. Furthermore, it is argued that these flaws introduce systematic biases against finding evidence in support of the spatial mismatch hypothesis. In light of this, favored methods for future research are highlighted. Drawing on evidence from British conurbations that display similar spatial inequalities to US metropolitan areas despite much smaller ethnic minority populations, it is argued that race does not lie at the heart of the spatial mismatch problem. Three areas where the spatial mismatch hypothesis should be re-conceptualized are identified: first, its emphasis should be on spatial not racial

inequalities; second, it needs to differentiate between residential immobility and residential segregation which are in fact quite different; third, it needs to recognize that the extent and the effect of spatial mismatch are distinct and should be measured separately.

Keywords: spatial mismatch, unemployment, wages, urban, US, Britain

Serin D. Houston, Syracuse University. Email: sdhousto@maxwell.syr.edu; *The Absence and Presence of Race: Color-consciousness in Tacoma, WA*

Mixed-race partners are often called the "canaries" or barometers of race relations in the United States (cf. Chito Childs, 2005) because of the presumed emphasis on race in mixed households. If mixed-race couples possess a deepened awareness of race or signal the status of race relations in society then examining their perceptions and experiences is both useful and necessary. With this in mind, this paper analyzes the ways that mixed-race households in Tacoma, Washington, a city where the percentage of mixed-race marriages exceeds twice the national average, both amplify and silence the buzz of race within their lives. Specifically, I explore the ubiquitous color-consciousness evident in the interviews to demonstrate that the visibility and presence of race is context-specific and relational. In other words, conversations centered race when a clearly defined 'other' defied or compounded the racial order. For instance, spaces of whiteness and blackness, perceived opportunities for non-whites, and the parenting of multiracial children exemplified how particular relationships and contexts made race intensely visible. In contrast to these more personal and intimate experiences, race was noticeably absent from the conversations when interviewees spoke of love, equality, and normativity. Juxtaposing the simultaneous absence and presence, and related visibility and invisibility, of race enables me to unpack how mixed-race households in Tacoma, Washington negotiate race within a deeply racialized society.

Keywords: social geography, races-mixed, household, color-consciousness, Washington - Tacoma

Alice J. Hovorka, Associate Professor, University Of Guelph. Email: ahovorka@uoguelph.ca; Peter A. Wolf, University of Guelph. Email: pwolf@uoguelph.ca; *Active Field / Passive Classroom? Reconceptualizing Geography's Pedagogical Spaces*

Much geographical scholarship on teaching and learning details the intellectual, technical, and personal benefits stemming from residential field course offerings. With the sustainability of these offerings in question given logistical and political issues, there is greater demand for changes in field course delivery and structure. This paper seeks to expand the range of pedagogical tools, contexts, and ways in which geographical field experience can take place. It does so by reconceptualizing 'the field' based on the idea of 'everyday life' as a meaningful entry point within a classroom context, and reflexivity as a vehicle for student learning within that field. An empirical investigation of student learning experiences explores the possibility of recreating the benefits of residential field course offerings in a classroom-based field course.

Keywords: geography education, field courses

David John Howard, Dr, University of Edinburgh. Email: david.howard@ed.ac.uk; Jan Penrose, Dr, University of Edinburgh. Email: jmp@geo.ed.ac.uk; *'Multiple Streams of Humanity Flowing Together in Harmony': Mela Festivals and Scottish Identity*

This paper looks through the rhetoric of multiculturalism and anti-racism to explore just what policies that are framed around these concepts might mean in practice for Scottish society and its composite groups. Based on a series of surveys and interviews with organisers and attendees at two main urban festivals in Scotland, the research explores two popular understandings of multiculturalism and their relevance to the aims of these events. The first invites minorities to become as Scottish as possible, to integrate into an established culture and identity, while the second invites minorities to integrate their traditions and experiences into an evolving Scottish identity. These understandings of multiculturalism and the processes by which they are advanced and contested are examined through the cultural events of the annual South Asian Mela festivals in Edinburgh and Glasgow. The increasing popularity of these festivals; their proposed integration with wider celebrations of the 'new Scotland' and the physical location of each event form important components for analysis.

Keywords: Race Anti-racism Multiculturalism Festivals Scotland

Dustin Howard, Center for Spatial Analysis. University of Oklahoma. Email: dustin.howard@ou.edu; *Spatio-Temporal Analysis of the Foreign Military Sales in the Middle East (FY92-FY01)*

In 1995, the Clinton Administration laid out five major guidelines for the Foreign Military Sales program. These included the following elements: Assist and promote interoperability with allies and friends; maintain technological advantage; promote regional stability; promote peaceful conflict resolution, arms

control, human rights, democratization, and other U.S. foreign policy objectives; and safeguard the health of the U.S. defense industry. The purpose of this work is to investigate the motivations for Foreign Military Sales between the United States and Middle Eastern and North African states. This research uses GIS to apply spatial analysis techniques to the Foreign Military Sales agreements from Fiscal Year 1992 to Fiscal Year 2001. The temporal pattern revealed from the results of this spatial analysis highlights the motivations of alliance building to promote regional stability as the major factor for Foreign Military Sales in the Middle East and North Africa.

Keywords: Foreign Military Sales; Middle East, Spatio-temporal Analysis, GIS

Thomas F. Howard, Associate Professor, Armstrong Atlantic State University. Email: howardth@mail.armstrong.edu; *Windmills or Mountain Top Removal: Futures for the Cumberland Mountains*

The Tennessee Valley Authority has embarked on wind power generation by constructing 18 wind turbines on Windrock Mountain in Anderson County, TN. This is the largest wind project in the southeast, and part of TVA's renewable energy development program. Yet the agency also plans to increase its consumption of coal from the Cumberland Mountains, which means a new lease on life for strip mining and threatens to introduce mountain top removal for the first time to this part of the Appalachians. The contradictions in TVA's position are even more stark: large tracts of land near the wind power site are in conflicting dual ownership, with surface rights held by the Tennessee Wildlife Resource Agency while mineral rights are owned by TVA or coal companies that sell to TVA. This raises interesting questions about long-range planning for the optimal use of this neglected but highly scenic part of the southern mountains.

Keywords: Tennessee, strip mining, wind power, conservation, land use planning, TVA

Jeff Howarth, UC Santa Barbara. Email: jthinsb@yahoo.com; *Processes Of Land Use Change From Historical Texts*

This paper discusses a methodology to study land use change from natural language texts and presents results from a case study application. Land use is conceptualized as a collection of spaces adapted by human activity to serve one or more goals. Spatial changes in land use are linked to functional changes of either the elements associated with activities or the goals of the activities. The former may constrain (though deterioration) or facilitate (through innovation) the purpose of an adapted space. The latter reflects the loss of purpose (obsolescence) or the appearance of a new purpose (succession). These aspects of land use change are identified through textual analysis of a historical collection of letters written by the managers of a ranching and agricultural operation on Santa Cruz Island, California between 1916-1920. Corpus analysis identifies recurring patterns of activities frequently associated with place names and geographic objects, in addition to changes in these activities, elements, and places over time. Further analysis identifies relationships between functional changes at different levels of spatial granularity. This includes the innovation of barbed wire following the deterioration of pastures, and the succession of vineyards to hayfields following the disappearance of wine-making activities and the obsolescence of vineyards. This study shows how historical descriptions of everyday activities can complement more traditional evidence of land transformations by revealing functional processes of geographic change.

Keywords: Land Use Change, Natural Language, Historical Geography, Rural Geography

Nicolas Howe, University of California - Los Angeles. Email: nhowe@ucla.edu; *Between heritage and hate speech: The cultural pragmatics of displaying the Decalogue*

Since the early 1990s, cities and towns across the United States have been embroiled in a series of increasingly contentious lawsuits over displays of the Ten Commandments on government land. Part of a broader wave of litigation over religious iconography in public places, these cases have come to represent a moral confrontation between conservative Christians and their liberal opponents over the regulation of religious speech. In court, one side argues that the displays merely acknowledge the nation's "Judeo-Christian heritage," the other that they stigmatize non-Christians and thus exclude them from public life. On both sides, efforts to explain how places "speak" and more important, to describe the psychological effects of such speech have focused on the affective modalities of "observation." How, courts ask, should a "reasonable observer" respond to religious symbols in the public square? And what, if anything, is the political significance of his or her "feelings"? This paper argues that this legal inquiry is best understood as a form of agonistic cultural performance, the outcome of which depends on the actors' skill at dramatizing social memory.

Keywords: law; religion; landscape; public space; memory

Peter D Howe, Arizona State University. Email: peterhowe12@gmail.com; *The New Water Brokers? Knowledge production about the Gila River Indian Community and the Arizona Water Rights Settlement Act*

The 2004 Arizona Water Settlements Act could represent a massive shift in the fortunes of Arizona's Gila River Indian Community. By granting the community rights to nearly half the water from the Central Arizona Project, enough for a city of nearly three million people, the Act makes it a powerful player in the political landscape of the rapidly growing Phoenix area, a region where control of water rights means the difference between prosperity and stagnation. Through analyses of public discourse, this study examines the social construction of the Act, and more broadly, the water dynamic between the community and other political actors (the state of Arizona, cities, and the federal government). Using elements of quantitative content analysis and qualitative discourse analysis, I identify the characteristics and scale of discourses by popular media and political actors up to and following the Settlements Act.

Keywords: Arizona, water rights, discourse analysis

Sara J Howe, BA Environmental Geography, University of Utah, University of Utah. Email: abioticgrl@aol.com; *Coal Power vs. Geothermalism in West-Central Utah*

This study is a geographic inquiry concerning the development and construction of a 270-megawatt steam turbine coal burning power plant in Sevier County Utah. The study area encompasses Sevier County, located in the West-Central Utah. The Marysvale Volcanic Field and geothermal activity are also located within the study area. Social, political and economic reasons for the development of traditional fossil fuel based utilities over that of geothermal resources are examined within this study, utilizing primary and secondary literary sources and a random population survey of residents. Current development of coal generated electric utilities for the projected growth within Nevada and California fuel local community debate but endorsement for an environmentally impactful industry. Political and market pressures compelling a move away from petroleum based power production. The true environmental impacts of the NevCo coal based power plant in rural central Utah, will be felt by residents of Florida, Vermont, Maine, the Carolinas and other parts of New England through mercury contamination, through the poorly understood process of Methylation, the conversion of elemental mercury to the toxic methyl mercury. The conditions for methylation exist in only certain parts of America. Resource management and conservation principles such as inter-generational equity are integrated into study conclusions. Physical and population geographic criteria such as area carrying capacity and current transportation infrastructure favor the facilities location and raw industrial inputs such as coal. Water resources are limited in the area and may present a challenge to plant development and operation.

Keywords: economic geography, resource management, population geography, carrying capacity, coal power, geothermalism, environmental geography, natural resource management, energy policy

Philip Howell, Dr, University of Cambridge. Email: philip.howell@geog.cam.ac.uk; *Race, Suicide and Colonial Governmentality: British Colonialism and the Social Regulation of Self Harm*

The phenomenon of suicide has a long history in the understanding of modern society. It is an equally critical problem in political and ethical theory - particularly for the analysis of liberalism. This paper attempts to extend these considerations to the historical geographical analysis of the British colonies, placing the thematic of race at its heart. Some useful pointers exist in the examination of liberal rule in terms of biopolitics and governmentality, which rightly recover the regulation of suicide as a practice of freedom. However, the extension of this thinking to colonial governmentality is at a very preliminary stage. Some recent work suggests that the colonial governmentalisation of suicide ? such as its incorporation into social statistics ? acted simply as a bulwark of colonial regimes. This is too precipitate however: the encounter with alternative cultural practices of suicide regulation, the incommensurate treatment of European colonial and indigenous suicides, the incorporation of racial and climatic theories, all indicate modes of regulation that acted, in and through the discourse of race, to differentiate colonial subjects. This paper suggests some future avenues of research, and concludes with a nod to the figure of the suicide bomber as an icon of regimes of insecurity in the colonial present.

Keywords: Suicide colonial race governmentality

Michael Hoyler, Loughborough University. Email: M.Hoyler@lboro.ac.uk; Tim Freytag, University of Heidelberg. Email: ; Christoph Mager, University of Heidelberg. Email: ; *Connecting Rhine-Main: The production of multi-scalar polycentricities through knowledge-intensive business services*

In many of the current policy discourses on cities in globalization, city-regions rather than individual cities are being identified as the key arenas for the generation of economic growth. New concepts like 'global city-region' or 'mega-city region' suggest a complex interrelationship between the role of major city-regions as nodes in the global economy and their polycentric, multi-clustered spatial form. However, most of the literature on polycentric urban regions has so far focused on the analysis of internal regional structures rather than external interregional and transnational linkages. At the same time, a growing body of research has analysed the external relations of cities to sketch out the contours of a 'world city network', but has focused on the globally most important core cities without explicitly addressing their city-regional context. This paper aims to bring the two perspectives together. Drawing on an interlocking network model, initially specified to investigate inter-city linkages on a global scale, the paper presents a first analysis of multi-scalar inter-city connectivities within a specific city-regional and national context. At the centre of the analysis is the question how knowledge-intensive business service firms in Rhine-Main connect this morphologically and functionally multi-nodal metropolitan region to other cities in Germany and beyond. The result is a detailed mapping of the external business connectivities of a major European city-region.

Keywords: polycentricity, city-region, connectivity, knowledge-intensive business services, Rhine-Main, Germany

Brian J. Hracs, MA, University of Toronto. Email: brian.hracs@utoronto.ca; Working in the Creative Economy: the spatial dynamics of employment risk for musicians in Toronto

Despite the prevalence of literature concerning creativity, Florida's 'creative class' and culturally driven strategies for economic development, most of the research has been conducted at the national or city-region scale. Moreover, there is a lack of research which studies the nature of employment within specific cultural industries. Several critics, including Markusen and King (2003) and Lloyd (2006), have highlighted the need to examine the micro-geographies and employment experiences of the individuals who constitute the creative class. This paper addresses these gaps by providing an analysis of the working lives of musicians in Toronto. It examines the employment risks faced by musicians, the reasons why musicians endure immense personal and economic hardships to express their creativity and the coping strategies musicians employ to mediate risks. This paper also explores the ways in which neighborhood spaces, including music stores, coffee shops and educational institutions, are used by musicians as sites of networking and creative inspiration. Finally, this paper offers a gendered perspective on employment within the creative field as it demonstrates how female musicians experience employment and risk differently from their male counterparts and how gender influences the effectiveness of coping strategies such as networking and accessibility to public spaces.

Keywords: Creativity, Employment, Risk

Li Ming Hsia, Taitung University. Email: att50@nttu.edu.tw; Wang Chun Han, Institute of Regional Policy and Development, Taitung University. Email: ; Ethan Yorgason, Brigham Young University Hawaii. Email: yorgasoe@byuh.edu; Out of Globalizing Taipei: Cultural Imagination, Local Identity, and the Case of The Festival of Austronesian Cultures in Taitung

The processes and altered relationships generally known as globalization do not present the same challenges to every local place. The geographical differentiation of globalization has become almost a truism within geography, yet this differentiation creates the need to understand differences across localities. Many "marginal" places have attempted to create a special festival, one that can shape the local cultural imagination, bolster or contract local identification, and market the local tourist industry. We explore this strategy toward globalization through Eastern Taiwan's Festival of Austronesian Cultures, held annually in Taitung. Hopes surrounding this festival have been important in Eastern Taiwan, as it represents a potential boost to region's economic and cultural development, and as it is seen by some as a means to value and empower Taiwan's aboriginal cultures. Based on detailed study, we assess the festival's successes and challenges in meeting these aims, concluding, among other things, that it has been more successful at raising the visibility of Eastern Taiwan and in promoting a sense of local identity than it has been at either empowering Taiwan's indigenous peoples or in fostering regional economic development. The festival was supported by the government in order to promote the image of "maritime Taiwan," an image that highlights Taiwan as the possible place of origin of the Austronesian people. Yet in the process, Taiwan's indigenous cultures were stereotyped and commercialized, and the planning and arrangements for the festival lacked participation of indigenous peoples. Taiwan's indigenous peoples operated more as objects than

subjects.

Keywords: Globalization, Taiwan, Tourism, Regional Identity, Glocalization

You-tien Hsing, Ph.D, Department of Geography, University Of California at Berkeley. Email: yhsing@berkeley.edu; Possibility of Civic Space: Urban Protests in Inner City Beijing

State land tenure, an assumed defining feature of state socialism, was, in fact, never formally legalized during the Mao era. The stipulation that "all urban land belongs to the state" did not enter China's Constitution until 1982 at the outset of the country's market reforms. With the establishment of the land-lease market in 1988, the state's land tenure was further reinforced through its monopolistic authority over land acquisition and land circulation. The combination of state land tenure and a state-controlled land market gave rise to a land-dependent and local state-centered mode of accumulation in late socialist Chinese cities. The land-dependent local accumulation project has generated two legitimization dilemmas for urban governments. The first dilemma stems from the ambiguity of state land tenure amid China's market transition. The other arises through the process of land acquisition, one defined by massive destruction and the absence of social protection at the moment of destruction. The twin legitimization dilemmas have generated highly contentious landed politics in inner city areas. In this paper I will delineate two types of urban protests found in inner city Beijing, from the late 1990s to date, and compare their formation, strategies, and possible impact. I argue that despite the dominant view that social organization in China today is often programmed by the state, one still detects society's creative energy, and the possibility of a civic space created from within, but not necessarily constraint by the state.

Keywords: Land, social resistance, property rights, China, socialist transformation, urbanization

Jinn-yuh Hsu, National Taiwan University. Email: jinnyuh@ntu.edu.tw; Lexin Lin, . Email: ; The Contradictory Dynamics of Flexibility in the Transformation of Rural Industrialization in the Taiwanese Hosiery Industrial District

Small size and flexibility have been regarded as the significant features of the post-war economic miracle in Taiwan. Within the miracle, a wide array of industrial entities of various sizes, including household-workshop, single assemble line, and factory, concentrated in the rural areas after the 1970s. Geographical concentration saved the industrial firms tremendous costs in delivery and transactions. It also enhanced the diffusion of business information and even technical skill by the work of local labor market. In other words, flexibility, both quantitative and functional, facilitated the economies of scales and scopes for the industrial networks. However, industrial restructuring transformed the dynamics dramatically in the late-1980s. While a number of industrial entities mobilized functional flexibility to reposition itself in advantageous way to upgrade technically in the industrial networks, others were locked in quantity plasticity and led to the impasse of self-exploitation. Taking the hosiery industrial network in Shetou district, Taiwan, this paper will examine the divergent strategies of flexibility in shaping the social reproduction of different bodies and household, the divergent social embeddedness of the industrial networks, the contradictory developmental trajectories of each industrial entities, and finally the multiscale spatial ordering and configuration of the industrial concentration in the restructuring of rural industrialization.

Keywords: flexibility, rural industrialization, industrial district, hosiery industry, Taiwan

Jungchung Hsu. Email: richard@tmue.edu.tw; The Emigration Considerations and Residential Choices of Taiwanese Immigrants in Canada

The purpose of this research is to explore the location decisions of Canadian Taiwanese immigrants under the factors of "needs" and "capital" considerations. A variety of research methods has been used in this study. Following an extensive review of 2001 Canadian census and library materials, papers and previous studies, a survey of 264 households in Vancouver and Toronto, a Delphi technique method that includes 6 professionals and a nominal group meeting of 12 Taiwanese who live in Vancouver and Toronto has been used. The study is supplemented by in-depth interviews of thirty Taiwanese to investigate the details of the location decision process of settlement in Vancouver and Toronto. The main reasons for choosing Vancouver was good climate, living environment and Vancouver, Burnaby and Richmond areas were preferred. Those who chose Toronto went for favorable business and educational opportunities, family and relatives and Toronto, Mississauga, Markham and Richmond Hill areas were preferred. In general, choice of residence was based mainly on their "needs" which include environmental and housing conditions and their "capital" which include social, and economic considerations, as well as family attitudes. Over time, the reasons for residential choice have changed, reflecting individual preferences and experiences, life cycles, and fluctuating housing prices. Some comparisons with the writer's former studies of Australian

Taiwanese immigrants have also been made in this research. Keywords: Canada, Taiwanese immigrants, residential choice, location decision

Keywords: Canada, Taiwanese immigrants, residential choice, location decision

Tzu-Yen Hsu, Email: myhanoitower@gmail.com; Chen Che-Ming, . Email: jeremy@ntnu.edu.tw; A Mobile Learning System for High School Fieldwork

Fieldwork is always mentioned as an important means in geographical education. However, there are obstacles to high school fieldwork execution, such as coherent time management, exceeded student amount, lack of assistance manpower and many others. This study develops a mobile learning system trying to improve the above difficulties using two main supporting tools. One is a virtual fieldtrip website functioned as a platform to prepare students for fieldwork, share field logs, and display student works. The other is a PDA (Personal Digital Assistant) program to guide students throughout fieldwork without teachers' presence. To make students become active learners, the overall system is designed with the inquiry-guided pedagogy. Students with the mobile device can answer questions and collect data according to location-based message prompts. We utilized local irrigation channel issues as the fieldwork contents to implement the mobile learning system. Evaluation methods including pretest-posttest comparison, questionnaire investigation, interviews, learning assessment, and participant observation are used to know if this pedagogical approach is suitable and how the system works. We gathered initial results based on 6 teachers and 8 students from a local high school. They agreed that this kind of mobile learning fieldwork is more interesting than the traditional lecture-based fieldwork. They found themselves like treasure hunters with much fun during the fieldtrip.

Keywords: Geographical Education, Fieldwork, Mobile Learning

Shixiong Hu, Dept. of Geography, East Stroudsburg University of PA, East Stroudsburg, PA 18301. Email: shu@po-box.esu.edu; Jerilyn Jewett-Smith, Dept. of Biology, East Stroudsburg University of PA, East Stroudsburg, PA 18301. Email: JJSmith@po-box.esu.edu; Study on Environmental Controlling Factors for Spread of Invasive Riparian Plants in the Paradise Watershed, PA

Paradise Watershed, a small northeastern Pennsylvania system with an area of 44.5 square miles, is experiencing the spread of invasive plants in the river corridor. This change in the riparian vegetation is displacing indigenous species and has the potential to impair biodiversity. For effective management of the invasive plants, knowledge about the general patterns and controlling factors of spread in the riparian corridor is needed. Using GPS and hand-held GIS units, an inventory of invasive species, including Japanese knotweed (*Polygonum cuspidatum*), stilt grass (*Microstegium vimineum*), Japanese barberry (*Berberis thunbergii*) and multiflora rose (*Rosa multiflora*), has been built through field investigation. Major environmental factors for the spread of invasive plants have been identified with the Geostatistical Analyst extension in ARC GIS and SPSS software. A statistical relationship between the distribution of invasive plants and the controlling factors has been established to examine the relative contribution of each factor. The preliminary results show that the distance to roads, flood plain, light, temperature, soil nutrients, bridge existences and high stream flow are major controlling factors for the hot spots of invasive plants in the river corridors. These factors account for about 75% of the distribution and abundance pattern in invasive riparian plants.

Keywords: Spread of Invasive Plant, Northeast PA, Environmental Controlling Factors, and biodiversity

Yan Hu, Zhongshan University. Email: eeshy@zsu.edu.cn; The New Urban District Development in Guangzhou, China since 1990s: A Governance Perspective

The development of new urban districts in Guangzhou since 1990s is surprising. Some of these large projects include the development of the Pearl River New Town, college town, Nansha new town. This study applies the urban governance concept to research on this phenomenon, with a view to understand the dynamics of the local government, market and the civil society during the development process. It first reviews urban governance theories in western countries and the general development of new urban areas in Chinese cities since 1990s and attempts to build an applicable analytical framework. Then some cases are examined with particular reference to Guangzhou. The study concludes that the local government is not always the premier actor during the development process of new urban areas. Market has played an influential role and the civil society should not be ignored anymore. Rational decision-making on the development of new urban districts depends on better urban governance.

Keywords: urban governance, China, urban planning, Guangzhou

Zhiyong Hu, University of West Florida. Email: zhu@uwf.edu; Wavelet-transform-based remotely sensed image fusion for landscape change detection

Recent years have seen developments in fusion theory and methodology using aerial and space remote sensing data. This paper demonstrates a relatively new technique based on wavelet transformation for fusion of multi-spectral and high spatial resolution images. The objective of image fusion for this study is to achieve higher accuracy of landscape change detection. Shenyang, the fourth largest city in China, is selected as the study area. The city, traditionally a heavy industry center of China, now is on its way to a modern economic center of China, has been experiencing a very rapid urban landscape change since mid of 1990s. First, landscape change is detected using two leaf-on Landsat TM image scenes obtained in 2001 and 2005 using pixel by pixel post-classification comparison method. The change detection achieves an accuracy of only 58.6% due to low accuracies of thematic classification and propagation of errors in a multiplicative manner. Then high spatial resolution IKONOS data acquired on the same year and season are fused with TM imagery using wavelet transformation. Image fusion creates an image incorporating both higher spatial and higher spectral information for each year. The same change detection procedure is applied to the images generated from fusion. The accuracy of change detection increases to 83.0%. Wavelet transformation based image fusion is an effective way to improve land use change detection.

Keywords: image fusion, wavelet, change detection, remote sensing

Zhiyong Hu, Institute of Geographical Sciences and Natural Resources Research, CAS. Email: hzhyong@hkusua.hku.hk; Understanding the Changing Geography of China's State-owned Enterprises: A "New Regionalism" Perspective

The institutional mechanism of transitional socialist economies in general and the growth dynamics of China's state-owned enterprises in particular has been a constant source of stimulation for scholarly enquiry. Competing interpretations from different emphases and theoretical perspectives have been formulated to explain the dramatic change of SOEs' economic performance from pre-reform era to post-reform era. Scholarly debates and controversies have long existed concerning whether the persistence intervention of the state or the gradual expansion of the market is the causal force shaping the changing performance of China's SOEs. Drawing insights from the recently resurgent theories of "new regionalism" in mainstream economic geography, this study offers an alternative perspective to highlight the active role played by region as nexus of traded and untraded interdependencies in affecting the growth and performance of China's SOEs. Based on the analysis of statistical data from the third industrial census, this study finds that SOEs in the regional economies characterized by dense industrial agglomeration, diversified local labor market and dense corporate networks with non-state enterprises are more capable of benefiting from regional external economies and display higher productive efficiency than their counterparts elsewhere. The investigation of SOEs in the Chinese context challenges the perceived notion of region as the passive outcome of political economic forces in China studies and calls for a place-sensitive and path-dependent treatment of the growth dynamics of SOEs. It provides interesting ground for evaluating the validity and applicability of western-based theoretical discourse of new regionalism.

Keywords: State-owned Enterprises, New Regionalism, China

Chengquan Huang, Ph.D, University of Maryland. Email: cqhuang@umd.edu; Samuel N Goward, Professor, University of Maryland. Email: ; Jeffrey G Masek, Ph.D, NASA Goddard Space Flight Center. Email: ; Nancy Thomas, University of Maryland. Email: ; Karen Schleeweis, University of Maryland. Email: ; Scott Powell, Ph.D, Pacific Northwest Research Station, U.S. Forest Service. Email: ; Satellite Monitoring of Forest Dynamics - Case Studies in Southeastern United States

Forest disturbance and recovery processes are significant forces modulating atmospheric carbon balance. Quantifying the carbon fluxes due to such processes requires forest changes be assessed with appropriate spatial and temporal details. The Landsat record provides a unique data source for monitoring forest changes over the last 30+ years. Here we present case studies of forest changes using this record at sample locations selected across southeastern U.S. where some of the most dynamic forests in North America exist. For each location, dense time series (quasi-2-year) of Landsat images were used to reconstruct forest disturbance and recovery history using an automatic change detection algorithm. The resultant change products were intensively validated, and were used to evaluate the spatial and temporal patterns of forest disturbance and recovery processes. One of the challenges to satellite monitoring of forest changes is that for many areas, disturbance signals recorded in satellite images can decay quickly as a disturbed forest stand grows back. As a result, some disturbances may become undetectable when available satellite observations are 10 years apart or sparser, which likely will be the case for historical change studies in many regions of the globe. Therefore, it is necessary to quantify the omission errors in forest change

products derived using inadequate satellite observations in order to understand the impact of such errors on applications using those products. We will use the available dense Landsat observations to quantify the omission errors of detected forest changes as satellite images available for the change analysis become progressively sparser.

Keywords: Landsat, Forest disturbance, regrowth

Ruihong Huang, Northern Arizona University. Email: Ruihong.Huang@nau.edu; Christina B Kennedy, Northern Arizona University. Email: Tina.Kennedy@nau.edu; *Discovering the Geography of Land Values by Hidden Markov Models*

Housing price is affected by a spectrum of locational and structural factors. Attempts to identify the impacts of location on housing price are found in the literature of neoclassic economic studies and traditional hedonic price models. However, there are controversies in the measurement and effects of locational variables and results are sometimes contradictory. This paper introduces the Hidden Markov Model (HMM), a doubly embedded stochastic data mining approach, with applications to the discovery of impacts of geographic space on housing prices. In this research, space is assumed to be a hidden state that underlies housing prices. A hidden spatial state controls the great trend of house prices of a neighborhood while allowing the price of individual houses to vary by structural externalities. Hidden spatial states can be identified from signals in home sale data by hidden Markov models, and the magnitudes of impacts of the spatial states can be derived from classical hedonic models. A case study is conducted in the City of Milwaukee, Wisconsin, in which four effective hidden spatial states are discovered, and the hidden states confirm the social, economic and physical structure of the urban space. The paper demonstrates that hidden Markov model is an appropriate approach to the study of location impacts on housing price since it takes location as an integrated spatial factor instead of a variety of controversial externalities. The paper also indicates that hidden Markov model is an effective spatial data mining approach since it captures both spatial homogeneity and heterogeneity.

Keywords: Hidden Markov Model, data mining, GIS, land value, housing price

Shirlena Huang, PhD, Dept of Geography, National University of Singapore. Email: geoslena@nus.edu.sg; Brenda S.A. Yeoh, PhD, Dept of Geography, National University of Singapore. Email: geosya@nus.edu.sg; *Negotiating terrains of transnational education: China's 'study mothers' and their children in Singapore*

Some 2 million international students are currently pursuing higher education outside their home countries. A large proportion of these transnational migratory flows for education comprise students from Asia, where an increasing number families are sending their children overseas to "western" or more developed Asian countries as a strategic means of enhancing the family's overall well-being and status in the longer term. Our paper examines how transnational education is constructed as social capital, and the micropolitics and social practices of transnational student migratory flows as they are played out at the level of the family. Our focus on the family takes its cue from feminist geographers who have argued that in order to enlarge our understanding of contemporary globalization processes, including migratory flows, scholarship needs to appreciate the processes of social reproduction and consumption (and not just economic production) that take place at this macro-scale. Empirically, our paper focuses on the case of 'study mothers' from the People's Republic of China and the children they accompany to study in Singapore, an aspiring global education hub. It investigates the difficult terrains that have to be negotiated - with left-behind families, unscrupulous agents and a xenophobic host society? by the 'study mothers' and their children in their transnational journeys to achieve their goals.

Keywords: transnational migration, education, study mothers, children, Singapore, People's Republic of China

Xia Huang, Department of Geography, University of Tennessee-Knoxville. Email: xhuang8@utk.edu; Shangyi Zhou, School of Geography, Beijing Normal University, China. Email: twizsy@163.com; *Spatial Structures of Pedestrian-only Shopping Streets in China - Case Studies of Wangfujing Street in Beijing and Nanjing Street in Shanghai*

In contrast to the United States, pedestrian-only shopping streets were not introduced to China until the late 1990s. Since then, pedestrian-only shopping streets have gained popularity and experienced a considerable growth. With micro-scale data collected from field surveys of the Wangfujing Street in Beijing and the Nanjing Street in Shanghai, this study examines the business locations and their business characteristics to try to identify an ideal spatial clustering pattern of compatible businesses. Specifically, this study defines three types of spatial relation to help perform mathematic measurements and identify their spatial patterns. These three spatial relations are: (1) symmetry that evaluates the

extent of competition, (2) interrelationship that analyzes the characteristics of a neighborhood, and (3) concentration that derives the business concentration level along a street segment. This paper presents the benefits and limitations of applying these three spatial relations to the case study areas of Wangfujing Street and Nanjing Street. These spatial relations facilitate analyses of business locations and their spatial structures along a pedestrian-only shopping street; however, they fail to consider economic factors and customer behavioral factors that also influence business locations.

Keywords: pedestrian-only shopping streets, micro-location, spatial distribution, symmetry, interrelation, concentration, China

Youqin Huang, SUNY - Albany. Email: yhuang@albany.edu; Leiwen Jiang, Brown University. Email: Leiwen_Jiang@brown.edu; *Housing Inequality in Transitional Beijing, China*

China, formerly one of the most egalitarian societies in the world, is becoming one of the most unequal societies in the world, and housing inequality is one of the most significant and visible aspects of social inequality. Wealthy "gated communities" with multi-million dollar villas and dilapidated "migrant enclaves" with crowded shacks are now emerging side-by-side in Chinese cities. In addition to providing a conceptual framework of understanding housing inequality in transitional China, this paper studies the patterns and dynamics of housing inequality in Beijing, using the 1995 1% Population Survey and the 2000 Census data. We argue that there is significant and increasing housing inequality in Beijing. Both socialist institutions such as the persisting hukou system and market mechanisms contribute to housing inequality, and the latter become more important in 2000 than in 1995 as a result of the market reform.

Keywords: Housing, China

Yun Huang, department of geography and anthropology, louisiana state university. Email: yhuang1@lsu.edu; Houyuan Lu, Institute of Geology and Geophysics Chinese Academy of Science, China. Email: ; Kam-biu Liu, Department of Oceanography and Coastal Sciences, Louisiana State University. Email: kliu1@lsu.edu; *Records of Hurricane Ivan and Katrina in the sediment from Weeks Bay, Alabama*

Weeks Bay is a small bay near Gulf Shore which is frequently hit by hurricanes. Major Hurricane Ivan and Katrina swept this region separately in 2004 and 2005. Unquestionably they both left some markers in the area. In order to find hurricane records in this area, tens of cores were taken in marshes and swamp forest around Weeks Bay. Loss-on-ignition is then used to analyze the stratigraphy of the sediment taken. Clear sand layers which can be found in the cores likely represent Ivan and Katrina. In addition, diatom, phytolith and pollen analysis are also applied in detecting the microfossils records caused by abrupt marine sedimentation and interruption. The results also correlate the sand layer deposits very well. Hence, Hurricane Ivan and Katrina, the recent modern hurricanes, can be presented by the overwash deposits. In addition, some paleohurricane records are found in the sediment. It is very valuable to calibrate the paleohurricane reconstruction by analysis of modern hurricane detected by overwash deposit preserved in the sediments.

Keywords: Ivan, Katrina, Loss-on-ignition, Microfossil analysis, Paleohurricane Reconstruction

Yuxia Huang, Department of Geography, State University of New York at Buffalo. Email: huang3@acsu.buffalo.edu; Ling Bian, Department of Geography, State University of New York at Buffalo. Email: lbian@buffalo.edu; *Formalizing and Integrating Tourist Attraction Categorizations Using Formal Concept Analysis*

In order to develop tour recommendation systems on the Semantic Web, it is necessary to integrate heterogeneous online tourism information. This paper presents a method of using a data analysis technique called formal concept analysis (FCA) to formalize and integrate different tourist attraction categorizations. The method is guided by attractions and their associated categories in different categorizations. If two categories share a common set of attractions, these two categories are considered equivalent. Attraction categorizations from 10 out of 100 tourism websites for attractions in New York City are selected due to their comprehension and sophistication. 70 tourism attractions in New York City are selected based on their popularity. By using FCA, a concept lattice is produced to identify groupings of attractions with shared categories. The result shows that the lattice can offer a structural description of integrated attraction categories. It can also capture possible hierarchical relationships between attraction categories that are inherent in tourism domain. The generated concept lattice can be directly used for the integration of different online tourism information for tour recommendations.

Keywords: semantic interoperability, semantic web, information sharing

Phil Hubbard, Loughborough University. Email: P.J.Hubbard@lboro.ac.uk; *Regulating the Naked Body: law, licensing and the spaces of adult entertainment*

In many nations, nudity has been equated with the sexual and erotic, with lewd conduct and indecent exposure laws prohibiting display of the naked or semi-naked body in public. However, exceptions are sometimes made if this nudity is considered justifiable in the name of art/performance or is licensed as a form of 'adult entertainment'. As such, and noting the increased centrality of sites of lap-dancing and striptease in contemporary Western cities, this paper explores key themes in the regulation of adult businesses, suggesting they are subject to tactics of spatial governmentality intended to distinguish acceptable forms of bodily display from performances likely to corrupt and deprave. Noting the difficulties that regulators have when confronted with the naked body, in this paper I accordingly focus on the recent attempts of the state and law to control nudity within licensed premises in Edinburgh (Scotland). In so doing, I explore how regulators have sought to distinguish spaces of sexual commerce from spaces of art/performance, and suggest that 'common sense' legal judgements about the appropriateness of naked bodies in particular spaces are replete with assumptions about venues and their clientele.

Keywords: sex-related business, the body, gender, sexuality

Franz Huber, University of Cambridge. Email: fh259@cam.ac.uk; *Going Beyond the 'Thematic Turn' of Relationality? The Scope of Concepts and Methods of Social Network Analysis*

Within recent developments in relational economic geography the significance of (personal and firm) 'networks' for regional development and knowledge dissemination has been emphasized. However, the inflationary use of the notion is often based on rather metaphorical, at worst fuzzy, meanings. Within economic geography there seem to be two main problems which severely limit further progress in network research: firstly, a lack of rigorous theoretical and conceptual frameworks on networks, and secondly, a lack of appropriate relational methods. This paper aims to make first steps to tackle these problems by reviewing and critically evaluating social network analysis. This approach attempts to theoretically conceptualize social networks, and it provides sophisticated quantitative methods. However, I discuss difficulties related with social network analysis - especially the question of meaningful interpretations and causal reasoning -, and I suggest ways to deal with them. I argue that quantitative network measures as such do not have any real explanatory power. Only an understanding of practices and network activities of actors and a comprehension of the dialectic interrelationship between actors and network structures enable adequate interpretations of quantitative network measures and valid explanations. I argue that social network analysis, carefully and critically applied, provides conceptual and methodical perspectives to tackle some of the shortcomings of current research on networks. However, I also point out limitations of quantitative network research and demand for further research.

Keywords: Social networks, relational economic geography, socio-spatial relations

Patrick Huber, University of California Davis. Email: prhuber@ucdavis.edu; Nathaniel E. Roth, University of California Davis. Email: neroth@ucdavis.edu; Karen Beardsley, University of California Davis. Email: kbeardsley@ucdavis.edu; James H. Thorne, Ph.D., University of California Davis. Email: jhthorne@ucdavis.edu; Mike C. McCoy, University of California Davis. Email: mcmccoy@ucdavis.edu; Rod Meade, R.J. Meade Consulting. Email: rjmeade@san.rr.com; *Potential impacts of urban growth on an ecological network in the San Joaquin Valley, California*

The San Joaquin Valley of California is a highly fragmented agricultural landscape. However, it is rapidly urbanizing; it is projected to effectively double in population by 2050. A Governor's Executive Order in 2005 created the California Partnership for the San Joaquin Valley whose task is to provide for the creation of a sustainable landscape while accommodating the addition of 4 million new residents to this eight county area. We developed a potential conservation network of high value ecological areas and zones of high connectivity between them. To accomplish this we converted identified conservation priorities to GIS layers which were combined to locate those areas that would help achieve multiple conservation goals. Locations with higher occurrences of these features were designated High Value Conservation Opportunities. A connectivity cost surface was assembled through the combining and weighting of several variables: existing vegetation, urban density, natural areas density, road density, waterway density, and current land management status. Least cost corridors linking the Opportunity areas were identified using this cost surface. Finally the conservation network was overlaid with the results from 7 urban growth scenarios for the planning area. This enabled comparison of effects on future conservation potential of the various planning models for the region. The scenario showing the least overall impact on the network was the Compact

Growth model. However, the various measurements of impact pointed to different scenarios as highest impact. These results can then be used to modify the scenarios in order to ameliorate the effects on conservation value.

Keywords: conservation planning, ecological network, urban growth, gis, San Joaquin Valley

Thomas C. Hubka, Univ of Wisconsin- Milwaukee. Email: thubka@uwm.edu; *Contested Geographies of the Shtetl: The Small Polish/Jewish Town, 1700-*

This paper analyzes the spatial and cultural organization of small Jewish towns or shtetls in 17th-20th century Poland. Jewish communities existed in Poland for over eight hundred years before their almost total destruction by the Nazis during World War II. These communities developed simultaneous traditions of separation from and integration with their surrounding Eastern European Christian cultures. Although highly integrated with the economic life of their multi-cultural towns, these Jewish communities were simultaneously separated by their internal social and religious traditions which were further reinforced by restrictions to the Jewish community and the threat of persecutions. One shtetl, Gwozdziec in Ukraine, will be analyzed to represent hundreds of towns with similar patterns of geographic and cultural development. This paper outlines four major factors which structured the cultural and spatial organization of the small Jewish town: 1) An extensive commercial and artisan participation in the local economy coexisting alongside exclusive social and religious traditions, 2) A dense, non-geometric spatial layout of the Jewish districts based on patterns of incremental growth which contrasted sharply with western, geometric conceptions of Eastern European town planning, 3) Jewish religious and social traditions influencing many aspects of daily life which contrasted with the various Christian traditions of living and worship, and, 4) Intensely cosmopolitan patterns of commerce, education, and communications which contrasted with the small town, regional economies and social organization of the surrounding Christian cultures. This research is based on: *Resplendent Synagogue: Architecture and Worship in an 18th Century Polish Community*, Brandeis University Press, 2003.

Keywords: Poland, Jewish, small town, Eastern Europe

Andrew James Huddy, University of Connecticut. Email: andrew.huddy@uconn.edu; *Farming Alone - An Examination of Social Capital in the Rural-Urban Fringe*

AAG Abstract 2007 Farming Alone - An Examination of Social Capital in the Rural-Urban Fringe Andrew J. Huddy The University of Connecticut Department of Geography Storrs, CT Abstract General concern in society about the loss of productive farmland to development associated with expansion of urban and residential areas is typified by growing heterogeneity of land use within the rural/urban fringe. Efforts to understand this process have incorporated policy, socioeconomics and environmental factors to study land use but have often neglected to consider that the agent that must ultimately make the decisions concerning disposition of the land is the owner farmer. This research develops the concept that farmer social capital at the household level is critically linked and significantly influences spatial characteristics of land use at the rural urban fringe. Key Words: rural geography, rural-urban fringe, social capital, attachment value, spatial effects

Keywords: rural geography, rural-urban fringe, social capital, attachment value, spatial effects

John C. Hudson, Northwestern University. Email: j-hudson@northwestern.edu; *The Population of North Dakota*

Although North Dakota often is regarded as having a declining population, the state's total population has remained fairly constant, fluctuating in the range 650,000 +/-30,000, since 1920. The lack of an overall trend masks a consistent, long-term decline in the numbers of people living on North Dakota's farms, ranches, and small towns. Rural depopulation is best studied at the largest geographical scale for which data are available. Minor civil division population data were mapped for North Dakota townships for the nine decennial censuses, 1920-2000. Eighty-year population losses on the order of 90% characterize many townships. Population densities lower than two persons per square mile were confined largely to the rugged lands of western North Dakota in 1920 and covered only about 5% of the state, but by 2000 densities this low accounted for 71% of the state's area. A series of township-scale population maps illustrates the changes by decade. Analysis of frequency distributions of population density offers an approach to modeling the rural depopulation process.

Keywords: Great Plains, population change, North Dakota

Margaret Anne Hudson, University of Texas-Arlington. Email: mhudson@uta.edu; *Situating the Residential Attainment of Los Angeles' Non-Latino White and Mexican Mixed Race Households: Comparisons with Non-Latino White and Mexican Mono-racial and Mono-ethnic Households*

The segregated terrain of America makes neighborhood residential attainment a crucial moment in the life-cycle of mixed-race households because differently racialized neighborhoods constrain opportunities for the formation of family members' racial and ethnic identities. Unfortunately, geographers often do not have a general understanding of how certain types of household-level characteristics relate to the residential attainment of mixed-race households. Nor do they understand how such household-to-neighborhood relationships compare between mixed-race households and their same-race counterparts. Accordingly, this paper examines household-level characteristics for their relationship to the residential attainment of three types of households: mixed-race, non-Latino White/ Mexican-descent (WM) households; mono-racial, non-Latino White households (WW); and mono-ethnic, Mexican-descent households (MM). Using geographically-detailed 1990 census data from 1 in 6 Los Angeles area households, this paper estimates neighborhood residential attainment (defined in terms of census tract percentages and concentration rates of non-Latino Whites or Mexicans) separately for each of the three household types. Model estimation for WM households indicates that household-level characteristics that are positively associated with increases in the neighborhood concentration rates of WW households and are also negatively associated with increases in neighborhood concentration rates of MM households. Specifically, WM residential attainment in neighborhoods of avoidance for WW households increases when: the Mexican-descent partner's race is reported as "other race"; one or both partners is foreign-born; the household's median income is lower than average; Spanish is spoken in the household; and children's racial and ethnic identities are reported as Mexican-white or Mexican-"other race" versus non-Latino, white only.

Keywords: mixed-race, residential attainment, Mexican-American

Paul F. Hudson, University of Texas at Austin. Email: pfhudson@mail.utexas.edu; Alexandra G Myers, University of Texas at Austin. Email: ; *Geomorphic controls on floodplain lake variability on the Texas Coastal Plain*

On large river valleys lakes represent important riparian habitat because most floodplain surfaces have been significantly humanly disturbed. This study examines geomorphic controls on floodplain lake characteristics along the Brazos, Guadalupe, and San Antonio River valleys of the Texas Coastal Plain. High resolution geospatial datasets (NHD, DOQQ) permit floodplain lake characteristics to be examined with respect to geomorphic controls at the valley (width, slope, distance) and watershed scale (streamflow and sediment regime), which were combined with field data (sedimentation, survey transects). Floodplain lakes are classified into several types, including oxbow, chute, abandoned channels, flood scour, and valley side depressions, and further characterized according to their degree of infilling, size, shape, location, and frequency of occurrence. Floodplain lakes exhibit significant variability in origin and morphology because of varying fluvial controls. Valley slope and valley width are important variables in determining lake type and frequency, although floodplain sediments are also important. The identification of key geomorphic factors in controlling sedimentation and rates of floodplain lake change is useful to effective riparian management because of the dependence of aquatic fauna on specific types of floodplain lake environments.

Keywords: fluvial geomorphology, floodplain lakes, oxbow lake, river valley, meandering river, sedimentation, Brazos, Guadalupe, San Antonio River, Texas

Vanessa Hudson, Florida International University. Email: Vanessa.Hudson@fiu.edu; *Making the World Safe from International Aid? The Patriot Act and Its Impact on International NGOs*

Shortly after the events of September 11, 2001, the Bush administration and the U.S. Congress enacted legislation known as the US Patriot Act. This reactionary legislation designed to increase security in the "homeland" included, for example, provisions for tightening security at borders, providing for victims of terrorism, funding for counterterrorism, extensions of law enforcement powers, coordination, and surveillance, and provisions for fighting terrorist funding through financial channels. While much of the resistance to the loss of civil liberties is associated with the surveillance and law enforcement provisions, it is the anti-terrorist financing provisions that have the greatest potential to affect people and places beyond the US?particularly in the area of international philanthropy and transnational development aid. In this paper, I examine how various new policies and entities associated with the US Patriot Act combine to affect the underlying context in which non-governmental organizations working internationally operate, as well as the reaction of the philanthropic community to these anti-terrorism provisions. Although non-governmental organizations have undergone increased levels of governance over the past two decades, I argue

that these recent developments intensify those trends, and are embedded in, and reproduce, (neo) colonial discourses of spaces and populations.

Keywords: governmentality, transnational aid, postcolonial theory

Donald J. Huebner, PhD, Texas State University-San Marcos. Email: dh48@txstate.edu; *Peregrinations of a Black Cat: one man's journey through the Pacific War*

Beginning with a terse comment about his previous flight log books being destroyed during the "Japanese attack on Hawaii on 7 December 1941," I trace the wartime account and provide a spatial and temporal record of H.D. Allen, USN, VP-12 (the Black Cats). His WW2 naval aviator's log book is a first hand story from Pearl Harbor to the Japanese surrender in 1945. In December 1943 the Black Cats began using their black painted PBY Catalinas to harass and destroy Japanese shipping and positions. Leaving at dusk and returning at dawn and flying with no lights, the crews faced arduous and dangerous conditions, not only from the enemy but from weather and fatigue. His log is also a poignant account of his return to the US for malaria treatment, falling in love at Hutchinson NAS, Kansas, and returning again to the Pacific. On 15 August 1945, another terse comment in the log, "war over this morning," brings a close to this remarkable wartime record.

Keywords: Military geography, cartography, historical geography, Pacific Ocean, World War 2

Leah A. Huff, MA, Queen's University. Email: leahahuff@gmail.com; *Maya-Tz'utujil Women, Sacred Specialties, and Shifting Identities in San Pedro La Laguna, Guatemala*

In 2006 I lived for six months in San Pedro La Laguna, Guatemala. This time was spent engaged in ethnogeographic fieldwork inspired by a research interest in storytelling, sense of place, and sacred specialties. The gendered realms of this research are significant. Sacred specialties particular to women (midwifery) as well as those that can be held by either men or women (shamanism, intuitive healing, bone setting, etc), provide positions of respect for women in this Maya-Tz'utujil community. Paired with increased access to education and new understanding of women's rights, Pedrana women are bridging the traditional with the modern, challenging oppression, and exercising their power with a view to the future.

Keywords: Maya, Guatemala, sense of place, women, sacred specialties

French Tyler Huffman, Ph.D., Eastern Kentucky University. Email: tyler.huffman@eku.edu; *Assessing the Impact of Uncertainties and Errors on Multi-Criteria Evaluation Procedures when using Remote Sensing Derived Land Cover Input Data*

Spatial decision-makers often rely on land cover data derived from remote sensing sources as input into procedures such as multi-criteria evaluations. These land cover input data layers can contain errors and misclassifications in terms of land cover classification categories. The research presented here explores what influence that errors and misclassifications in remote sensing derived land cover data can have on the output from spatial decision-making procedures. Comparisons are made between a BASE layer of land cover for the study region and several comparative land cover data layers encompassing the same study region. The BASE layer is a land cover data layer classified by the author that represents the nearest approximation of the land cover condition in the study region. Land cover classification accuracy is assessed for BASE layer and well as the comparative land cover data layers. This is followed by an assessment of the influence that errors and misclassifications in the comparative land cover data layers can have on site and situational factors. Next, several multi-criteria evaluation procedures are conducted using the BASE layer as input. The output from the spatial decision-making procedure using the BASE layer is compared with the same spatial decision-making procedure that make use of the comparative land cover data layers as input. Differences between the BASE layer and the comparative land cover data layers are then assessed to determine if errors and misclassifications have had an impact on the output of the spatial decision-making procedures.

Keywords: GIS, Remote Sensing, MCE, Error

Gabriele Hufschmidt, Victoria University of Wellington. Email: Gabi.Hufschmidt@vuw.ac.nz; *A dynamic model of natural risk: an example from New Zealand*

Worldwide natural disasters are occurring more frequently, costing more and / or claiming more lives than in the past. This trend reveals that natural risk is dynamic, mainly because of changing hazards, varying elements at risk (e.g. people) and their vulnerability. However, current methods of risk assessment only reluctantly address dynamics of natural risk. Although changing hazards and vulnerabilities are increasingly recognised, they are often treated in isolation. Holistic approaches, synchronising these risk factors, are not available at present. This study, focussing on landslides, aims to develop a model of risk

evolution, based on a period of several decades. New Zealand is chosen because of its short history of dramatic environmental and societal change within a highly hazardous landscape. Implications of suburban sprawl, increasing tourism, and changes in rural land use for landslide risk are analysed. A dynamic model of risk leads to a deeper understanding of the processes and interactions within and between the physical and the social environment. A dynamic risk model can therefore help to prepare for future challenges in risk management and policy design.

Keywords: landslides, natural risk, natural hazard, evolution, New Zealand

Alex Hughes, University of Newcastle, UK. Email: alex.hughes@newcastle.ac.uk; Martin Buttle, University of Newcastle, UK. Email: martin.buttle@newcastle.ac.uk; Neil Wrigley, University of Southampton, UK. Email: n.wrigley@soton.ac.uk; Organisational geographies of corporate responsibility: a UK-US comparison of retailers' ethical trading initiatives

Ethical trade, involving corporate codes of conduct for sites of production, has become a key means through which labour in retailers' global supply chains is regulated. Yet, there is evidence to suggest that retailers vary markedly in their approaches to ethical trade and that such variation is shaped, in part, by the national-institutional contexts in which they are based. This paper explores this insight by evaluating the distinct roles played by multi-stakeholder initiatives for ethical trade in the UK and USA. It is shown that while the UK's core multi-stakeholder initiative encompasses retailers from a variety of sectors and takes a developmental and continuous learning approach to ethical trade, the US multi-stakeholder initiatives are focused more on corporate accountability based on compliance monitoring exclusively in the clothing sector. Given recent organisational attempts to foster transnational dialogue between multi-stakeholder initiatives, though, we argue that the precise ways in which national-institutional contexts shape retailers' ethical trading approaches are fluid and mutable. Conceptually, we contribute to the growing literature on the governance of global supply chains, retailer power and geographies of corporate responsibility by emphasising the political significance of national-institutional environments. However, we draw on recent geographical debate on relational economic geography and regulating globalisation, in order to theorise these national-institutional environments as active and dynamic contexts, and to accentuate the coalitional ways in which nationally-based organisations both evolve in their home countries and go on to shape broader transnational agendas for ethical trade.

Keywords: Ethical trade; Retailers; Relational economic geography

Julia Josephine Hughes, Undergraduate, UCLA, Durham UK. Email: j.j.hughes@dur.ac.uk; Holocene Fire Frequency and Climate Variation in the Eastern Sierras, California.

Analysis of microscopic charcoal from lake sediment cores, applied to study the link between Holocene climate variations and fire in the eastern Sierra Nevada of California. The area is prone to prolonged periods of drought and associated enhanced fire regime. It is essential to understand the long-term patterns of drought and fire variability, in order to understand the full range of natural variability. Three questions can be addressed by charcoal analysis. Firstly, has the ecosystem surrounding a lake been significantly impacted by fires prior to the historical period? Secondly, has the frequency of fires remained stable or has it changed over the long-term, since deglaciation of the site. Thirdly, if changes in fire frequency are detected, can they be linked to climatic variations reconstructed from other types of records? Lake sediment cores were collected from high elevation Funnell Lake 3180 meters above sea-level, (356.5cm deep 11,27514C yr BP basal age) and low elevation Kirmen Lake (2174 Meters above sea-level, 270cm deep, 872014C yr BP basal age). Chronologies were established using radiocarbon dating and charcoal contiguous samples were taken every 1cm. Charcoal particles > 125µm in diameter were tallied for each sample using a microscope. The resulting charcoal stratigraphies were transformed to estimates of relative fire frequency. The two lake records do not have similar trends in fire occurrence. The results of this research are compared to other regional studies to determine the correspondence with high and low elevation fire regimes elsewhere and determine potential linkages with large scale climate variations.

Keywords: Eastern Sierra, Holocene, Fire Frequency, Microscopic Charcoal, Climatic Variation

Michael L. Hughes, University of Oregon. Email: hughesm@ohio.edu; Lateral movement and planform adjustment of the Umatilla River during and between two sequential flood events

Floods are viewed as disturbances to riverine ecosystems; however, linking ecological responses to flood-forced channel changes has been limited by knowledge of how river process-form relations differ during and between floods. Floods in 1965 and 1975 on the Umatilla River, northeastern Oregon, coupled with pre- and post-flood aerial photos, provide an opportunity to explore

differences in channel change during and between sequential floods and to investigate interplay between lateral movement and planform adjustment of the river. Based on a time series of georectified aerial photographs bracketing both flood and inter-flood periods from 1964 to 1977, I digitized in a GIS active bars, scoured and vegetated surfaces, and wet channels within the active channel, as well as the channel and floodplain centerlines, for nine reaches along a 100-km section of river. In all but one reach, the area of scoured surfaces increased during both flood periods (1964-1971 and 1974-1977) and decreased during the inter-flood period (1971-1974). Areas of bars and vegetated surfaces within the active channel changed inconsistently across reaches during both flood periods, but consistently increased and decreased, respectively, during the inter-flood period. Lateral channel movement was greater during flood periods than during the inter-flood period, but displayed no obvious relationship with change in any of the planform units or channel sinuosity. These results reflect distinct differences in reach-scale planform channel adjustments during flood versus inter-flood periods, but fail to implicate lateral channel movement as the primary driver. Sub-reach process-form linkages between channel movement and planform composition are therefore suggested.

Keywords: floods, channel change, GIS

Rachel Hughes, PhD, University Of Melbourne. Email: hughesr@unimelb.edu.au; Womb raider: gaming geopolitics in post-conflict Cambodia

This paper examines how a particular trope ? that of the quest for a powerful, talismanic object ? works through gendered geopolitical practices of inspection and intervention centred on finding and destroying dangerous objects that are most often located in 'uncivilised' places. I trace this trope through video game, film and geopolitical representations and practices, using the highly successful Tomb Raider game series as a starting point. The game's heroine, archaeologist and tool-up tomb raider Lara Croft, must obtain a series of artefacts from various exotic and 'ancient' locales. Lara's success in such quests affords special 'trouble-shooter' status to Lara's 'real-world' embodiment, actress Angelina Jolie, who plays Lara in the film adaptations of the game. Jolie is at once a film star, UNHCR Goodwill Ambassador, and mother to two adopted children (from Cambodia and Ethiopia) and her own biological child (recently the subject of the most expensive celebrity images of all time). Through Jolie, the quest for a talismanic object is transformed into the work of the mother/advocate who acts on behalf of displaced and objectified life: refugees and orphans.

Keywords: visual culture, geopolitics, Cambodia

Erin P. Hughey, Department of Geography, University of South Florida. Email: ephughey@mail.usf.edu; The Impact of a Comprehensive Emergency Management System on Disaster Response Within The Bahamas

This research looks at the national response to Hurricanes Floyd (1999) and Frances (2004) in The Bahamas. A comparative analysis was conducted to examine changes in response capabilities as a result of implementation of a Comprehensive Emergency Management System. The National Emergency Management Agency (NEMA), established in 2002, was designed to centralize the coordination of disaster planning, training, response, and recovery activities. Research was undertaken in The Bahamas over a five year period from 2002 through 2006, and is ongoing. Data were gathered through official government documents, interviews with the current and former Prime Ministers, as well as surveys with representatives responsible for disaster response on the Bahamas Family Islands. Research findings indicate improved service delivery as a result of a Comprehensive Emergency Management System, but structural problems still present significant difficulties to response.

Keywords: Hazards, Bahamas, Disaster-Management, Hurricanes

Peter J. Hugill, Professor, Texas A&M University. Email: pjhugill@tamu.edu; State Type and Transitions in Hegemony: the Impact of Technologically Driven Geopolitical, Economic, and Politico-Military Boundary Problems

Transitions in hegemony are, historically, of two types, Type I accompanied by major war, Type II by economic war. We can derive a useful historical model from the three Type I transitions in the capitalist world-economy that has developed since the 1400s CE. The one Type II transition poses more problems for the modeler. Transitions depend on the type of polity. Struggles between trading and territorial polities produce Type I transitions, between trading polities, Type II transitions. Within a given state polities struggle to control the levers of state power, usually through strategies of Free Trade or Protection. Internal struggles within a state seriously affect hegemonic transitions. Geopolitical, economic, and politico-military boundary problems tend to dominate periods of hegemonic change. These boundary problems are increasingly driven by technological change.

Keywords: Geopolitics, free trade, protection, state type, polity, technology

Graeme John Hugo, University of Adelaide. Email: graeme.hugo@adelaide.edu.au; Sydney as an Immigrant Gateway City

In classifying immigrant gateway cities Sydney is an “Established” gateway in that for most of the more than two centuries of post European settlement it has been a main portal through which immigrants have entered Australia. However this role must be seen as dynamic rather than static since it has changed dramatically over this period. In the era of globalisation Sydney has reasserted its dominance as Australia’s most significant Immigrant Gateway after a period in which more immigrants settled in Melbourne. This paper argues that the role of migration in the development of World Cities is a complex one. World cities like Sydney are characterized by an increasing numerical and proportionate presence of immigrant settlers and they play an important role in the economic, social and cultural life of the city and in the elaboration of its crucial international linkages and networks. Sydney undoubtedly is the premier gateway for immigrants settling in Australia. However there are also other important migrations shaping Sydney and its role as a World City. In particular temporary migrant transnationals are important players in the World City’s economy. However it is also argued that the World City is not only a gateway to settlers and temporary immigrants but also operates as an outward gateway for Australians seeking to live and work in higher order cities. Finally it is also shown that there are significant links between international migration in Sydney or a World City and internal migration linkages with the rest of Australia.

Keywords: Global City, Immigration, Escalator Migration, Internal Migration

Allison Hui, University of Alberta. Email: athui@ualberta.ca; Many homes for tourism: engaging with embodied spaces and virtual places within second home mobilities

Though the phenomenon of tourism has long been studied in various forms and through varying frames, recent work has emphasized that tourism itself must be re-conceptualized in light of the mobilities of global populations and the increasing difficulty in limiting examinations of touristic activities to isolated tourist spaces. Though marked and marketed tourist locations are important sites of investigation, tourism must also be considered, as Adrian Franklin argues, as an activity of the everyday. Looking beyond iconic spaces of tourism then, a focus on tourism of the everyday re-directs attention to those activities and roles that may be deemed only partially touristic. Drawn from a study that engages with these issues through an examination of second home mobilities, this paper considers the mobility of touristic practices and places between primary and second homes. Though second home owners do not fit some of the characteristics often ascribed to tourists, their leisure mobilities include touristic elements. It is argued that complex interrelations of embodied spaces and virtual places within second home mobilities not only illustrate the importance of including virtual place as a factor alongside time and space in situating the touristic, but also suggest that comparative studies of multiple sites within touristic mobilities are crucial to engaging with a mobile understanding of tourism.

Keywords: tourism; mobilities; second homes; space; place; touristic; everyday

Fengming Hui, Nanjing University, China. Email: fmhfm@126.com; Huabing Huang, University of California, Berkeley. Email: ; Bing Xu, University of Utah. Email: bing.xu@geog.utah.edu; Peng Gong, University Of California - Berkeley. Email: gong@nature.berkeley.edu; Water Body Spatial-Temporal Change Using Multi-temporal Landsat Imagery in Poyang Lake Basin

Draining into Yangtze River in Jiangxi Province, Poyang Lake plays an important role in flood control of the Yangtze River Basin. It reaches its high water level with over 4,500 km² of water coverage during the raining season (summer) when the water level of Yangtze River is high and the Poyang Lake basin receives a large amount of monsoon season rainfall while in the dry season (winter) the lake changes into a river with water coverage of only several hundred km² as the water level drops in Yangtze River. Thus, it creates special scenery of “marshlands in winter, and water body in summer”. However, there is no spatial data describing the rise and fall of water level and the days of water coverage during the year over the lake. Areas surrounding Poyang Lake are one of the most severe schistosomiasis endemic regions in China with over 120,000 people infected each year. Objectives of this study are to map spatial-temporal change of water body with seasonal variation and attempt to obtain temporal process of water inundating marshlands by multi-temporal Landsat imagery in the Poyang Lake basin in a year. The water inundating information will provide important auxiliary information for other research, such as biomass calculation, snail reproduction, prevalence and control of schistosomiasis, wildlife conservation and biological diversity protection, pasture management, flood-inundated areas assessment and water conservancy in marshlands over the Poyang Lake region.

Keywords: Poyang Lake, water body, spatial-temporal, Landsat

Iris Hui, UC Berkeley. Email: iris_hui@berkeley.edu; GIS and Political Science

This paper discusses the potential applications of GIS and spatial statistics in political science. We will discuss two applications in particular. First, how does the changing distance to polling places affect turnout? Second, how can we assess the performance of voting systems and detect voting irregularities? We will also discuss the experience co-organizing a seminar on social science applications of GIS.

Keywords: GIS, election, voting

Mike Hulme, Tyndall Centre for Climate Change Research. Email: m.hulme@uea.ac.uk; Suraje Dessai, Tyndall Centre for Climate Change Research. Email: s.dessai@uea.ac.uk; Constructing future climates for public policy: a critical review of the development of climate scenarios for the UK

Climate scenarios serve a number of functions in the way society manages climate change - pedagogic, communication, engineering design, planning and policy development. A variety of methodologies for scenario construction have been experimented with, all of them to a greater or lesser extent depending on the use of climate models. Yet the development of climate scenarios involves much more than climate modelling. The process of scenario development is one of negotiation between relevant stakeholders ? funding agencies, policy communities, scientists, social actors and decision-makers in a variety of sectors. This process of negotiation involves compromise between the needs of policy, science and decision-maker in relation to, for example, the selection of the scenario(s), the choice of models, the presentation of uncertainty and the presentational devices used. This process of negotiation is illustrated for the case of the UK which has seen four generations of climate scenarios ? published in 1991, 1996, 1998 and 2002 ? and a fifth generation under development. The analysis reveals complex relationships between the interests of UK science, policy and society which have a significant bearing on the way in which these scenarios have been used in public discourse, planning and policy development.

Keywords: climate change, climate scenarios, UK

Nancy B. Hultquist, Ph.D., Central Washington University. Email: nancyh@cwu.edu; Geography of the 2006 Washington State Rattlesnake Hills American Viticultural Area

Geography and topographic maps play a significant role in the decision of the U.S. regulations involved in designating and locating the boundaries of an American Viticultural Area (AVA) as recognized by the U.S. Department of the Treasury, Alcohol and Tobacco Tax and Trade Bureau. March 20, 2006 was the official recognition of Washington State’s Ninth AVA, located in south central Washington, southeast of the city of Yakima on the south-facing Rattlesnake Hills. Rattlesnake Hills AVA is a 68,500 acre region enclosed in the Yakima Valley AVA, which is a sub-region of the Columbia Valley AVA. However, in Washington State most new AVAs are using names different from “Valley” changing more appropriately to “Hills”, “Slope”, or “Mountain”. While juice grapes thrive in some of the colder wet-soil valley locations, the own-rooted Vitis vinifera grape plants need better draining soils and the protection from cold air provided by appropriate slopes. This presentation includes descriptive geography about the distinctiveness of place, shows winescapes within the AVA, mentions the petition process and how geography played a significant part, and visits — through photographs — some of the wineries and vineyards in the new AVA experienced in a summer course taught for the past decade as Wine, A Geographical Appreciation.

Keywords: American Viticultural Area, Washington State, Winescapes, Wine Regions

Tarry Hum, Queens College, City University of New York. Email: Tarry.Hum@qc.cuny.edu; Power Plants, Sex Shops, Industrial Zones, and Minerva: The Politics of Sunset Park’s Renaissance

Once a vibrant industrial waterfront neighborhood, the deleterious effects of massive deindustrialization and Robert Moses’ city building legacy culminated in Sunset Park’s designation as a federal poverty area in the 1970s. Decaying piers, power plants and sex shops dotted Sunset Park’s waterfront and marked its marginal neighborhood status. Sunset Park’s decline, however, contained the seeds for its rebirth including a plentiful supply of cheap housing and weakened resistance to newcomers. While Sunset Park’s revitalization was driven by Asian and Latino immigration and the formation of numerous small ethnic businesses and institutions, the scope and scale of several state sponsored economic development initiatives including waterfront redevelopment represent a critical juncture that underscores both prospects and challenges to immigrant neighborhood development. My paper discusses the rationale and potential impacts of waterfront redevelopment and the centrality of Sunset Park in NYC’s effort to protect manufacturing and revitalize a port economy.

Keywords: immigrants, waterfront redevelopment, urban planning

Delbert Geronimo Humberson, B.A. Geography - University of Texas, United States Geological Survey, Mid-Continent Geographic Science Center. Email: dghumber@usgs.gov; Jean Parcher, M.A. - University of Texas, United States Geological Survey, Mid-Continent Geographic Science Center. Email: jwparcher@usgs.gov; CHIPS: A New Way to Monitor Colonias Along the United States - Mexico Border

Colonias, which are unincorporated border settlements in the United States, have emerged in rural areas without the governance and services normally provided by local government. Colonia residents live in poverty and lack adequate health care, potable water, and sanitation systems. These conditions create a degree of health risk to themselves and surrounding communities. By 2001, more than 1,400 colonias were identified in Texas. Cooperation with the Offices of the Texas Attorney General, Secretary of State, and the Texas Water Development Board has allowed the U.S. Geological Survey (USGS) to improve colonia Geographic Information System (GIS) boundaries and develop the Colonia Health, Infrastructure, and Platting Status (CHIPS) tool. Together, the GIS boundaries and CHIPS tool aid the Texas government in prioritizing limited funds for infrastructure improvement. CHIPS's report generator can be tailored to the needs of the user, providing either broad or specific output. For example, a congressman could use CHIPS to list colonias with wastewater issues in a specific county, while a health researcher could list all colonias without clinical access. In order to help cities along the United States-Mexico border manage issues related to colonias growth, CHIPS will become publicly available in an Internet-enabled GIS as part of a joint project with the USGS, U.S. Department of Housing and Urban Development and the Mexican Instituto Nacional de Estadística Geografía e Informática.

Keywords: GIS, Database, Colonias, United States-Mexico Border

Susan Hume, Southern Illinois University Edwardsville. Email: shume@siue.edu; A South African Curios Market as a Micro-scale Global Market Place

While outdoor curios markets may give tourists the impression of representing a local sense of place, this is not always the case. Through the use of photographs and interviews, this presentation illustrates how a curios market in Stellenbosch, South Africa represents a micro-scale market place in the global economy. The terminology of Wallerstein's world systems analysis can be applied to understand this global market place. The curios market attracts immigrant sellers from peripheral sub-Saharan African countries and tourist buyers from countries in the global core. While the commodities are handmade by artisans, little in the curios market is locally produced in South Africa by South Africans. Rather, most of the commodities are imported from sub-Saharan Africa, or made by African immigrants living in South Africa, and destined for households in Europe, North America, Australia, and Japan. South Africa's position in the global semi-periphery (and the regional core) makes this micro-scale global market place possible.

Keywords: sense of place, global economy, South Africa, qualitative research

Laurel J. Hummel, Ph.D., US Military Academy. Email: Laurel.Hummel@usma.edu; Use and/or Abuse? The US Military's Relationship with Alaska Natives During the Cold War

The US military and larger defense establishment was a dominating cultural and economic agent of change in Alaska during the Cold War. This power extended in unprecedented ways to affect Native Alaskan culture. This study surveys the various facets of interface between a hegemonic US military and the Native Alaskan community, including Native participation in the Cold War effort as part of the fighting force, environmental degradation of lands owned and used by Natives, the use of Natives as subjects in medical experiments, and other cultural and economic agents of change. The paper then traces the relationship between the military and Alaska Natives forward to their participation in Operations Iraqi Freedom and Enduring Freedom, and deliberates as to the degree the summative effects of their Cold War experience may have informed their contemporary relationship(s) with the US military, which remains a dominant geographic force throughout Alaska.

Keywords: Alaska Natives, Cold War, military

Mark A. Hummer, University of Kansas. Email: markhum_32@yahoo.com; Salt Lake City: A Sense of Place of an American Religious Homeland

This paper served as an in-depth investigation of Salt Lake City as it is perceived and valued as a unique Latter-Day Saint cultural and religious homeland. In the broadest sense, this study was founded upon earlier research into the physical and emotional cultural landscape of Salt Lake City as experienced by an outsider to this particular place and culture. In a more narrowly contextual vein, this portion of the ongoing study was built upon Nostrand's Homeland concept, and specifically Lowell Bennion's study of Salt Lake City as the Deseret Homeland. The aforementioned research experience established that one of the

most important vehicles for understanding this particular cultural landscape was the recollections and stories of Latter-Day Saints, whose religion is centered there, and other individuals who have lived in Salt Lake City and experienced its landscape and culture. Consequently, the principal thrust of this investigation centered on obtaining such qualitative data from several returned missionaries, currently living in the vicinity of Lawrence, Kansas. This data was obtained through both semi-structured interviews and questionnaires that were administered to the returned missionaries; the results of which were divided into two groups: those who grew-up in Salt Lake City and those who served their missions there. Broadly, this study indicated that while many of the interviewees indicated a collective sense of cultural memory about this landscape, they also indicated a close emotional attachment based on individual experiences.

Keywords: Cultural Landscapes, Sense of Place, Religion, Utah, Latter-Day Saints, Qualitative Methods

Jung Hun, California State University In Los Angeles. Email: junghun73@hotmail.com; Improving Crop Type Mapping in the Antelope Valley by Using Temporal Satellite Imagery

Antelope Valley in southern California is a high desert where large-scale farming is made possible by intensive irrigation. Several different types of cash crops are currently being grown and a given crop type is often found in several different growing stages in a same field. Traditional crop type classification based on spectral characteristics of a single date image data has not produced satisfactory results. This study tried to improve the performance of crop type classification by incorporating unique temporal nature of the key crop types in Antelope Valley. A modified field-based image classification technique was used as part of the effort. Landsat scenes of different growing seasons were acquired and analyzed for deriving a better estimate on the cultivated areas by crop types. Field survey data were also collected for evaluating the performance of the improved classification method. It was demonstrated that temporal variations of different crop types are unique and they can be used together with spectral information to improve the accuracy of crop type identification.

Keywords: Antelope Valley, Image Classification, Crop Type Mapping, Field-based Image Classification

Kuang-Chi Hung, Department of History of Science, Harvard University. Email: khung@fas.harvard.edu; Colonization and Localization of the Landscape in Taiwan under Japanese Colonial Rule: Colonial Governance, Modern Science and the Environmental Order of East Asia

Taking Taiwan under Japanese colonial rule as an example, this paper examines how the landscapes of Taiwan and the environmental order of East Asia were shaped within the tension of localization and colonization. As an island with abundant forest resources, Taiwan undoubtedly provided an excellent opportunity for this newly born empire to participate in the international competition for timber since the 1850s. Since Cypress, the most precious and abundant tree in Taiwan, was distributed in the northwest coast of the United States, the Japanese Empire transplanted the capitalist and mechanical way of production in the United States for crafting the colonial production regime. Japanese foresters believed this transplanted model combined with the scientific forestry which was introduced from Germany in the 1870s would help the Japanese Empire join the ranks of forest empires. However, the cost of timber producing in Taiwan was so high that it could not compete with the American timber in the world market. What was worse was that the timber of Taiwan could not meet the need of industrialization and urbanization of Japan. The Japanese Empire was consequently forced to adjust its production regime, accommodate the folk knowledge and practice in the network of production, exchange and consumption of timber for constructing an environmental order which was different from what was deployed in Europe and the United States. This paper concludes with a discussion about the significance of environmental sciences in the enterprise of Japanese Empire and its place in the context of world environmental history.

Keywords: environmental history, modern forestry, Taiwan, Japanese Empire, East Asia

Ming-chih Hung, Northwest Missouri State University. Email: mhung@nwmissouri.edu; Erik Harper, Colonial Services Board. Email: erikharper@gmail.com; Web-based GIS from commercial software or open-source software

With growing interests in using the Internet for data sharing and dissemination, web-based mapping/GIS also gains interests from the GIS industry recently. Different from conventional GIS, which is based on local computers and network with software and data, web-based mapping/GIS incorporates a client-server approach to delivering GIS applications through customized applications running through web browsers. Limited to the processing speed and available functionality, web-based mapping/GIS is very different from local computer GIS in many ways. Commercial software for implementing web-based mapping/GIS is available, such as ESRI's ArcIMS. Alternatively, open source software also offers solutions

for web-based mapping/GIS. There are pros and cons for either commercial software or open source software solutions. Sometimes a commercial software solution could prove more valuable than an open source software one, and vice versa depending on the problem it is intended to address. A comparison between a commercial software solution and an open source software solution could provide critical information in making decision on how to implement your web-based mapping/GIS.

Keywords: web-based GIS, ArcIMS, commercial software, open source software

Yvonne Hung, Graduate Center/City University of New York. Email: yhung@gc.cuny.edu; *The expanding geographical imagination of youth activists: Social justice education and practice*

The geographical imagination was introduced by David Harvey (1973) in "Social Justice and the City" as the awareness of how one's biography is shaped by the geographical context and spatial relations in which one lives. Although the development of this understanding of the world exists in autobiographical accounts of geographers or travelers, our understanding of how geographical imagination develops in young people and its potential utility for youth organizations is limited. This paper will present research conducted at a neighborhood-based youth organization that works collaboratively with African-American and Latino youth to develop a social justice framework from which youth can draw upon in their youth organizing and activism. Qualitative interviews were conducted with 11 youth participants before and after a 4-week education for liberation training session. Participant observation was also carried out in order to capture more naturalistic observations of youth in the various settings and roles. I wish to reveal how young people perceive patterns of power and social relations as related to disparities in their social and physical environment. The analysis of the interviews examines the relationship between different degrees of participation, the ways in which they learn, express and utilize their geographical imagination and how the organization works to support and expand youth political engagement.

Keywords: geographical imagination; urban youth; identity development; participation; social justice education

Hilary B. Hungerford, University of Kansas. Email: hilaryhungerford@yahoo.com; *Onitsha Market Literature: Modernity in Postcolonial Nigeria*

Nigeria in the 1950s and 60s was marked by extensive cultural, economic, and political changes. Onitsha Market Literature provides a window through which to view Nigeria before, during, and after these changes. The primary objective of this research is to understand the ways in which modernity was negotiated during decolonization in Nigeria. This research introduces themes of modernity, hybridization, and creative resistance to the discussions of Onitsha Market Literature. Onitsha Market Literature reveals the agency of average Nigerians in creating and reproducing new social relationships and cultural meanings in a post-colonial era. I approach these themes by exploring the relationship and co-constitutive link of place and self. Onitsha Market Literature, locally produced and consumed, shows how messages were internalized, transmitted, and reproduced on a local scale, and expresses and reflects the creation of a new place. The Onitsha authors empower their readers by giving them the necessary ideological tools of modernity: individualism, capitalist enthusiasm, and the English language.

Keywords: Africa, Nigeria, literature, modernity

Mark Hunter, University of Toronto. Email: mhunter@utsc.utoronto.ca; *Beyond the Male Migrant Model as an Explanation for AIDS in South Africa. New Spaces of Health Inequality after Apartheid*

Between 1990 and 2005, HIV prevalence rates in South Africa jumped from less than 1% to around 29%. Important scholarship has demonstrated how racialized structures entrenched by colonialism and apartheid set the scene for the rapid unfolding of the AIDS pandemic, like other causes of ill-health before it. Of particular relevance is the legacy of circular male-migration?men moving to the gold mines for work and returning home to rural areas—an institution that for much of the 20th century helped to propel the transmission of disease among black South Africans denied permanent urban residence. As AIDS emerged in the 1980s, scholars reinvigorated this model. It fit well with narratives that positioned women as passive, immobile, victims, and those that saw ill-health as a simple legacy of apartheid. Yet remarkably little analysis has gone into examining the emergence of new social and spatial structures in the post-apartheid period, the ways in which these have been molded by the state's turn towards neo-liberalism, how these are racialized and gendered, and their effect on AIDS. As a window into these changes, the article gives primary attention to the country's burgeoning informal settlements?spaces in which HIV rates are reported to be twice the national average?and thereby to new geographical

connections between poverty and disease.

Keywords: Health Geography, neo-liberalism, South Africa, AIDS

Richard Hunter, Louisiana State University. Email: rhunte5@lsu.edu; *Reconstructing the Spatial Pattern of Spanish Land-Granting in the Valle del Mezquital, Mexico*

For over fifty years researchers have engaged sixteenth-century Spanish land holding records at the Archivo General de la Nacion in Mexico City to identify the social and environmental processes of landscape transformation that operated in New Spain during the initial decades after Conquest. This paper relates on-going research that uses these records to reconstruct the historical landscape and spatial pattern of colonial land-granting to try to understand how a portion of the Valle del Mezquital in central Mexico has become a desolate, eroded landscape. The most abundant category of records are the mercedes, or land grants, that the Spanish Crown issued to early settlers. Each merced stipulates to what use the granted land must be put, usually agriculture or pasturage for sheep or cattle. A merced might also describe the land's vegetation, hydrography, erosion (usually obliquely), or other biophysical characteristics that provide glimpses of the landscape at the critical temporal interstice between native and Spanish land tenure. Moreover, the mercedes contain in varying degrees of detail the locations of granted land, which along with fieldwork can allow a fairly accurate placement of these tracts on contemporary maps. By overlaying thematic maps with land grants in a geographic information system, patterns can be sought between the grant locations and elevation, slope, vegetation, et cetera.

Keywords: Environmental history, Mexico, Valle del Mezquital

William Matthew Hunter, Heberling Associates. Email: whunter@heberlingassociates.com; *Untangling the Metabolism: Urban Political Ecology and the Mill Creek Expressway Project*

The practice of cultural resource management (CRM), long influenced by the work of cultural and historical geographers, is now deploying the work of urban political ecologists to understand the complex urban landscapes that are often its subject of study. The Federal Highway Administration (FHWA) and the Ohio Department of Transportation (ODOT) are proposing to improve a 1950s-era highway, carved through Cincinnati's meatpacking district prior to the advent of historic preservation laws, by adding system capacity and reconfiguring intersections. Ironically, development of the project is now constrained by the presence of public parks and historic properties, fragmented elements of earlier spatial ensembles now afforded special consideration by environmental laws enacted in response to urban renewal and highway construction. Using examples from a recent cultural resource assessment, this paper demonstrates how advances in urban political ecology are put to work to untangle the "dense networks of interwoven sociospatial processes" embedded in the Mill Creek Valley, assessing the historical significance of seven likely historic properties, and considering the effects of the redevelopment project on an already fragmented urban landscape.

Keywords: Urban Political Ecology; Historical Geography; Historic Preservation; Cincinnati, Ohio

Christina M. Hupy, PhD, University of Wisconsin - La Crosse. Email: hupy.chri@uwlax.edu; *Meso-scale Dynamics of the Forest Tension Zone in the Central Lower Peninsula of Michigan, USA: 2,000 Years of Change*

Fossil pollen data from three lakes in the Lower Peninsula of Michigan, Hicks Lake, Cowden Lake, and Morrison Lake, were statistically analyzed to detect shifts in the forest tension zone during the last 2,000 years. The forest tension zone is an ecotone between the eastern broadleaf forests found in the southern portion of the Lower Peninsula and the mixed Laurentian forests in the north. This analysis detected three separate shifts in the location of the tension zone near Cowden Lake. These transitions included a southward expansion of mixed coniferous-deciduous forests during a cool period from 1700 to 1500 cal yr BP, a subsequent movement of the ecotone northward from 1300 to 700 cal yr BP, as indicated by expansion of Quercus-dominated forests towards Cowden Lake. And a final shift southward, marked by the expansion of mixed-forests near Cowden Lake, which was interpreted as a response to the LIA from 700 to 250 cal yr BP. Shifts in the ecotone were primarily signaled by the competitive dynamics of Quercus versus Fagus around Cowden Lake. During the past 2,000 years, the character of the ecotone itself also changed in response to variations in climate. Shifts in the character of the ecotone were detected by the degree of differences between the pollen records of each of the three sites

Keywords: Michigan, forests, fossil pollen, ecotone

Joseph P. Hupy, Colgate University. Email: jhupy@mail.colgate.edu; Reestablishing the link between military geography and geography through field work

Among the sub-disciplines of geography, military geography exemplifies more than most the close ties humans share with the physical environment. Whether that is the effects of war on the environment or the influences of geography on the outcome of battle, military geography covers that spectrum. Just like with so many other teachings in geography, these concepts are often not fully grasped by the student of military geography until witnessed first hand through laboratory exercises or in a field setting. Students in a senior seminar class at Colgate University applied the components of military geography into a field research project. The research project was set up as a game of 'capture the flag', meant to combine many of the geographic skills they accumulated in their study of geography with some of the underlying concepts of military geography. Students engaged in the research were provided the locational coordinates of a square mile parcel of land and were then assigned to analyze the parcel to the best of their abilities using a GIS software package and field survey techniques. Digital data sources included topographic maps, elevation models (DEMs), soil survey data (SSURGO), and ortho photos (DOQs). Other factors such as vegetation, climate, and weather patterns were included in the analysis. Analysis from these data sources were then used to plan out the how best to win the game. Following the event, the students then reevaluated their preliminary analysis as to how much the planning led to the final outcome of the game.

Keywords: military geography, pedagogy, field work

Patrick T. Hurley, College of Charleston. Email: hurleyp@cofc.edu; Which rural quality? Putting conservation subdivision design in context in Oregon and California

Many parts of the rural American West are undergoing dramatic social and ecological transformations related to amenity-related residential and associated commercial growth. In these areas, there is growing interest among scholars and planners in efforts to integrate land conservation features into residential development at the so-called "rural-urban fringe" to make them "more environmentally-friendly." Among the variety of development models advocated, Conservation Subdivision Design (CSD) is seen both as an alternative both to Traditional Subdivision Design (TSD) on the suburban-rural fringe and Planned Unit Developments (PUD) in high amenity areas. Yet, little research has examined variations among residential subdivisions, the range of conservation features incorporated into site designs, and the ways these models are marketed in specific places. Using a case study of Waco and Deschutes counties in Central Oregon and Nevada and Placer counties in the Sierra Nevada in California, this research explores the intersection of local policy and politics, amenity migration, and the differing rural qualities that are seized upon by developers in proposing and developing new subdivisions. The paper examines the diversity of "conservation subdivisions" that are emerging in these areas and their role in producing a diverse set of "nature-society hybrids" or sites of conservation the post-productivist American West. Far from signaling a homogenous set of practices unleashed by broader policy changes from above, these cases suggest a trend toward ecological governance (broadly conceived) that results in a diversity of hybrid conservation spaces and landscapes of consumption.

Keywords: amenity migration, rural change, conservation landscapes

Anne Hurni, University of Western Sydney. Email: a.hurni@uws.edu.au; A good place to bring up the kids: investigating neighbourhood effects on children's development in Sydney, Australia

International research on relationships between urban environments and health suggests that people living in neighbourhoods with higher densities, mixed uses, and well connected street layouts have higher rates of walking and, as a result, better health. Increased physical activity is presumed to account for the lower rates of overweight and obese people. Whether such features of urban form and design have similar health benefits for Australian children is not known. Evidence emerging from the recent Longitudinal Study of Australian Children shows that localities with higher traffic pose a greater risk of injury for children, and that children in disadvantaged areas have poorer health and development. These and other social and physical neighbourhood characteristics may also have a greater influence on children's health and development. The paper presents the results of a spatial analysis of indicators of children's developmental outcomes across a selected set of neighbourhood characteristics in Sydney, Australia as a starting point for an investigation of the influences of the social and built environment on children's health and development.

Keywords: children's health, urban geography, Sydney, Australia

Greg Husak, University of California, Santa Barbara. Email: husak@geog.ucsb.edu; Chris Funk, University of California, Santa Barbara. Email: chris@geog.ucsb.edu; SPI Forecasting in Conterminous US

The standardized precipitation index (SPI) is a commonly used tool for monitoring both short-term and long-term rainfall conditions in the United States. The SPI is a valuable indicator for both economic and environmental impacts of rainfall. Currently in the US the national SPI is available at the National Drought Mitigation Center, the National Climate Data Center, the Desert Research Institute, and regional climate centers. In this study we demonstrate a gridded SPI product derived from NOAA's Climate Prediction Center Unified precipitation dataset and their real-time product. Integrated with these fields is a statistical matched filter regression technique based on monthly reanalysis circulation fields. The ability to forecast SPI provides advance warning of hydro-climatic extremes, which can help guide mitigation activities.

Keywords: Precipitation, SPI, Forecast

J.M. Shawn Hutchinson, Ph.D., Department of Geography, Kansas State University. Email: shutch@k-state.edu; Margaret L. Margosian, USDA APHIS PPQ CPHST. Email: Peg.Margosian@aphis.usda.gov; Karen A. Garrett, Ph.D., Department of Plant Pathology, Kansas State University. Email: kgarrett@k-state.edu; Connectivity of the American Agricultural Landscape: A Graph-Theoretic Approach using GIS

Biogeographers, landscape ecologists, and population biologists have been utilizing graph theoretics to study the connectivity of habitat or isolated landscape patches for a number of years. Similar methods are used in this study to analyze agricultural landscapes in a "patchless" context to determine the potential for the spread of agricultural crop pathogens. Analysis was performed at the county-level using a network model in a geographic information system (GIS). The network was formed by connecting county centroids (nodes) to each of its neighboring counties. The potential for pathogen spread was simulated by assigning values for disease transmission to network edges based upon a combination of the individual crop densities in the two "connected" counties. Contiguous areas of connected agricultural patches, or subgraphs, could then be identified by removing edges with values that exceeded threshold transmission rates specific to a known pathogens. Subgraphs can be visualized in geographic space or as a chart similar in style and concept as those used for genetic phylograms. Here, however, these "spatial" phylograms split in response to disease transmission rates, rather than by genetic differentiation. Results reveal that distinct islands of connected agricultural lands exist for different crops (e.g., soybeans vs. wheat). Further, the area, shape, and orientation of these islands change, sometimes dramatically, depending upon the simulated pathogen transmission rate. Identification of connected agriculture landscapes benefits regional integrated pest management activities by informing decisions on the establishment of minimum effective quarantine zones during an actual or anticipated disease outbreak.

Keywords: connectivity, agricultural geography, plant pathogens, geographic information systems, graph theory

Teresa H. Hutchinson, The Ohio State University. Email: hutchinson.82@osu.edu; Linking Fertility and Managed Resources in a Guarani-Kaiowá Community

Recent case studies have shown how Latin American indigenous populations, particularly groups living in neo-tropical lowland regions, are growing at high rates or at least have growth rates that are declining more slowly than the growth rates among rural populations. Despite more than a decade of renewed interest in the dynamics of indigenous demography, however, much remains to be understood about their demographic drivers. In the past, considerable resources focused on understanding proximal causes of high fertility, for example. Recent work seeks robust explanations, particularly for small-scale resource-dependent groups, and so explores distal or ultimate causes of high fertility among these groups. This paper engages survey and interview data gathered during late 2005 field research among one of Brazil's largest indigenous groups. By employing statistical techniques and qualitative insights, I will examine the possible relationships between high fertility rates in a land-constrained Guarani-Kaiowá community of Mato Grosso do Sul (Brazil's central west) and access to resources such as the community's jointly-managed potable water sources that are extracted from the Guarani aquifer. The results of this study will contribute to the nascent body of political ecology of demography research.

Keywords: indigenous, demography, Brazil, Latin America, political ecology, resources, water

Thomas A. Hutton, DPhil, University Of British Columbia. Email: thutton@interchange.ubc.ca; *The Inner City as Zone of Innovation: "Precarious Reindustrialization" and the Services-Production Nexus*

With the collapse of traditional Fordist manufacturing and labour during the height of the postindustrialism era during the late 20th century, it was widely assumed that the inner city's role as zone of industrial innovation and incubation had reached a terminal stage. But since the 1990s a sequence of new industries has established a presence in the inner city. These include 'outlier' business services seeking relief from the steep rent gradients of the Central Business District, and, more recently, industries representative of the technology-driven 'New Economy' and 'cultural economy of the city', suggesting a revival of sorts of the inner city industrial district, manifested by dense, interactive clusters and sites. These new industries, which include Internet and web-design services, computer graphics and imaging, video game production, and new media, may be interpreted as the latest phase in the development of the service sector in advanced cities, or, as others might see it, the reassertion of industrial production in the inner city, suggesting possibilities of theoretical synthesis incorporating services and (cultural) product manufacture in the knowledge economy. This paper offers a review of new industry formation in three selected London sites: Shoreditch, Clerkenwell, and Bermondsey. These cases demonstrate the crucial role these inner city clusters play in innovation processes, but also disclose the destabilizing influences of accelerated industrial restructuring and pressures for residential conversion in the 'new inner city' of the 21st century metropolis.

Keywords: inner city; innovation; production; services; London

Niem Tu Huynh, Ph.D Candidate, Wilfrid Laurier University. Email: huyn1912@wlu.ca; *Who's Teaching Teachers GIS: K-12 Education?*

Geography Information System (GIS) is a tool that combines computers with specialized software to provide a new way to visualize and study patterns of space, relationship(s) between places and explore new landscapes. Its usefulness has since been discovered by a growing list of practical and academic fields, Education being one of many, creating a multibillion dollar industry. From a pedagogical perspective, GIS introduce to students spatial concepts in geography by visualization, hands-on experience and analytical skills modeled through real world problems. Despite its teaching potentials, GIS' integration into the classroom is slower than the expectation of GIS advocates and geography educators. Although there are research findings on factors that attribute to the rate of GIS in-classroom use, few focus on teacher candidates and the role of training institutions. This paper examines the social-institutional factor that may hinder GIS teaching in the classroom; the relationship between Faculties of Education and teacher candidates. The working hypothesis of this paper is that the paucity of well trained and skilled teacher candidates is a contributing factor to the slow GIS integration into K-12 stream. This paper also argues that GIS education in K-12 must be supported by both curricula (there is a push for GIS to be taught in the K-12 stream, particularly in Ontario, Canada) and a pool of skilled educators in the Faculty of Education to train future school teachers.

Keywords: Teacher Candidates, Geography Education, GIS, Canada

Myunghwa Hwang, Spatial Analysis Laboratory, University of Illinois. Email: mhwang4@uiuc.edu; Simon Appleford, NCSA, University of Illinois. Email: ; Vernon Burton, NCSA, University of Illinois. Email: ; Luc Anselin, NCSA, University of Illinois. Email: ; *Spatially Enabling RiverWeb, a Web-Based Resource for Historical Exploration of the American Bottom*

RiverWeb (www.riverweb.uiuc.edu) is a web-based education and outreach program to promote environmental education and historical awareness about rivers and their watersheds. One aspect of the project is an extensive collection of historical materials pertaining to early settlements in the "American Bottom," a location just south of the confluence of the Mississippi, Illinois and Missouri rivers, near modern-day St. Louis. This also includes a large historical record of the early development of East St. Louis (IL), from its early settlement through the twentieth century, up to and including the most recent census. This paper outlines and illustrates efforts to spatially enable the RiverWeb collection. The outcome is a dynamic web mapping application that forms a browser-based flexible user interface to the collection of historical materials, newspaper clippings, city directories and census information. The system has been built using open source software compatible with Open GIS Consortium (OGC) standards and includes web mapping functionality, a gazetteer and basic geovisualization. The paper describes the design and architecture of the system and the implementation of the linkage between the historical information and its spatial imprint. This is illustrated with a historical analysis of neighborhood change in East St. Louis as a result of redlining policies in the early 20th century. Change in neighborhood profile over time and across space can be visualized and basic exploratory spatial data analysis (ESDA) techniques provide ways to

quantify these patterns.

Keywords: internet GIS, historical GIS, gazetteers, geovisualization, spatial analysis

Sungsoo Hwang, DePaul University. Email: shwang9@depaul.edu; *Why are some cities more segmented in residential settlement pattern than others?*

Residential settlement pattern in urban areas is an interesting topic to a geographer. There is considerable evidence that differences between urban neighborhoods have widened in recent years as income gap has widened. There are numerous studies on what affects spatial concentration of similar social groups within a metropolitan area. On the contrary, there is a lack of study on why the degree of neighborhood differences differs by metropolitan areas. The previous study (on the index of housing market segmentation that summarizes the degree of neighborhood differences among metropolitan areas) allows us to seek answers to why some cities are more segmented in residential settlement pattern than others. The previous study reveals that New York, St. Louis, Seattle, Phoenix, San Francisco, and Portland have highly segmented housing market among 23 sample large metropolitan areas. What would explain high degree of housing market segmentation in these metropolitan areas? We hypothesize that competitive nature of housing market, rate of growth, and racialized process of residential development affect the spatial sorting of housing market. This study examines literatures from residential location choice to superstar cities. Hypothesis will be tested using the index of housing market segmentation and carefully chosen indicators of potential explanatory variables. The study is designed to shed light on processes governing spatial inequality of housing choice through comparative analysis of housing market across large metropolitan areas in the U.S.

Keywords: Housing market segmentation, Residential segregation, Urban form

James A Hyatt, Eastern Connecticut State University. Email: hyattj@easternct.edu; Robert Gilbert, Geography; Queen's University. Email: robert.gilbert@queensu.ca; *Fluvial Erosion & Form Characterization in Bedrock Channels, West Greenland.*

Subglacial and proglacial discharge to 1200 m³ s⁻¹ eroded complex forms into a gneissic bedrock sill near the mouth of Watson River, West Greenland. These forms reflect interactions between bedrock, topography and flow structure. We quantify forms in order to test form classification schemes developed for bedrock-controlled glaciofluvial and fluvial settings, and to identify relationships with flow. Measurements of forms are derived from sub-cm resolution digital maps for sites on the upflow (site 1 > 220 m²), crest (site 2 > 350 m²), and downflow (site 3 > 500 m²) sides of the sill. These maps were constructed by edge mapping individual near-vertical images collected with a 4-m high camera pole. Mosaics were rectified using 2 m grid total station survey data. Sharp and smooth form boundaries were traced, scanned, and imported into medical imaging software for form analysis. The lengths, widths, perimeters, areas, orientations, centroids, and several derived variables were measured for each site (n_{1,2,3} = 1600, 2800, 4100). Raster base maps were converted to vector format, registered, and analyzed in ArcGIS to map groups of forms. Initial analyses for site 3 identify spatial groupings of similar forms related to flow structure. Form asymmetry is generally greater and orientations are more tightly grouped parallel to flow at lower elevations where water depths are greater and erosive discharge events more frequent. Ongoing multivariate analyses suggest that the number of form variables may be reduced without a loss of explanatory power but that statistical clusters may not coincide with spatial groupings.

Keywords: fluvial; geomorphometry; erosion; Arctic; geomorphology

Kristen C Hychka, Penn State Geography. Email: kch130@psu.edu; Joseph A Bishop, Penn State Geography. Email: jab190@psu.edu; Wayne L Meyers, PhD, Penn State School of Forest Resources. Email: wlm@psu.edu; Robert P Brooks, PhD, Penn State Geography. Email: rpb2@psu.edu; Gian L Rocco, Penn State Geography. Email: gxr124@psu.edu; *Development of a Predictive, Spatial Model for Core Habitat of a Federally Threatened Turtle Species (Gleptemys muhlenbergi)*

The bog turtle (*Gleptemys muhlenbergi*) is a federally threatened species, whose northern range falls within the densely populated and rapidly urbanizing east coast of the United States. This study was part of a larger, multi-disciplinary effort to develop a habitat conservation plan for the bog turtle in two rapidly developing counties (Chester County, Pennsylvania and New Castle County, Delaware) in the Delaware River basin. This study built a spatial model for predicting the location of the bog turtle's core habitat. The primary habitat of bog turtles is mucky, seepage wetlands in fairly open canopy. The three tiers of the spatial model were: high probability, moderate probability, and low probability of occurrence of habitat. The high probability model was generated from GIS coverages of: hydric soils, buffered wetlands, buffered headwater streams, breaks in slope, edge of floodplain, and geologic fractures and faults. The low probability

model included: barren lands, highly urbanized areas, persistent row crop, steep slopes, buffered highways, and open water. The moderate probability zone was the balance of the study area. Each of the three tiers of the model was field validated with one hundred randomly generated sampling points. Results of the validation of the model from field visits and known occurrences of the bog turtles will be presented. Additionally, methods for improving the high probability model with potentiometric surface maps, aerial photo interpretation, and historic maps will be presented. Glep

Keywords: habitat mapping, wetlands, threatened and endangered species

Matthew Hyland, York University. Email: anotherboringaddress@hotmail.com; Unwieldy (e)motions: Pee-Wee Herman and the spatial imperative of effeminacies

In 1993, Eve Sedgwick pronounced the effeminate figure as "the haunting object of gay thought," unacknowledged, if not disavowed, and wholly undertheorized. More than ten years later, the adult sissy arguably remains but a specter in academic literature. This paper takes up this absence and considers possibilities for ameliorating it. Looking at the shortcomings of a small body of literature which grapples with effeminacies as identities, I suggest a move toward the productive possibilities of theorizing effeminacies as spatial-corporeal events. Such a turn, I argue, allows for nuanced attention the cultural, temporal and historical realities of effeminate articulations without implying their evanescence. To illustrate this argument, I draw on the cultural texts of Pee-Wee Herman (a familiar figure in the discourse on sissies). In particular, I explore how considering spatiality as central to effeminacy allows for a more attentive deliberation on the significance of the relationship between Herman's physical loquaciousness and his extended range of emotional utterances. At this intersection, the unwieldiness of these articulations reveal themselves as formative to, if not constitutive of, the effeminate, providing insight into how effeminacy gets figured outside the normative maps of masculinity.

Keywords: masculinities, effeminacies, emotional geography

Glenn G. Hyman, Ph. D., International Center for Tropical Agriculture (CIAT). Email: g.hyman@cgiar.org; Where Are the Poor and Drought-prone Farmers?

The international agricultural research and development community is paying more attention to poor and vulnerable populations hindered by agricultural production constraints, especially drought. Past efforts have placed greater emphasis on increasing overall production at the national scale, with emphasis on environments and farmers with the highest potential for improvement. This study uses global crop, climate and poverty data to identify agricultural regions of high priority for research and development in molecular biology and crop genetic resources. Spatial overlay, drought modeling and descriptive statistics are used to make a global assessment of agricultural regions. Our analysis showed that drought coincides with high levels of poverty in 14 agricultural regions, especially in South Asia, the Sahel, and eastern and southern Africa. Fourteen crops make up the bulk of food production in these high priority areas. A database was developed for use in priority setting for agricultural research and development.

Keywords: drought, agriculture, poverty, development, genetic resources, molecular biology

Jennifer Hyndman, Syracuse University. Email: hyndman@sfu.ca; War and Family in Post-Tsunami Sri Lanka

How do a natural and humanitarian (war) disaster destabilize social and spatial relations of order and authority? What are the implications for families? While housing, fishing boats, and schools have all received considerable attention in the wake of the Indian Ocean tsunami of 2004, intangibles such as the tsunami's impact on the war, its differential effects on men and women and their implications on work and family have been largely ignored. The social devastation and physical destruction of the tsunami spatially reorganized social relations, including those of gender. This destabilization put women at risk but also opened up new spaces for them. Based on fieldwork in Sri Lanka in 2006, I argue that protection has declined since the tsunami and construction of temporary shelters in new locations. This is especially true for widows whose social status alone makes them vulnerable. Widowers with young children face less insecurity but more challenges in reorganizing the gender division of labour. As the war in Sri Lanka resumes, links between militarization, disaster, and family are explored.

Keywords: war, gender, displacement

Oliver Ibert, Department of Geography, University of Bonn. Email: ibert@giub.uni-bonn.de; Knowledge Practices in Nanotechnology: Places of Learning and Learning Action Spaces

The paper is concerned with a conceptualization of the time-spatial organization of knowledge practices. It develops contours of a geography of knowledge production that bases on a situated-in-practice understanding of human knowledgeability. This geography consists of two main concepts: · Places

of learning. Engagement with knowledge practices is inherently local, since the related activities have to be performed at a specific location. These locations are referred to as places of learning. Such places provide the material and immaterial artefacts belonging to a knowledge practice (e.g. laboratory equipment and devices), a formal infrastructure (e.g. knowledge management tools) and a multitude of informal occasions of learning. · Learning Action Space. Participation in practice, by contrast, rather than concrete action addresses the practitioners' identity as members of an epistemic community. As such they have access to a greater diversity of places of learning. Processes of innovation-oriented problem solving are not fully localised, rather they connect several diverse, though, interrelated localized practices and utilise this diversity. The corresponding mobility of actors and objects enacts a learning action space. Some elements of these two concepts are substantiated empirically by first findings of an ethnographic exploration of research and development processes in nanotechnology. The paper concludes by discussing in how far the so far less influential practice view might complement the more traditional knowledge-based interpretations of spatial clustering.

Keywords: Knowledge Production, Communities of Practice, Epistemic Communities, Nanotechnology

Mohamed Babiker Ibrahim, Geography Department, Hunter College-CUNY. Email: mibrahim@hunter.cuny.edu; Rain Harvesting for Urban Areas: The Case of the Gadarif City in Central Sudan

Climate change, population increase and water mismanagement pose a great challenge of providing safe water to the populations of the arid and semi-arid regions of the developing countries; where water deficits will amount up to two thirds of the water requirement. Therefore, water harvesting techniques would be of paramount importance to make water available for domestic, agricultural and industrial use. More important, the involvement and participation of local people in the process of planning, tapping, administration, management and conservation of water systems will enhance the sustainability of safe water to these communities. Moreover, the high illiteracy and constant mobility and migration of some of these communities (pastoral nomads and working groups) contribute to water mismanagement and increase water related diseases. Therefore, programs that integrate drinking water supply with sanitation services and school and public hygiene education are needed to reduce water related diseases and provide local communities with adequate safe water in a sustainable manner. The study will draw some examples from the water harvesting techniques in the city of Gadarif in central Sudan.

Keywords: Rainwater harvesting, urban water supply, people participation sustainable development. Sudan.

Helen Hephzibah Igene, Ms., University of St-Andrews, St-Andrews, Scotland. Email: hephihi@gmail.com; Global Health Inequalities and Breast Cancer

Background: The aim of the study is to provide information on the global health inequality pattern produced by the increasing incidence of breast cancer and its relationship with the health expenditure of developing countries with emphasis on sub-Saharan Africa. It examines differences between the health expenditure of developed and developing countries, and how this affects breast cancer incidence and mortality. Methods: The data collected from the World Health Organisation (WHO) and World Bank were examined, using bivariate analysis, through scatter-plots and Pearson's Product Moment Correlation Coefficient. Multivariate analysis was then carried out by multiple regression analysis. Results: National income, health expenditure, the social context, health behaviour and reproductive factors all affect breast cancer incidence, particularly the differences between the developed and developing countries. However, these factors do not adequately explain variations in mortality rates. Conclusion: Findings from this study contribute to the knowledge of the burden of disease in the developing countries especially sub-Saharan Africa and how that is related to globalization and health inequalities. The study reveals the risk to developing countries of not giving attention to solving the present and predicted burden of breast cancer, currently characterised by late presentation, inadequate health care systems and high mortality.

Keywords: breast cancer, incidence, mortality, health inequalities, developed and developing countries

Akiko Ikeguchi, Nagoya Sangyo University. Email: ikeguchi@nagoya-su.ac.jp; East Asian market and its impact on spatial organization of clam fisheries in the Mekong delta

Recent economic growth in East Asia accelerates coastal development on one hand, and develops consumption of sea food in urban areas on the other hand. This resulted in growing demand of Southeast Asia coastal resources. In the Mekong delta, previous literatures described the expansion of shrimp farming along the coast, which often damage mangrove forest. The researchers often drew on this structure to indicate vicious aspect of globalizing market. However,

different type of food network shows that such framework is simplistic. In this study, I show a different pattern of production change and its impact on the coastal environment by focusing on spatial organization of hard clam (*Meretrix* sp.). The result indicates that the globalization induced spatial division of labor in different eco-regions. Some production organization recently act as a guard of estuary environment with support from government, but local small-scale fishermen, mostly Kumer, are on disadvantaged part of food network. The result implicates a need for new approach to the study of globalizing food and to sustainable resource use.

Keywords: food, environment, Southeast Asia

Risa Ikeya, University at Buffalo. Email: ikeya@buffalo.edu; *Island Ecotourism - Iriomote Island Case Studies*

Ecotourism is a type of nature-based tourism which aims environmental conservation, environmental education and local profit without exploiting nature. It is a nice way of promoting economic development in rural areas and many small islands in Japan are trying to adopt ecotourism. Iriomote Island, a part of Okinawa island chain, is a pioneer in ecotourism in Japan and has been actively implementing ecotourism projects since 1997. Iriomote belongs to subtropics and blessed with exotic ecosystem that is rare in Japan. Recent years' rapid increase in the number of tourists to Iriomote raises a concern of the island's sustainability. Many ecotourism sites are damaged by tourism activities and problems associated with over-use are noticed. In order to avoid further environmental damages, ecotourism on Iriomote Island is required. Upon revision, it should be noted that island ecosystem is unique and a general ecotourism scheme cannot be applied to island ecotourism. A customized ecotourism framework for Iriomote Island that reflects Iriomote's unique characteristics should be constructed and used. Thorough understanding of the unique ecosystem is essential to plan and implement sustainable ecotourism on Iriomote Island. To create a sustainable ecotourism destination, it is important that all the stakeholders be educated and a proper ecotourism operation be carried out.

Keywords: ecotourism, island ecotourism, environmental conservation, environmental education

Shriram Ilavajhala, Faculty Research Assistant, University of Maryland. Email: silav@hermes.geog.umd.edu; Diane Davies, Faculty Research Assistant, University of Maryland. Email: ddavies@hermes.geog.umd.edu; *An Open Source GIS Solution for Delivering MODIS Fire Alerts Globally*

Protected area and natural resource managers need near real-time fire information for strategic fire management. While satellite derived global active fire locations are available via the Internet, providing users with email notification of detected fires in their area-of-interest (AOI) is often a more convenient way of accessing the data. Delivery of detected fire locations by email, or cell phone text messaging in a timely manner is particularly useful where bandwidth limitations restrict the speed of Internet access. The Global Fire Email Alerts system was developed to notify users when fires are detected using data from the MODIS sensor, on board NASA's Aqua and Terra satellites. The email alerts system is subscription-based and allows users to choose their AOI by interactively drawing on the map, along with pre-set zoom levels, or by entering the latitude longitude values. Alerts can be customized with options like output map size, image background, attachment containing fire points, etc. The system employs open source software (e.g., Minnesota MapServer, PostgreSQL, PostGIS, etc) on Linux platform, delivering a very cost-effective, platform-independent solution. The system can be easily customized for the specific needs of organizations that require similar system. The system is currently in a beta-test phase, and will be released soon. The beta version currently has nearly 400 subscribers from more than 50 countries. Further improvements to the system are in progress and include an AJAX-based map interface, and fire alerts by region.

Keywords: MODIS, Fire, Open Source, GIS, OpenGIS, Email Alerts, Fire Alerts

Eerik Ilves, MA student, University of Toronto. Email: ilvese@geog.utoronto.ca; *New-build gentrification and inner city political polarization in Toronto and Vancouver*

Abstract. Many gentrification scholars have associated late-stage gentrifiers with political conservatism, and in turn, the growth of the 'neoliberal' city. This paper examines the relationship between recent condominium construction ('new-build' gentrification), voting patterns, and their policy implications, in Canadian inner cities. Conclusions are based on empirical analysis of provincial and federal election results and census data in Toronto and Vancouver over the previous 25 years at the level of the polling division. This study differentiates the composition of the vote in areas of recent condominium construction from the rest of the inner city, including areas gentrified in previous waves, and provides multiple linear regression analyses of election results with census data to

test what socio-demographic variables are most salient in predicting and explaining political party choice. The proportion of the labour force made up of 'entrepreneurial professionals' is one of the strongest predictors of right-of-centre voting, and such professionals are highly concentrated in areas of recent condominium development. The results are discussed in terms of neoliberal urban governance and the associated ascendance of business and finance professional groups in the city. The shift to the political right of the inner city vote that coincides with new-build gentrification has potentially serious implications for urban policy, as well as politics at broader scales. As inner city demographics change, there may be further strain on social welfare programs, and, more broadly, the results suggest an erosion of the traditional role of the inner city as a site for progressive politics.

Keywords: gentrification, urban politics, policy, elections, cities-Canada

Jungho Im, University of South Carolina. Email: imj@gwm.sc.edu; John R. Jensen, University of South Carolina. Email: johnj@gwm.sc.edu; *Hyperspectral analysis of hazardous waste sites on the Savannah River National Laboratory using AISA imagery*

Humans produce large amount of hazardous waste. The waste is generally stored in a safe place (i.e., hazardous waste sites) so that it does not contaminate the environment. The investigation of hazardous waste sites through in-situ measurement using visual inspection and hand-held instrumentation is labor-intensive and time-consuming. In certain cases, remote sensing-based monitoring of the hazardous waste sites may be possible. This study conducts hyperspectral analysis of hazardous waste sites on the Savannah River National Laboratory (SRNL) near Aiken, SC using the AISA imagery over the sites obtained on September 15, 2006. In-situ spectroradiometer data were also measured on that day. This study investigates hyperspectral AISA imagery to determine if it can be used to assess and monitor the condition of vegetation on claycaps on the Mixed Waste Management Facility (MWMF) at SRNL. Various hyperspectral analysis methods including spectral angle mapper (SAM), spectral mixture analysis (SMA), and mixture tuned matched filtering (MTMF) are used to extract the condition of the vegetation. The condition of the vegetation extracted from the hyperspectral analysis can be used in the Remote Sensing and GIS-assisted Spatial Decision Support System for Hazardous Waste Site Monitoring (RSHDSS) for improved hazardous waste site management (Jensen et al., 2006)

Keywords: hyperspectral analysis, hazardous waste sites, AISA imagery

Valerie Imbruce, PhD, City University of New York, Graduate Center. Email: vimbruce@nybg.org; *Demand for Diversity: The Global Expansion of Chinatown's Food System*

New York City presents an enormous and ever-changing market for a large variety of fruits and vegetables. Some products are produced regionally, most come from distant corners of the world. Recent studies on agricultural commodity chains in the United States suggest that homogenization and corporate appropriation are associated with spatial expansion of food distribution. Yet within New York City methods of food procurement are continually remade. Chinese immigrants in Manhattan's Chinatown have developed a diverse and dynamic system to satisfy the demands of East Asian ethnic groups. Although Chinatown's food system has been rapidly undergoing geographic expansion, it displays characteristics apart from other global food systems. Tying together previous studies on the globalization of agriculture, alternative food systems, and studies on agrobiodiversity, this project describes and analyzes the cultivation and marketing of Asian fruits and vegetables on a newly emergent global scale. By focusing on a system broadly distinguished by cultural preferences, this research describes how immigrants not only create new market demands, but concurrently create new systems of resource use to satisfy their demands. Results show trade networks based in social relations, diverse cropping systems, and family owned and operated firms constitute the food system. This understanding is significant in a world of highly mobile people and commodities. This project builds on the tradition of research that looks at the influence of political and economic structures on natural resource use, while taking a new approach that integrates this tradition with research on global agricultural systems.

Keywords: globalization, agriculture, agrobiodiversity, South Florida, Honduras, New York City

Rob Imrie, Professor, Department of Geography, King's College London, London. Email: rob.imrie@kcl.ac.uk; Claire Edwards, Geography, Department of Applied Social Studies, University of Cork, Ireland. Email: claire.edwards@ucc.ie; *The geographies of disability and a re-evaluation of the social relations of research production*

Oliver's (1992) paper about the social relations of research and disability suggested that research had done little to change in any significant way the lives of disabled people. His critique of academic research was part of a broader awareness of how research subjects often become part of the objectivist gaze of experts and, in the process, are drawn into exploitative relationships. Disabled

people, in this view, are passive victims, or 'psychological dopes' that feed into the academic production line. Reflecting on 15 years or so of research with/of disabled people, we seek to counter some of the views of Oliver and others and, in doing so, offer an analysis that stresses the positive roles of the academe, the importance of experts and expertism, and the roles and responsibilities that research subjects ought to assume and exercise in the process of research production.

Keywords: disability, knowledge production, social relations

Akiyoshi Inasaka, The University of Tokyo. Email: akiyoshi@ua.t.u-tokyo.ac.jp; Yukio Sadahiro, the University of Tokyo. Email: sada@ua.t.u-tokyo.ac.jp; *Spatio-temporal Analysis of Retail Distribution Classification by Clustering Process in Urban Space*

This paper proposes a quantitative method of analyzing and classifying the dynamic change of retail distributions in urban areas. A wide variation exists in the change of retail distributions. It depends on the type of stores, geographical location, retail strategy, and so forth. The description of such dynamics depends on the scale of analysis, from local to global. This scale variation has been drawing much attention of geographers. However, this kind of analysis has been done in qualitative rather than quantitative ways. The result is, in nature, subjective to some extent and consequently weak in its theoretical basis. Also the spatial scale of the analysis is rather macro scale. To resolve this problem, this paper introduces quantitative methods to describe micro scale spatial dynamics on a theoretical basis. The distribution of retail stores and restaurants are represented as a point data on GIS. In temporal sequence, new store opens which generates new point in the existing point distribution. This study applies buffer around each point to observe the topological relationships and spatial area with the existing distributions. The generated points and its buffer with topological relationship between existing distributions categorize into following four conditions: (1) complete overlap, (2) partial overlap, (3) connecting multiple clusters, (4) topologically and spatially independent. The order of the generating points with the topological classification describes the clustering process for each cluster. The analysis is done by statistical test by comparing with the random order distribution to see for the pattern in the process.

Keywords: spatio-temporal analysis, retail stores and restaurants, classification, clustering process

Alan Ingram. Email: a.ingram@geog.ucl.ac.uk; *Domopolitics and disease: HIV/AIDS, migration and security in the UK*

The development of highly-active anti-retroviral therapy has ushered in a new biopolitical mechanism: the power to sustain the life of individuals and populations affected by HIV/AIDS through the provision of anti-retroviral drugs, or to deny it by withholding treatment or failing to make it available. The question of entitlement and access to treatment has consequently become a pressing problem, particularly so in relation to migration and asylum, and the management of this field has become a frontline in the biopolitics of globalisation. In this paper I examine the problematisation of HIV/AIDS, migration and asylum in the UK between 2002 and 2005 through Walters' (2004) concept of domopolitics, which refers to the government of the state as a home. I trace the ways in which putative threats from HIV positive migrants and asylum seekers and people from areas with high rates of HIV infection, or a particular category of 'mobile uninsured species life' (Duffield 2006), were represented, politicised, contested and governed. I suggest that while people categorised in such ways appear to trouble public policy, their management is a field within which the role of the state and the integrity of the nation can be upheld in ways that answer to prevailing governmentalities. I suggest in conclusion that this analysis offers insights into the mutations of racism in planetary architectures of containment.

Keywords: HIV/AIDS migration security geopolitics globalisation biopolitics

Mirill Ingram, University of Wisconsin-Madison. Email: mingram@wisc.edu; *On Fermentation and Rot: Considering places of microbial expertise*

The ongoing negotiations of our relationships with microbial bodies is reflected in the pages of mainstream media and also scientific publications where authors debate sources of *E. coli* contamination in food, ways of contending with multi-drug resistant disease organisms, and the health benefits of diverse intestinal microbial flora. Long standing medical and public health commitments to a "contain and control" approach to pathogens are recently being questioned in the face of continued food safety incidents, growing bacterial drug resistance and new technologies redefining pathogenic behavior of microbes. These debates have policy implications, for example, where concerns over food safety have led to restrictions for organic farmers on the uses of compost and compost teas. This discourse indicates a need to rethink current characterizations of human-microbial relationships and the places in which those relationships are realized. Zoos, wilderness areas, city parks, CAFOs, slaughterhouses have been analyzed as

places of containment of nonhumans. Other places such as compost piles, intercropped fields, a jar of kimchi offer different expectations, places where we leave microbes to do their work, places where they are expert. These are also places of "bargaining" and acceptance of risk. This paper examines the technologies of different ways of working with microbes and discusses the implications of the broader, underlying discursive framings of microbe-human relationships. The continued elaboration of ecological, economic, moral landscapes that we co-create with the non-human world is argued for. A conception of animals, even microbes, knowledgeable agents is key to this process.

Keywords: nature-society relations, microbes, animal geographies

Joshua F. Inwood, The University Of Georgia. Email: jinwood@uga.edu; *Sweet Auburn: Contesting the Racial Identity of Atlanta's Historically Significant African American Neighborhood*

In 2004 Big Bethel AME Church, Atlanta's oldest African American church, located on Auburn Avenue, announced the first substantial development project on the street in over sixteen years. Once home to the wealthiest African American community in the United States, Auburn Avenue went through a period of steep economic decline during the 1970's and 1980's and many in the community saw Big Bethel's \$45 million mixed-use project as a turning point for the street. Utilizing a multi-method qualitative approach that included archival research and open-ended interviews, this paper uses Big Bethel's redevelopment project to explore the racialization of place in an African American community, and suggests African Americans on Auburn Avenue engage in place making on the Avenue vis-à-vis a community nationalism discourse. This places Auburn Avenue firmly within the context of the black counterpublic.

Keywords: Race, Nationalism, Political Ideologies, Constructing Space

Dimitri Ioannides, Professor, Missouri State University. Email: dioannides@missouristate.edu; *The Largest Industry! Myths and Realities about the Tourist Industry*

Much of the research in the field of tourism studies praises the sector's economic importance in a post-industrial society. We are told how this is the world's largest or second largest industry, that tourism accounts for a large share of national, regional, or urban economic wealth in western societies, and that there are numerous jobs created either directly or indirectly by tourism. The problem has been that many of these claims have been unsubstantiated and, it could be argued, this is the fundamental reason why some researchers (including geographers) have regarded the sector with evident skepticism. This paper aims to explore to what extent tourism is (or is not) a major player in the US urban economy. The investigation focuses on 30 metropolitan areas throughout the country. These include cities with obvious links to tourism (e.g., Las Vegas and Orlando) but also urban areas that are normally associated with other sectors of the economy. Part of the analysis involves the use of NAICS data from the Economic Census (for 1997 and 2002) and identifying sectors with obvious links to tourism. Location quotients for these sectors are measured for both years and a shift-share analysis reveals the reasons behind their growth or decline. The paper also explores why policymakers have a boosterist attitude towards tourism despite the lack of hard evidence to prove its economic strength

Keywords: Tourist industry, location quotients, shift-share analysis, boosterism

Vladimir Ira, Institute of Geography, Slovak Academy of Sciences, Bratislava, Slovakia. Email: geogira@savba.sk; *Everyday Life Activities and Sustainable Living: Time-Geographical Approach*

This paper is an attempt to presents a time-geographical approach that enables to investigate human activities of everyday life that have an impact on quality of life and sustainable/unsustainable way of living. The key point of the time-geographical approach is the spatio-temporal record of a rich complexity of everyday life. The individuals (respondents from Bratislava, capital of Slovakia) were asked to keep an open diary. The individual diary writers were expected to define what they experienced when performing the activity - how they assessed the activity from the quality of life and sustainability point of view. The time-space activity budget survey conducted in the city of Bratislava made it possible to investigate how people assess performed activities from the perspective of sustainable / unsustainable way of living and also to identify when and where they considered them as sustainable/unsustainable. The period between 7 a.m. and 10 p.m. was the most frequent time when performed activities (above all bus transportation, riding in a car, watching TV, education/school and work/gainful activities), were perceived as unsustainable by more than 10% of respondents. Households, means of transport, places of services, shops and places of work were the most frequent places where unsustainable activities were performed. The approach presented in this study is an example of how the complexity of everyday life may be treated within time-geography, sustainability and life quality concepts.

Keywords: time-geography, Slovakia, everyday life activities

Ian J Irmischer, United States Military Academy. Email: ian.irmischer@usma.edu; Michael D Hendricks, United States Military Academy. Email: michael.hendricks@usma.edu; Joseph F Harrison, Topographic Engineering Center. Email: Joseph.F.Harrison@erdc.army.mil; Frank A Galgano, United States Military Academy. Email: frank.galgano@usma.edu; *GIS Data Preparation and Model Development to Support Analysis in Military Geography*

Appropriate datasets and analysis techniques must be available to maximize the use of GIS to support military geography studies. This paper describes geographic dataset preparation and the development of analysis models to support the Military Geography course at the United States Military Academy. Datasets were built for the following studies; (1) compartmentalization of maneuver during the Civil War's Chattanooga Campaign, (2) The defense of West Point in the Revolutionary War focusing on line of sight analysis, (3) mobility study of the German offensive through the Ardennes in 1940, (4) the effects of terrain on artillery effectiveness at the siege of Dien Bien Phu, (5) river crossing analysis in Southern Iraq, and (6) a regional study of Afghanistan. The GIS software employed is ESRI's ArcMap 9.1 with various extensions. Major challenges in developing datasets include: georeferencing historical maps, adjusting current datasets to historic values, importing National Geospatial-Intelligence Agency (NGA) data, and developing data models for military unit locations and movement along with events such as battles. Analysis models were developed in ESRI's Model Builder and organized into a Military Geography Toolbox.

Keywords: GIS, Military Geography, Historical Analysis

Christina Irons, University of North Alabama. Email: tina.iron@gmail.com; Lisa Keys-Mathews, University of North Alabama. Email: lkeysmathews@una.edu; *Hurricane Katrina: Damage and Social Impact on Long Beach, Mississippi*

Hurricanes are one of the most dramatic, damaging, and potentially deadly natural disasters that occur in the United States. As they move ashore, they bring with them a storm surge of ocean water along the coastline, high winds, tornadoes, torrential rain and flooding. These factors can be catastrophic to the land area and the occupants in its path. Hurricane Katrina was the eleventh named storm, fifth hurricane and second category 5 hurricane of the 2005 Atlantic season. Katrina made landfall, as a category 3 hurricane, on the Louisiana/Mississippi state line on the morning of August 29, 2005. In essence this is a study of social vulnerability. According to Cutter, Boruff and Shirley, (2003) "Social vulnerability is partially a product of social inequalities?those social factors that influence or shape the susceptibility of various groups to harm and that also govern their ability to respond." (p. 243). The objective of this undergraduate research is to conduct an analysis of trends in structural restoration and reconstruction using satellite imagery then to relate these patterns to the socioeconomic and demographic landscape in the Long Beach, Mississippi area. The predicted findings of this research are that those areas categorized as "more vulnerable" will be the same areas where restoration and reconstruction have progressed the least. This research is sponsored by the Bottimore Undergraduate Student Research Fund from the Department of Geography at the University of North Alabama.

Keywords: remote sensing, social vulnerability, Hurricane Katrina, hazards

Jo-Ann Isbrecht, United States Geological Survey. Email: jisbrecht@usgs.gov; Miguel G. Velasco, USGS. Email: ; Pat Chavez, USGS. Email: pchavez@usgs.gov; *Mapping Coral Reefs Using Digitized Aerial Photography*

The United States Geological Survey (USGS) has been using remotely sensed image data to help map and study the coral reef on the island of Moloka'i, Hawai'i. Digitized aerial photography and airborne digital Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) laser bathymetry data were used to generate high-resolution digital image maps of the shallow coastal waters. Two sets of aerial image maps were generated having resolutions of 1 m and 0.3 m, whereas an image map generated using the airborne SHOALS Lidar data has a horizontal resolution of 2 m and a vertical resolution of 15 cm. The digital aerial-image mosaics were geometrically controlled using a combined image comprising a shaded relief image of the SHOALS Lidar bathymetry and a USGS digital topography map. An image generated by combining the aerial photo mosaic and a shaded relief of the SHOALS Lidar data has been useful in mapping bottom types and geomorphology on the inner-reef and fore-reef areas. In this image product, bottom features can be seen down to a water depth of 45 m, while features on the aerial photography alone can be seen only to a depth of approximately 20m. The digital georeferenced image maps have been used as a guide for extensive fieldwork, including on-the-ground validation and interpretation of the information seen in the remotely sensed data, and as a geographic base to plot results. Emphasis in this presentation is on the generation of the

digital aerial-photo image mosaics and the digital merging with the Lidar image data.

Keywords: map

Toru Ishikawa, University of Tokyo. Email: ishikawa@csis.u-tokyo.ac.jp; Anthony G. Barnston, International Research Institute for Climate and Society. Email: tonyb@iri.columbia.edu; Kim A. Kastens, Lamont-Doherty Earth Observatory of Columbia University. Email: kastens@ldeo.columbia.edu; Patrick Louchouart, Texas A&M University. Email: pl2065@columbia.edu; Chester F. Ropelewski, International Research Institute for Climate and Society. Email: chet@iri.columbia.edu; *Understanding and Use of Climate Forecast Maps by Prospective Policy Makers: An Empirical Study*

In this presentation, we report an empirical study of how people understand, evaluate, and use probabilistic seasonal climate forecasts. Students in a professional master's degree program in environmental science and policy participated in the study as prospective policy makers. They viewed a set of currently issued precipitation forecast maps, and answered questions designed to assess their understanding and evaluation of the maps, in the context relevant to agricultural and environmental decision making. Results showed that participants did not necessarily understand the information shown on the maps as the mapmakers intended. In particular, participants had difficulty understanding probability forecast maps correctly, by distinguishing probabilistic three-category forecasts and the amount of precipitation. In comparing forecast and observation maps, most participants evaluated the degree of agreement between the two maps as "agree only slightly" or "agree somewhat," and more than half of the participants were not inclined to use the forecasts in agricultural decision making. On average, they evaluated the forecasts as better, and became more inclined to use the forecasts, as an objective measure of agreement increased. At the individual level, there were large differences in the pattern of evaluation and use. Another group of participants answered questions about how to allocate water for agricultural use by viewing precipitation forecast maps, first individually and then in groups of three, each playing a role of a state officer, a local representative, and a farmer. We discuss how their evaluations and decisions varied depending on the role as a stakeholder.

Keywords: climate forecasts, policy makers, decision making, spatial representations, cartography-cognitive

Kaori ITO, PhD, Department of Architecture, Tokyo University of Science. Email: kaori@rs.noda.tus.ac.jp; *Identification of Business Agglomerations within an Urban Area: A Case Study of Tokyo*

A large urban area consists of various districts characterized with significant business concentration, which form an image of the city. The purpose of this study is; first to develop a statistical approach to identify areas of significant concentration of specific businesses, and secondly to show spatial distribution of characteristic districts in Tokyo in terms of business categories. To identify spatial extent of areas with a significant agglomeration of single or a set of businesses, we develop a spatial partitioning method using a multi-scale tree-structured spatial model and the Minimum Description Length criterion, which is an information theoretic criterion of model selection. Relative concentration of business categories in each area is measured using information entropy. The procedure is applied to the data of Tokyo. We use the yellow pages database in 2000 in Tokyo 23 wards area including approximately 630 thousand shops, offices, services and other businesses. Then the areas of some significant concentrations of electronic retails, used bookstores, small factories etc. are identified as well as the administrative district and major entertainment districts. Major findings from the observation are such as: (1) The major entertainment districts are divided into two groups; one is high concentration of restaurants and the other is a combination of restaurants and clothing retail shops. (2) Agglomerations of small factories are also divided into two groups; one includes a combination of stone and metal products and machinery and the other includes a combination of stone and metal products and chemical, rubber and plastic products.

Keywords: industrial concentrations, agglomerations, Minimum Description Length Criterion, business categories, Tokyo

Adrian Ivakhiv, University of Vermont. Email: aivakhiv@uvm.edu; Brian Miles, University of Vermont. Email: brian.miles@uvm.edu; *What's Clean, Green, Pure, White, Beautiful, and Threatened?: Brand "Vermont"*

In 1993 and again in 2004, the National Trust for Historical Preservation named Vermont one of the "most endangered" places in the United States due to development plans by discount retailer Wal-Mart. The company was thought to pose a grave threat to the character and soul of the mainly rural state and to its town centers and church-steepled villages. The viability of the "Made in Vermont" label—now applied to maple syrup, artisanal cheeses, yogurts, jams,

wood products, art—would stand to suffer if Vermont's image would be blemished by such an intrusion. This paper will look at the "branding" of Vermont as a state of both mind and body that is clean (sustainable, healthy, righteous), green (ecological, 78% forested), pure (GMO-free), white (snow-capped, ski-resorted, and mainly Euro-American), and inevitably threatened (by sprawl, Wal-Martization, et al.). Each of the elements that make up this image has its own history, with the whole not necessarily equivalent to the sum of its parts. In the case of the debate over wind power development, for instance, there is a marked tension between the "green Vermont" envisioned by wind developers and the ecological vanguard and the "beautiful Vermont" of unmarked ridge-lines defended by wind opponents. We will focus on recent debates over Wal-Mart and over wind power development as two sites in which images and visions of Vermont clash and clatter, with divergent voices and interests straddling over ridges of difference between urbanite and ruralite, birdwatcher and bear hunter, second-homeowner and trailer-dweller, "real Vermonter" and "flatlander."

Keywords: nature; branding; Vermont; landscape; wind energy; heritage

Dorothy Ives-Dewey, West Chester University. Email: divesdewey@wcupa.edu; *Constructing an Edge City: Communication, Collaboration and Land Use Planning in King of Prussia, Pennsylvania*

This paper examines the land use planning and development process in King of Prussia, Pennsylvania, an edge city in the Philadelphia region. Edge cities have faced considerable development and change over the past 50 years as they have transformed from agricultural areas to suburban bedroom communities to urbanized areas at a very rapid pace. The foundation for development in King of Prussia was set in the late 1950s. From its early development until today, images of growth and change have characterized deliberations over appropriate development regulation and land use planning processes, for projects big and small. Conceptions of development, and how they are expressed in a multitude of public and private forums, are critical to the land use planning and land development process. Using research data from an intensive case study of development planning in King of Prussia, this paper identifies the nature of communication in the land use planning process and the limits to communicative action and collaboration. The conversations and metaphors reflect how people involved in the creation of suburbia conceptualized their world and how these images and deliberations influenced development outcomes. The paper identifies challenges to discursive practice in the local land use planning process, including the local understanding of place and how it is construed and the way in which local land use processes structure participation.

Keywords: land use, planning, communication, edge city, suburb

Sukari Ivester, PhD, University of California, Berkeley. Email: sukari@berkeley.edu; *Health Inequalities and the Urban Foodscape: Evidence From Alameda County, California*

It is widely understood that diet plays a significant role in the causation and prevention of adverse health outcomes. While diet choices are most likely impacted by a constellation of factors, only a limited number of studies have identified and investigated the built environment as a factor that may critically hinder people's ability to attain a health diet. Using spatial analysis, this study investigates the impacts of neighborhood effects on health as a result of local nutritional environments or 'foodscapes' - food landscapes. More specifically, the study examines the spatial distribution of major chain grocery outlets and fast food retail outlets in relation to neighborhood income and racial characteristics, and neighborhood morbidity profiles. The present study generates much needed empirical data on geographic and economic disparities in retail food access in order to better understand the nutritional-related mechanisms which cause disparate health outcomes. An enhanced understanding of the context in which dietary choices are made has the potential to create more effective programs to decrease nutrition-associated morbidity. This study makes a further contribution in the emerging and interdisciplinary research field combining GIS analysis with more traditional public health/epidemiological methodologies, and offers a powerful visual representation of inequality.

Keywords: Urban, Health

Nicole Jachmann, Freie Universität Berlin. Email: nija@geog.fu-berlin.de; *Belfast - The separated city - "Ready for War, Prepared for Peace"*

This paper portrays the city of Belfast which is segregated due to ethnical and religious reasons. These factors result in (in-) visible boundaries which shape the cityscape as well as the population. Apart from outlining the conflict founded in historical events, the main focus of this paper lies on the depiction of events after the signing of the Good Friday Agreement and its arising effects. At present, no definite trend is discernible. However, it can be said that the Good Friday Agreement has not completely settled the conflict as riots and mutual distrust are commonplace. Another factor is that the continuous rise of the catholic population also has a negative effect on the delicate population structure of Northern Ireland. This paper concentrates on Belfast as this microcosm unites all

problems that prevail throughout Northern Ireland. Catholics and protestants clash in a restricted space, walls separate both religious groups and murals declare which territory you are currently on. This radically shows the extent of the ethnic-religious separation. This paper tells about the origins of this conflict to make its development more comprehensible. Consecutively, with the focal point on Belfast, depictions of other central issues like the development of the city, demography, culture and ethnic-religious segregation are made. Conclusively, on the one hand the main focus of this paper lies on the separated city of Belfast, on the other hand on the Good Friday Agreement which shall outline possible trends to give answer to an important question; In the end, will there be war or peace?

Keywords: religious conflicts, segregation, Northern Ireland, Belfast

Christine Jackson, Ryerson University. Email: ; Maurice Yeates, Professor, Ryerson University. Email: myeates@research.ryerson.ca; *Modeling Commercial Property Values in Outer Suburban and Exurban Locations in the Greater Toronto Area*

Whereas residential property values are reasonably easy to assess with acceptable accuracy, commercial property values are more difficult to estimate with similar precision. Residential property assessment benefits from the extensive research that has been undertaken in hedonic house price analysis, utilizing both global and local multivariate models, and the large annual databases of sales that can be compiled. Commercial properties embrace a wide variety of uses, but in very restricted locations due to zoning; and, there are comparatively few sales, even in the largest of metropolitan areas, in any year. Furthermore, the dynamics of commercial property development in outer suburban and exurban locations are different from those in inner and central cities due to their more recent development in an entirely truck/auto distribution environment, involving, for example, consumer driven mall/big-box/power centre retail systems, and mixed use commercial 'parks'. The task, then, is to develop a model for estimating outer suburban and exurban commercial property values that reflects these contemporary influences. The location for the empirical evaluation of the model are commercial property sales in the outer suburban and exurban municipalities within the Greater Toronto Area (GTA)

Keywords: Commercial property values, Toronto, SAR models, GIS

Paul Jackson, University of Toronto. Email: paul.jackson@utoronto.ca; *Funding Biodefense: Public Health, Bioterrorism, and the Emerging Infrastructure of Biosecurity Research*

The United States, post-September 11th, has been constructed as entering a new phase for both domestic policy and international security. Tom Ridge, speaking as the U.S. Department of Homeland Security Secretary, succinctly summarizes this period: "Terrorism forces us to make a choice. We can be afraid. Or we can be ready." In the current political and cultural climate, specifically in regards to the threat of bioterrorism, how is this fear and preparedness negotiated? No one chooses fear, therefore everything must be centered on "ready". How "ready" is framed, funded, used, and discussed in regards to health will be the focus of this paper. The shifts in politics, economics and urban spaces around bioterrorism and biodefense should be engaged while they congeal. Public health and urban security has become intertwined with discrete technologies, integrated systems, and urban utilities. In this paper the funding of biodefense by the NIH and NIAID was found to indicate a substantial shift in the health and science research communities. Project Bioshield and the Regional Centers of Excellence for Bioterrorism and Emerging Diseases Research illuminate a new national infrastructure or multi-city network of biodefense. Post 9-11 there has been the retrenchment or acceleration of the relationships between science, state funding, and public-private partnerships for technical and pharmaceutical products.

Keywords: bioterrorism, security, urban, fear, infrastructure,

Peter Jackson, University of Sheffield. Email: p.a.jackson@sheffield.ac.uk; Neil Ward, University of Newcastle. Email: neil.ward@ncl.ac.uk; Polly Russell, University of Sheffield. Email: polly.russell@bl.uk; *"This is not just a chicken": the cultural economy of branding*

The business and marketing literature argues that brands are crucial resources for companies and that successful brands embody a company's core values. Introducing new brands involves a complex process of product development, marketing and consumer research. This paper draws on life history interviews to trace the development and marketing of a new brand of chicken: Marks and Spencer's 'Oakham White'. The development of the Oakham brand can be seen as a response to consumer anxieties about the intensification of agricultural production, designed to differentiate Oakham chicken from standard broiler chickens sold by Marks & Spencer's high street competitors. Oakham chickens are slower-growing than standard broilers, fed on a bespoke GM-free diet, reared at lower stocking densities and to higher animal welfare standards without the use of anti-biotic growth promoters. The brand name is intended to encourage

positive associations with the Britishness of the product, with the grower's name stamped on the label as further evidence of provenance and traceability. The paper argues that the Oakham brand is consistent with Marks & Spencer's core values (quality, trust and innovation) and seeks to respond to consumer demand for 'chicken the way it used to be'. The paper also explores the extent to which the branding process was consistent with the brand developers' narrative identities and personal moralities. The paper concludes that a cultural economy of branding must attend to the complex and changing meanings of food as well as to the business of technical innovation, product development and marketing.

Keywords: cultural economy, branding, life histories, food geographies

Clare H Jacky, Macalester College. Email: cjacky@macalester.edu; *Women Agriculturists, Sustainability, and Development in the Highland Region of Ecuador*

The country of Ecuador, while it possesses rich societal and environmental diversity, is challenged by political instability, economic crises, and areas of severe environmental degradation. For many reasons, including global economic flows, agricultural change, and economic collapse within the country, the participation and recognition of indigenous agricultural groups in rural areas of Ecuador has been transformed such that the roles, actions, and goals of women in many rural areas of Ecuador have evolved. This project examines changing agricultural systems in a highland region of Ecuador, focusing on participation and experiences of indigenous agriculturalists, especially the participation and experiences of women in this group. The project considers the sustainability of this region's human/environment relationships and alternative development strategies that take into account changes in agriculture practices and participants.

Keywords: Agricultural change, alternative development, gender, indigenous groups

Neil G. Jacobs, Ohio State University. Email: jacobs.8@osu.edu; *Singing geography: On defining Jewish space in Jewish cabaret*

The beginnings of cabaret are dated to 1881, with the performances at the Chat Noir in Paris. From there, cabaret quickly spread through other parts of Europe, and beyond. In its songs, skits, and monologues, cabaret offered a critique of modern society. Jewish participation in cabaret was considerable; while many of the doors of modern society were still closed to Jews, those of cabaret were frequently wide open. In addition to the Jewish participation in "general cabaret," we may also speak of (Ashkenazic) "Jewish cabaret." This Jewish cabaret may be described by a set of recurring structural features (Jacobs 2003). The present paper examines how Jewish spatiality is expressed in Jewish cabaret performance pieces. Data are drawn from songs and monologues from the past approximately 100 years, as performed in several languages and countries. Among the topics discussed is the reconceptualization of "Jewish turf" in the transition from Europe to America.

Keywords: Ashkenazic, Jewish, cabaret, ethnic, perceptual, turf

Arne Jacobson, Humboldt State University. Email: arne@humboldt.edu; Rebecca Ghanadan, University of California Berkeley. Email: rghanadan@berkeley.edu; *Grounding the High Tech Revolution in Africa: Understanding Access and Social Uses of Solar Electricity in Kenya*

Mainstream efforts to promote sustainable development and poverty alleviation are increasingly focusing on marketing cutting edge technologies to the four billion people who live on less than \$4 per day. This approach, often referred to as marketing to the "Bottom of the Pyramid," (BoP) is based on the idea that private companies can earn profits delivering products and services that improve the lives of the world's poorest people. While poverty alleviation is a laudable goal, our research on market-based solar electrification in Kenya highlights the need for attention to access. Our evidence indicates that solar ownership is dominated by the rural middle class, rather than the rural poor. We also find that some social uses - such as television viewing and entertaining guests - are often privileged, while others - such as domestic work around the gendered space of kitchens or evening-time studying by children - may be marginalized. More broadly, our work indicates that, in addition to the characteristics of the technology itself, the social significance of household solar electric systems is strongly shaped by three dimensions of technology access and use: (i) purchasing power and the distribution of ownership, (ii) intra-household allocation of electricity among competing uses, and (iii) the social organization of space in the home. These findings do not negate solar technology's potential to contribute to rural development, but they do show that the social implications of even a technology with solar electricity's "small is beautiful" reputation are not pre-given or guaranteed.

Keywords: development, Africa, access, solar, energy, technology

Lynette Jacobson, University of Iowa. Email: lynette-jacobson@uiowa.edu; *No Room at the Inn? How Women's Mobility is Impacted by Midwifery Law in the US and Canada*

Birth does not take place within a sterile, muted, or indifferent space, but rather within a complex social and political landscape. This paper will examine how variations in state and provincial midwifery law impact living location decisions and birthing decisions among midwives and among those wishing to have midwife-attended births. The mobility of midwives and of women who have certain birthing goals, or even midwifery-related educational or career goals, is substantially limited. Midwifery and homebirth practice can be understood as a problem of service access as well as an issue of restricted residency options. If health is a human right (and the Universal Declaration of Human Rights indicates that it is), is it permissible that valid choices around our health and the health of our children be spatially restricted? Is this merely a portability of profession complication or are greater issues of power and authoritative knowledge at stake? Those who are not clearly part of the mainstream model of health can become socially excluded, and to some extent, culturally disabled, lacking access to services (rendered on their own terms) that others take for granted. Different rules persist for homebirths and midwives in different places and by looking at American and Canadian law and homebirth/midwifery practices, from both quantitative and qualitative perspectives, it is possible to examine this issue of mobility. How does this mobility restriction affect midwives and homebirthers? How do these women deal with locational and mobility obstacles?

Keywords: midwifery, birth, service access, mobility, health

R Dan Jacobson, PhD, University Of Calgary. Email: rjacobso@ucalgary.ca; *The role of technologies in the inclusion of the blind or visually impaired people in the information society*

Some authors have suggested that disability is entirely socially constructed, that individuals with impairments have been excluded and marginalized from mainstream society, not by the impairments themselves, but by society's attitudes towards them and its lack of inclusive practices. At the other end of the spectrum, researchers striving for ways to include disabled people within society, hold the view that disability can be overcome, mediated, or "cured" through technology. This paper critically evaluates the middle ground between these two polarized positions, exploring the perspectives adopted by geographic researchers seeking to provide technology to the non-visual community to increase their ability to participate more fully in society's activities. The adoption of certain technologies and their related infrastructure has had far reaching implications for the non-visual community. For example, the solution to make computers accessible to non expert users through a system of windows, icons, menus and pointers (WIMPS) and these being universally accepted in operating systems has made computers' inaccessible to blind people who previously navigated through textual interfaces that were read aloud. Later software developments facilitated the navigation of a WIMPs based interface. Parallels have also occurred more recently during the growth of the World Wide Web, the highly graphical nature of many websites have excluded not only non visual users, but those with low band width connections or portable devices with small screen sizes. A large amount of retrofitting to ensure web accessibility has been conducted, often within the United States under the threat of Federal legislation.

Keywords: technology, blindness, mapping, information

Doreen Jakob, Center for Metropolitan Studies. Email: doreen.jakob@metropolitanstudies.de; *Creative industries cluster and urban growth coalitions: From collective production networks to collective promotion.*

The notion of creative industries has moved sharply onto the research agenda of urban and economic theorists in the past years and raised much debate in both scholarly and policy circles about its various meanings and practical applications. Intra-metropolitan creative industries clusters are considered to be an extremely desirable, yet in some ways unpredictable, form of urban development. They generate competitive advantages, are incubators of a specific infrastructure and perceive turf of artistic and economic innovation. Though spatial concentrations of creative activities are not a recent phenomenon, the reasons behind collective action and agglomeration as well as the forces that drive and foster them have changed. Today creative entrepreneurs collaborate with local businesses and policy makers in developing and branding their locations into visible creative industries clusters as a way to better promote and mediate creative goods and services. Artistic agglomerations are more and more used as a collective marketing strategy for creative activities and the promotion of their locations than mere production sites. This presentation is based on an extensive qualitative study of four emerging artist neighborhoods in New York City and Berlin. It analyzes the activities of cluster actors, the formation of networks, and examines their outcomes. The study concludes that investments and support to creative industries in the specific case study areas is often not geared towards fostering the sector itself but aims for the secondary effects of its presence as a

strategy of amenity driven economic growth.

Keywords: Creative industries, cluster formation, urban development

Marek K Jakubowski, University of California, Berkeley. Email: marek@berkeley.edu; Assessing OBIA-Based Vegetation Classification Using AVIRIS Data

Recent studies have shown that segmentation of remotely sensed imagery prior to analysis may result in more fruitful results. Much research has focused on utilizing high spatial-resolution imagery for this purpose, but there has been little emphasis on taking advantage of hyperspectral imagery's rich information content. Particularly, applying hyperspectral imagery in object-based image analysis (OBIA) research has been lacking. This study applies AVIRIS imagery to analyze the effectiveness of hyperspectral data for OBIA in Sierra Nevada region. This talk will compare OBIA classification accuracies of both hyperspectral and high spatial-resolution remotely sensed imagery.

Keywords: Remote Sensing, GIS, hyperspectral, OBIA

Susan L. Jakubowski, University of Cincinnati. Email: jakubosl@email.uc.edu; Tibetan Buddhism in the United States

Tibetan Buddhism has traditionally been classified as an ethnic branch of the universalizing Buddhist system. It is inextricably tied to the culture, politics and people of Tibet, where it has been practiced almost exclusively for centuries. Tibetan Buddhism was spread beyond this region on a large scale only after the political annexation of Tibet in 1959. As of 2006, there were approximately 608 Tibetan Buddhist practice centers in the contiguous United States. While the impetus for the relocation of Tibetan Buddhism outside of Tibet is clearly related to the political situation, the explanation for its continued diffusion is not so evident. Through its portrayal in American popular culture, Tibetan Buddhism has become representative, if not synonymous with the political struggle for independence of the nation of Tibet. This study seeks to examine whether the motivation for the spread of Tibetan Buddhism in the United States is a result of a continued political agenda on part of Tibetans and their supporters or whether it is a cultural phenomena related to the recent and increasing popularity of non-traditional religious alternatives. An examination of the locations of the Tibetan Buddhist practice centers would suggest that its diffusion is a result of American demand rather than the result of any political agenda.

Keywords: Tibetan Buddhism, diffusion, religion

Al James, Dr. Queen Mary, University of London. Email: AJ210@cam.ac.uk; Repositioning the 'business case' for work-life balance geographically: everyday worker experiences in Dublin's IT cluster

Within the New Economy, the desirability and means of achieving an appropriate 'work-life balance' (WLB) has received ever-increasing attention from governments, management, trade unions, academics and the media. 'Defined' as 'the absence of unacceptable levels of conflict between work and non-work demands' (Greenblatt, 2002: 179), WLB has assumed a particularly strong significance in the UK and Ireland where average work hours are the longest of all EU member states. For workers, a lack of WLB can mean increased stress, negative effects on psychological and physical well-being, and increased family and marital tensions. However, many commentators increasingly recognise that employers are only likely to introduce meaningful WLB policies if they anticipate business benefits arising from their implementation. Nevertheless, there remains a dearth of empirical evidence to support the WLB 'business case'. Additionally, significant conceptual and methodological limitations impede firm conclusions from the studies that do exist: not least, the WLB literature is profoundly aspatial, with little or no sense that firms' economic activities actually occur in and across regional, urban and local spaces, themselves embedded in national regulatory and institutional frameworks. Drawing on preliminary results from ongoing research in Dublin's IT cluster, this paper begins to explore the concrete intra- and inter-firm mechanisms through which different WLB practices and policies function to enhance firms' innovative capacities, as experienced by workers across the work-home boundary. In so doing, it seeks to connect the expansive WLB literature with new intellectual developments in the economic geographical regional learning and innovation literature.

Keywords: work-life balance, work, innovation, cluster, region, Dublin

Ann Myatt James, The Pennsylvania State University. Email: amj204@psu.edu; Assessing Alternatives: Examining the Alterity of One Oklahoma Farmers' Market

An increasing number of Americans make use of alternative forms of agriculture, including organic, fair trade, and local food systems. This is driven, in part, by fears of contamination as well as an increased interest in sustainability (Ostrom, 1997). Some of these systems, such as community-supported agriculture seek to "challenge the fundamental commodification of food" (Hinrichs, 2000: 298), while others do not. The farmers' market provides a vehicle through

which to examine the question of the alterity of alternative forms of agriculture. Once an important element of conventional agricultural distribution, the farmers' market has become a space bridging formal and informal economies and conventional and alternative spaces of exchange. This paper presents empirical results from a study of the activities of vendors participating in an Oklahoma farmers' market. Specifically, it focuses on four questions: (1) To what extent do vendors engage in behaviors that prioritize non-economic themes and relationships (e.g. morality, friendships, environmentalism) over goals related to economic self-interest? (2) How are these behaviors demonstrated (explicitly and implicitly) within the space of the marketplace? (3) How are the motivations of individual actors regulated in order to reproduce the alterity of the market? and (4) To what extent do tensions exist due to the differences in the way vendors (re)embed their commodities within the local context? Answers to these questions provide a means of unpacking and assessing the alterity of the farmers' market.

Keywords: alterity, diverse economies, farmers markets, alternative agriculture, Oklahoma

Chaney James, Western Kentucky University. Email: James.Chaney@wku.edu; The Rise of the Hispanic Enclave in Davidson, County

In recent years, the United States has observed a significant increase in the Hispanic population within its borders through immigration. Since the 1980s, there has been a shift in the immigration and movement of the Hispanic population from border states to states in the southeastern United States. Many Hispanics, attracted by the large availability of jobs, have moved into growing metropolitan areas in the southern U.S. In some of these cities, new Hispanics immigrants have created distinct enclaves. These enclaves provide almost all needs for the Hispanic community, such as shopping, healthcare, legal assistance, dining, employment, entertainment, and religion. This study examines the creation and functionality of the burgeoning Hispanic enclave within Davidson County, Tennessee through fieldwork, in-depth interviews with immigrants, volunteer work with Hispanic organizations, and census data. It suggests that the rise of this enclave, complete with Hispanic cultures, businesses, organizations, and churches, is interfering with the assimilation of Hispanics into the local community. Preliminary results indicate that many Hispanics choose to function almost entirely within this enclave and that the enclave creates an environment in which immigrants do not need to intermingle with the host society. While Hispanic enclaves can serve as an important transition tool for newly arrived immigrants, these findings suggest that ethnic enclaves can also have negative impacts on assimilation into the larger host community.

Keywords: Ethnic Enclave

Godstime K. James, Department of Geosciences, University of Missouri-Kansas City, Missouri 64110, USA. Email: gkjdk4@umkc.edu; Jimmy Adegoke, Department of Geosciences, University of Missouri-Kansas City, Missouri 64110, USA. Email: ; Saba Ekechuckwu, Map and Image System, Ogunu Road, Warri, Delta State, Nigeria. Email: ; Peter Nwilo, Department of Surveying and Geoinformatics, University of Lagos, Lagos, Nigeria. Email: ; Joseph Akinyede, National Agency for Space Research and Development, Abuja-Nigeria. Email: ; Assessment of mangrove ecosystem changes in the Niger Delta using satellite data

This satellite based study was carried out with the primary aim of understanding how the mangrove ecosystem in the Niger Delta has been altered in the recent past. Specifically, we determined the spatial extent of the mangrove forest in the Niger Delta using remotely sensed satellite data (Landsat TM & Landsat ETM+) and estimated changes in the spatial extent of the forest from the mid-1980s through 2003. Field work was conducted in the study area during summer 2005 to collect data used for accuracy assessments and to document the factors responsible for the changes identified through the satellite analysis. Overall, a total of about 21,340 hectares of Mangrove forest was lost in the Niger Delta over the study period. Fieldwork confirmed that these losses were primarily due to urbanization, dredging activities, activities of the Oil and Gas industries, and the spread of the exotic *Nypa Palm* (*Nypa fruticans*) species.

Keywords: Mangrove vegetation, Remote Sensing, Niger Delta, Land Use/Land Cover.

L Allan James, University Of South Carolina. Email: ajames@sc.edu; Physiographic and Historic Underpinnings of Flood Hazards in the Sacramento Valley, California

This paper evaluates conditions underlying modern flood hazards in the Sacramento Valley, a broad alluvial plain with natural levees grading down to low backswamp basins. Broad areas of this so-called 'Inland Sea' were frequently inundated up through the Anglo-American settlement period. Hydraulic mining delivered massive volumes of sediment causing several meters of channel aggradation, and extensive leveeing in response further transformed channels.

These changes did not alter the reality of low flood-prone basins along the lower rivers terminating in a low inland delta. In the early twentieth century, an innovative channel bypass system was implemented that routes flood waters through broad, ephemeral, channelized floodways. The NFIP further encouraged structural flood control in the Valley, but these developments along with levees re-engineered to protect against the 1%-chance flood fed the mis-perception that lowlands were safe from flooding. Rapid urbanization has accelerated recently with development moving aggressively onto flood-prone basin and deltaic lands, generating large residual flood risks and unprecedented social vulnerability. Densely populated areas such as Natomas in the American Basin are prone to deep catastrophic flooding if levees fail. Flood conveyance systems have proven difficult to maintain and levee decertifications may place large areas within the 100-year floodplain requiring mandatory purchase of flood insurance. Moreover, climate-change scenarios now predict increasing flood variability and larger spring floods. The growing risks raise doubts that structural flood control methods alone can provide adequate flood hazard mitigation. Sustainable planning measures are needed that include limits to development in flood prone lands.

Keywords: flood, hazards, California

Ryan James, University of Cincinnati. Email: jamesrs@email.uc.edu; *The Determinants of Casino Gaming Demand in Indiana*

Over the past two decades, legalized casino gaming as a means of redevelopment and tax revenue has become a hot topic. This stems from shrinking federal funding to local governments, a need for communities to "reinvent themselves", and the ability of a casino to provide new jobs and tax revenue. Currently ten states have legalized gaming, and it has been proposed in several neighboring states attempting to win back lost tax revenue. This scenario is playing out in the Ohio, Kentucky, and Indiana area. An early adopter of gaming, Indiana has eight casino sites, of which five border Kentucky or Ohio. In an effort to bring back lost revenue, the issue of legalizing gaming has been raised in Ohio and Kentucky. The assumption is that a more local option would keep resident funds in state. To test this assumption, a model of gaming consumer behavior in this market must be constructed. As a part of this larger study, this paper examines the determinants of casino demand. A literature review suggests the key variables in determining casino popularity are payback, number of gaming positions, and proximity to consumers. Using data provided by the Indiana Gaming Commission and United States Census Bureau, these variables are tested to determine their significance in the popularity of Indiana casinos. Results indicate that gaming positions and proximity to customers are the strongest variables. These results are then used to argue that a Huff Model approach is the correct approach to modeling gaming consumer choice patterns.

Keywords: Indiana, Gaming, Economic Development

Sarah W James, PhD Candidate, University of Western Sydney. Email: sarah.w.james@gmail.com; *Diversity and the Metropolis: Complicating the Global City Agenda*

This paper explores the diverse claims to space that challenge the primacy of economic and property development in the growth of a global city. With a focus on Sydney, this paper will explore how the co-existence of multiple and divergent indigenous, migrant and settler groups complicate the dominant narrative of urban development. From these diverse presences in the city arise claims that emphasise alternative values in relation to land, beyond solely those of exchange value. In asserting the importance of heritage and of sustainability, in the form of urban agriculture, these groups present counter-narratives of legitimate land use. This unsettles dominant discourses of 'growth' that present land 'release' and property development as the central imperative in Sydney's urban planning. This paper will use these alternative framings of space to map the diverse interests that intersect in growth at the urban fringe, illustrating the cultural complexities that must be negotiated as Sydney expands. Such a mapping raises questions as to what should constitute the very form and fabric of the metropolis. As the metropolitan boundaries expand, the diversities encountered at its edges complicate narratives and agendas of growth. The economic framing of the global city is troubled by the cultural and land use diversity that must now be negotiated as part of, rather than outside, the urban.

Keywords: urban development, cultural landscape, post-colonial, land use, migration, global city

Sung-Gheul Jang, University of Illinois at Urbana-Champaign. Email: sjang3@uiuc.edu; Tschangho John Kim, University of Illinois at Urbana-Champaign. Email: tjohnkim@uiuc.edu; *Development of an Interoperable GIS using Canonical Geospatial Concepts and Methods*

Recent advancements in web-based GIS technologies and the vast increase of location-embedded information by the proliferation of economical yet precise positioning technologies significantly increase the need for integration of heterogeneous geospatial resources. The integration, however, becomes a very challenging subject in the geographic information science field since it requires

overcoming inherent impediments due to the use of heterogeneous geospatial information with different structures and meanings across multiple information sources. Through a modeling process for a specific GIS application supporting travelers' decisions in everyday life, a multimodal travel guide service, this study shows how canonical geospatial concepts based upon the ISO 19100 series of international standards for geographic information would feasibly and effectively contribute to achieve the syntactic and semantic interoperability among distributed and heterogeneous geospatial information sources. With its implementation by employing the canonical geospatial concepts and methods of the ISO 19100 series, such as rules for application schema, geography markup language, and specifications for the web-based GIS, this study demonstrates unambiguous geospatial data exchanges between the multimodal travel guide service and its multiple distributed information sources, as well as between the service and its clients. This study confirms that the GIS standards published through the international consensual process provide a pool of canonical concepts and methods to specify geospatial information unambiguously so that we can achieve the full spectrum of interoperability during geospatial processing by using the concepts and methods in a consistent manner. Finally, this study addresses several salient implications of international GIS standards for GIS education.

Keywords: GIS, interoperability, standards, modeling

Piotr Jankowski, San Diego State University. Email: piotr@geography.sdsu.edu; Arika Ligmann-Zielinska, San Diego State University. Email: ligmannz@rohan.sdsu.edu; *A Framework for Sensitivity Analysis in Multiple Criteria Spatial Decision Making*

The purpose of sensitivity analysis in multiple-criteria spatial evaluation is twofold: 1) test the ranking stability of spatial alternatives in response to changes in multiple-criteria evaluation components including criterion weights or criterion scores, and 2) account for uncertainty inherent in the decision situation. In particular, two common approaches to the analysis of criterion weight sensitivity involve simulation of weights within an arbitrarily selected weight value interval (probabilistic approach) or changing the initial weight values up or down, and observing the corresponding shifts in the ranks of spatial alternatives (non-probabilistic approach). Another version of the non-probabilistic approach is to compute changes in weight values necessary for a selected alternative to move up or down in the ranking. These approaches, however, do not address adequately all information needs concerning the stability of decision option ranking and the relevance of evaluation criteria. In this paper, we present a framework, which groups different techniques of sensitivity analysis by components of multiple-criteria spatial evaluation. The framework includes four groups of methods: 1) methods focusing on examination and modification of decision variant list, 2) methods focusing on examination and modification of criteria list, 3) methods focusing on examination and modification of criteria weights, and 4) methods focusing on examination and modification of the ranking of spatial alternatives. We discuss briefly different techniques comprising each group, present their application areas, and comment on their applicability to individual and group-based multi-criteria spatial evaluation situations.

Keywords: multiple criteria evaluation, GIS, decision support, quantitative methods, SDSS

Susanne Janschitz, University of Graz, Austria. Email: susanne.janschitz@uni-graz.at; *An Interactive Information System as a Tourism Marketing Tool - The Example of Two Austrian Communities*

Two former mining towns in Austria took the chance of the EU-Project READY, dealing with rehabilitation and development in mining regions, to restructure their economy and foster on their progress in tourism and/or industry. Since an analysis of tourism marketing instruments showed clearly a lack in spatial representation, the communities decided to install an interactive information system for tourists. The paper will illustrate the conflict between "interactive maps" and "web-based (Geographic) information systems" by a number of pros and cons for both alternatives, and will finally present arguments for the decision to design and implement an "interactive map". Based on the three main principles of a tourist map - to inform, to give orientation and to promote - the steps in the design process will be shown. Starting with the configuration of a basic map, different layers offer the chance to present a wide spectrum of information on a modular basis, multimedia functionality guarantees a user oriented interface. Finally the main challenges for future research steps will be discussed, e.g. additional functionalities like 3D aspects, online reservation etc. Looking closer into more technical approaches, a combination of webGIS with a multimedia authoring program might be fruitful on the way to an easy to handle (and maintain) interactive tourism marketing tool.

Keywords: tourism, web-mapping, information system

David R. Jansson, Vassar College. Email: dj28@cornell.edu; *American Secessionist Movements: the Rejection of Empire and the Retreat to the Local*

This paper will analyze the rise of secessionist movements in the United States and the scalar nature of their agendas. The recent North American Secessionist Convention, held in Burlington, Vermont in November 2006, brought together dozens of secession activists from at least a dozen different secessionist groups such as the Second Vermont Republic, the Cascadian Independence Project, the Alaskan Independence Party, the League of the South, and Christian Exodus. In addition, there is now a secessionist “think tank” in the form of the Middlebury Institute, convener of the convention. This paper discusses the similarities and differences among these groups and considers the role of corporate globalization and U.S. imperialism in providing the impetus for these efforts. Secession as a strategy for creating more responsive and just political entities will be discussed, as well as the obstacles and pitfalls facing this movement.

Keywords: secession, United States, empire, globalization

Johan Jansson, Dr, Uppsala University. Email: johan.jansson@kultgeog.uu.se; Dominic Power, Dr, Uppsala university. Email: dominic.power@kultgeog.uu.se; *Trade fairs in global circuits: polycentric networks of temporary clusters in the furniture industry*

Debates about the future for firm and local cluster competitiveness in the global knowledge economy have postulated an increasing importance of the city-regional scale and suggested a complex interrelationship between the role of major city-regions as nodes in the global economy and their polycentric, multi-clustered spatial form. This paper suggests understandings of economic activities’ complex local and regional anchoring must be linked to understandings of the complex spatial and temporal relations that exist between different markets and clusters within the global economy. Using the example of the knowledge- and image-intensive global furniture and design industry, we attempt to show the complex scales and temporalities that make up the geographies of connectivities of firms within and beyond the city-regional sphere. We argue that local furniture firms and regional clusters journey to the market through intermediary spaces: principally trade fairs. These trade fairs are not simply temporary gatherings but business places linked together in global circuits; circuits which represent microcosms of the industry and function as effective marketplaces. Although fairs are short-lived events we argue their presence in the business cycle has lasting consequences for the organisation of markets, industries and firms. Trade fairs are crucial ‘nodes’ or ‘points of assemblage’ for the markets, innovation processes, and industrial dynamics that firms compete within. The paper is based upon extensive empirical research at fairs in Stockholm and Milan. The paper addresses the theme of polycentricity by focusing on the increasingly polycentric nature of contemporary global industrial and market circuits and spatialities.

Keywords: Economic geography, global cities, temporary clusters, polycentricity, trade fairs

Claire Jantz, Shippensburg University. Email: cajant@ship.edu; Scott J Goetz, PhD, The Woods Hole Research Center. Email: sgoetz@whrc.org; Peter Claggett, Chesapeake Bay Program. Email: PClaggett@chesapeakebay.net; David Donato, U.S.G.S.. Email: didonato@usgs.gov; Kyle D Shenk, Shippensburg University. Email: ks8997@ship.edu; *Simulating and forecasting urban land cover change in the Chesapeake Bay watershed*

Declining water quality in the Chesapeake Bay is due in part to disruptions in the hydrological system caused by urban and suburban development throughout the 168,000 km² watershed. Increases in this impervious surface cover alter the hydrological regime and have a negative impact on water quality, but can have differential effects depending on where and how land use change has occurred. Predictions of future land cover are important for a number of Chesapeake Bay Program partners’ goals, including targeting for restoration, assessing the impacts of possible restoration goals and mitigation scenarios, and determining the vulnerabilities of various resource lands to future land conversion. We describe a regional predictive modeling system, based on the SLEUTH cellular automata model, that has been developed to provide regional assessments of future development and explore the potential impacts of different regional management scenarios. We will provide an overview of the model, an assessment of its performance, the results of calibration and spatial predictions, and the relevance of the work in terms of policy formulation and restoration of the Bay and its tributaries.

Keywords: Chesapeake Bay, SLEUTH, urban geography, land cover change

Sarah Jaquette, MA, University of Oregon. Email: sjaquett@uoregon.edu; *Endangering Organ Pipe?: Deploying Nature against Migrants in the Arizona Borderland*

This paper investigates the contested landscape of Organ Pipe Cactus National Monument in Arizona. Organ Pipe is one of several biodiverse parks in the Sonoran Desert along the US-Mexico border that shelters undocumented migrant activity, which has been on the rise since 1990s immigration policies channeled migrants away from urban crossings into the wilderness. As migrants impact vulnerable ecosystems, the case against immigrants is “greening.” This discourse draws on a biological metaphor that casts immigrants as an “invasive species” “endangering” wilderness. Much of the alarmism about this landscape ignores the human history there, coding current use as dirty and ancient use as romantic. But pitting immigrants against a sacred American wilderness landscape is a familiar trope of nationalist discourse in US history. Conservationism has often made nationalism, xenophobia, and racism politically palatable. In this interdisciplinary paper, I will explore the history and rhetoric of this green nationalism, and argue that reviving green nationalism fails to account for the the political-economic context that puts migrants there in the first place. In a post-9/11 world, defending the border’s environmental security is a guise for protecting national—even racial—purity. Combatting green nationalism, as I hope to demonstrate, is as much about language and values as it is a matter of policy and global economics.

Keywords: environmentalism, immigration, nationalism, rhetoric

Steven Jareb, San Diego State University. Email: jareb@rohan.sdsu.edu; *Videoleters: Talking about place, memory, and identity in the former Yugoslavia*

A great deal of effort has been made by scholars to understand how collective memory and national identities are formed and sustained as well as how they change. Geographers have been especially helpful in analyzing how these fluid memories and identities are inscribed in the landscape. In respect to post-national situations, most academic writing continues to focus on how these new nations are imagined; often overlooking difficult questions such as what happens to a collective memory and national identity once the nation no longer formally exists? Or, where can a collective memory be inscribed or sustained in the landscape when other national identities are normalized? To explore these issues, I analyze episodes of the Videoleters documentary film project, filmed between 1999 and 2004 by Dutch filmmakers Eric van den Broek and Katarina Rejger, who sought to reconnect friends on opposite sides of the Yugoslavian conflict through videotaped “letters.” In April 2005, in an unprecedented event, ten episodes of this project were simultaneously broadcast on primetime television in all of the post-Yugoslav nations. By employing a visual and textual analysis of both the cinematic elements and the dialog between participants, I explore and present thematic issues found within Videoleters that help enhance understandings of collective memory, identity, and place in and through a former nation.

Keywords: Yugoslavia, Balkans, Place, Collective Memory, National Identity, Film

William “Todd” Jarvis, Senior Researcher, Oregon State University - Institute for Water and Watersheds. Email: todd.jarvis@oregonstate.edu; *Knowledge Entrepreneurs as Sources and Solutions to Conflict over Groundwater Resources*

Conflicts over groundwater resources arise due to the plethora of beliefs surrounding the occurrence of water under the land held by the various parties. Individuals involved with land development and geoscience professionals have theories on how water occurs and flows in the subsurface regardless of their technical background. Conflicts over groundwater resources require a holistic approach to address multidisciplinary and multimedia issues because they are often large in scale, broad in impacts, laden with values, and in many cases involve matters of culture, economics, justice, health, risk, power, uncertainty, and professional, bureaucratic, and electoral politics. Good process and improved relationships are the traditional measures of effective mediation in other conflicts but are insufficient for use in water cases. Groundwater science is at the core of groundwater resource issues because the interests and options are not easily defined without the assistance of specialists who can interpret causal chains. However, there are few practicing mediators who are trained in water science and engineering. Likewise, scientists and engineers typically do not receive training in professional communication in their technical curriculums at colleges and universities. This deficiency leads to misperceptions in the roles of the technical professionals in the discussion and solution of a wide range of societal problems, particularly those focusing on water. But this deficiency also leads to conflicts between technical professionals serving as “knowledge entrepreneurs” regarding the discussion and solution of groundwater resource problems. Case studies will underscore the evolving field of knowledge entrepreneurs mediating scientific solutions to environmental disputes.

Keywords: Conflict Resolution, Groundwater, Water Resources

Alex Jeffrey, Newcastle University. Email: alex.jeffrey@newcastle.ac.uk; *Whose Europe? The competing narratives of Bosnian accession to the European Union*

This paper will explore the question of what it means to 'be European' in contemporary Bosnia. As the international organisations created as a post-conflict state architecture in Bosnia are gradually transformed into European institutions, international presence in the country has gained renewed legitimacy. The Stabilisation and Association Agreement, a precursor to accession, set new conditionalities attached to 'becoming European', broadly these have aimed to strengthen the internal coherence of the Bosnian state which was so fragmented following the 1995 Dayton Peace Accords. Drawing on fieldwork conducted in Bosnia over the last three years, this paper will examine the reaction of individuals within civil society groups and political parties in Bosnia to such processes of 'Europeanization'. Rather than enunciating simple resistance or acquiescence, these localized narratives demonstrate the range of political and cultural signifiers invested in becoming European. Drawing on the conceptualisations of Slavoj Žižek and Slavenka Drakulic, I will argue that these accounts comprise an indication of the uncertainties and ambiguities in the European project. This paper will thus provide critical reflection on the process of European enlargement on the Balkan Peninsula and how European subjectivities are reformulated in the context of contemporary Bosnia and Herzegovina.

Keywords: Europe, European Union, Bosnia, Cultural Landscape

Jerzy J. Jemiolo, Ball State University. Email: jjemiolo@bsu.edu; Gabriel Popescu, Indiana University South Bend. Email: gpopescu@iusb.edu; *The Airline Industry and the Reterritorialization of the European Space*

The liberalization of air transport activities within the European Union (EU) has resulted in the reorganization of West European international air network from one dominated primarily by links between capital cities to a very cohesive web of routes from hubs to secondary cities, as well as between secondary cities. Such reorganization means that EU's air network has been reterritorialized in a more all-European way, where national borders do not matter much, rather EU borders become more relevant. Some East European countries however, have agreed to adopt the EU's air transport development model only in late 1990s in the context of their prospective EU membership. This research addresses the question whether the international passenger links of Poland and Romania have followed the West European pattern of airline network reterritorialization, as a result of their closer association with the EU. The change is measured by the number of routes, frequencies, and volume of passenger flows, when available. The preliminary results indicate that a revival of East European regional airports is under way. This trend started in mid-1990s when both countries' prospect for joining the EU increased. Since 2004 international traffic at secondary Polish and Romanian airports has skyrocketed. There are already, for example, more daily flights from Krakow to the United Kingdom, or from Timisoara to Italy, than from these two cities to their respective capitals. The network is poised to expand even more in the next years leading to further reterritorialization of the air network within the EU.

Keywords: Europe, reterritorialization, air transport

William Jenkins, York University. Email: wjenkins@yorku.ca; *Parish and performance in early twentieth-century urban America*

Geographers and historians of early twentieth-century North American cities have tracked the increasing partitioning of these cities' geographies between downtowns, industrial zones and residential districts. They have, more recently, grappled with other ways of studying and capturing experiences of urban 'modernity' during this era through the analysis of urban form and representation, material culture, and aspects of public performance. Such modernity did not proceed in a linear fashion without conflicts and struggles, of course, yet discussions of these remain quite secular in their focus. While the anxieties of religious leaders concerning the secularizing effects of such modernity have been noted, theological impulses within their denominations also promoted the organization of new forms of socialization and observance within particular times and spaces. These latter impulses provide the context for this paper's attempt to contribute a religious dimension to these urban modernity studies through the study of emergent geographies and practices of 'devotional Catholicism' in early twentieth-century Buffalo, New York. The newspaper of the Buffalo Catholic diocese, the Union and Times, provides the main source material for reconstructing these past practices within the context of the parish. Regular reports of parish activities provide glimpses of the practical routines structured by men and women that all operated, to various degrees, under the guidance of the Catholic clergy. Improvements in the standard of living for families by the early 1900s provided opportunities for senses of moral and religious conduct to become sharpened while parishes also provided venues for the molding of 'hyphenated'

ethnic identities.

Keywords: religion, identity, practice, parish, performance, urban, America

Hillary Jenks, University of Southern California. Email: hjjenks@yahoo.com; *Contesting and Creating Ethnic Community: The Political Landscape of Memory in Little Tokyo*

The neighborhood of Little Tokyo has long occupied a liminal place in the cognitive map of Anglo Los Angeles despite its proximity to City Hall and the downtown business district. But for Japanese Americans, Little Tokyo was the center of pre-internment community life and is still considered the ancestral or symbolic home of later generations of Japanese Americans in Southern California. It is the landscape through which collective memories of Japanese American experience are expressed, shared, and formalized. Many of the narratives about the past produced by both informal and institutional spaces in Little Tokyo project a narrative of sacrifice, suffering, and redemption in the context of internment and military service, a narrative that articulates neatly with American tropes of overcoming hardship as a process of "earning" citizenship and its benefits. However, such narratives are also contested in alternative interpretations and representations of these spaces that describe a special role for Japanese Americans in making demands of their government, rather than just sacrifices to it. The incorporation of draft resisters and the successful redress campaign into the commemorative landscape of Little Tokyo shares a claim on American belonging with the more traditional narrative of veterans and survivors, but also allows for more progressive visions of community and citizenship. The museum exhibits, memorials, and preservation projects of this landscape reveal a process of debate, disagreement, and sometimes consensus through which Japanese Americans have envisioned their relationship to the concept of America, to each other, and to other communities with shared experiences.

Keywords: memory, ethnic enclave

David Jensen, University of Washington. Email: daj5@u.washington.edu; *Taking the Bus to the Internet: Hidden Geographic Issues of the Digital Divide*

Most considerations of access to the Internet start with the assumption that a person is already seated at a computer. How that person gets to that computer has been little examined; considerations of distance, movement and time, especially at the scale of the individual person, have gone surprisingly unnoticed in study of digital divide. For the poor and homeless in particular, access to the Internet begins, not at the computer, but with a bus ride, or a walk to the local library or other public venue. This is the problem of "access to access." Further, once these groups gain access, they face additional constraints, such as time-limited computer/Internet access, constraints that are not faced by more privileged users of the same space. The poor and homeless are also less likely to benefit from municipal Wi-Fi projects which serve to re-purpose public spaces for those who already have access. I examine Seattle's public library system, the University of Washington library system and the adjoining University District neighborhood in light of how each provides and presents access to the Internet without considering the issue of travel. I also show that this issue also affects nominally privileged middle-class people. Finally, I offer a method to assess the space-time constraints that face those using public access to the Internet.

Keywords: Internet, information, information geography, digital divide, Wi-Fi, libraries, access, poor, homeless, death of distance.

Jennifer L.R. Jensen, University of Idaho, Environmental Science Program. Email: jjensen@uidaho.edu; Karen S. Humes, Ph.D., Department of Geography, University of Idaho. Email: khumes@uidaho.edu; Andrew T. Hudak, Ph.D., USFS Rocky Mountain Research Station, Moscow, ID. Email: ahudak@fs.fed.us; Lee A. Vierling, Ph.D., Department of Rangeland Ecology & Management, University of Idaho. Email: leev@uidaho.edu; *Comparison of Single Sensor vs. Integrated Data Analysis to Estimate Leaf Area Index Over A Range of Highly Variable Forest Conditions in Northern Idaho*

For coniferous forest systems, leaf area index (LAI) is the ratio of half of the total needle surface area per unit ground area. LAI is an important forest structural characteristic for quantifying biosphere-atmosphere carbon and water fluxes because it largely controls the fraction of photosynthetically active radiation absorbed by a vegetation canopy. Most previous attempts to estimate LAI from remotely sensed data have related field-measured observations with various spectral vegetation indices (VIs) derived from optical imagery. However, in conifer forests, accurate estimation of LAI is not only complicated by variable species composition, but also by the complex spatial structure of forest canopies. In this paper, we (1) compare in-situ leaf area observations with SPOT-derived LAI estimates to identify the functional relationships between LAI and various VIs, (2) quantify the capacity of lidar-derived height metrics generated from discrete-return lidar data to estimate LAI over a range of topographically diverse and structurally complex sample plots, and (3) determine the extent to which

integration of spatial and spectral datasets can more accurately estimate LAI than a single sensor.

Keywords: leaf area index, LAI, carbon, lidar, data integration

Kari Bolstad Jensen, Pennsylvania State University. Email: kbjl12@psu.edu; *Spaces for Working Children's Social Participation in Bangladesh*

Since Bangladesh ratified the United Nations Convention on the Rights of the Child in 1990 there has been a growing interest in creating social justice by increasing children's participation in society. Initiatives like child consultations on government policy and forums for children to discuss their specific problems have recently been institutionalized. This paper explores the legal, political, spatial, and cultural context for child participation in Bangladesh where marginalized children, such as child domestic workers (i.e. servants, mostly girls), are still largely left out of the participation process. Often their opportunities to participate in society depend on the physical environment, such as access to semi-public or public spaces where children are free to share their experiences with other child domestics. With the boom of high-rise residential buildings in Dhaka, most middle-class households now live in apartment buildings without yards, gardens or other open spaces nearby, decreasing the scopes for children and youths to find meeting places for social interaction outside formal arenas like schools. Few young domestic workers go to school. However, many of the high-rise buildings have a rooftop where the domestics can go to hang up laundry, look after their employers' kids and also interact with other young people in similar situations as themselves. I explore the children's use of this semi-public space as a site of resistance. Inspired by Foucault and Soja I discuss the rooftop as a heterotopia or a real-and-imagined space where the young workers can enjoy their childhood away from their employers' gaze.

Keywords: Working children, social participation, semi-public space

Laura B. Jensen, Yale University. Email: laura.jensen@yale.edu; Alex DeWire, Yale University. Email: alex.dewire@yale.edu; *New Hydropower Development in Costa Rica: Best Practice or Hidden Agenda?*

The growing concern over the environmental impacts (namely climate change) caused by the use of hydrocarbons has refocused attention on hydropower development. Although the Golden Age of dam building in the United States has come to an end, less developed countries are turning to hydropower as a means of providing "clean" electricity to accommodate growing demand. Costa Rica, a nation developed beyond its regional peers, already derives approximately 80% of its electricity from hydropower. Costa Rica's plans to construct another mid-sized hydropower dam are justified by a projected growth in demand for electricity due largely to increased immigration. As the dam project progresses, officials are taking measures to minimize the conflict - both environmental and indigenous ? that stymied previous incarnations of this project. They portray these new approaches as a model for sustainable hydropower development. Evaluating these claims from a political ecology focus, this paper examines the distributional justice of the future energy supply of the project, considering projected electricity production capacities versus projected demand due to industrial and population growth, and scrutinizing the project's implications for national energy security and economic growth through electricity exportation. By assessing the costs and benefits of the project to its various stakeholders ? indigenous populations, local communities, the national electricity company, the state, international consultants and financiers, and electricity importing countries ? this paper offers a critique of the impacts of Costa Rica's newest hydropower development project, allowing for a critical assessment of its purported viability as a "best practice."

Keywords: Hydropower, dams, Costa Rica, political ecology

Natalie K. Jensen, University of South Carolina. Email: jensen_natalie@hotmail.com; *Gender in the landscape of home: Growing up in Granger, UT*

To the casual observer, a neighborhood in present-day West Valley City, UT, seems an unremarkable, circa 1970's, middle-class neighborhood. To the people who live here, however, the landscape of the neighborhood is imbued with meaning. To them this is home, a home with a long history that goes back to the original settlement of the areas by Mormon pioneers, who came from Europe seeking a better life among a community of like-minded people. This place, which they call Granger, continues to be home for many members of the Jensen and Bangerter families. It is my intention to show how the patriarchal form of one family has imprinted itself on the landscape. The dominant gender role pattern in the original family household has been reproduced in the homes of their children, many of whom have decided to settle and raise their families in the same neighborhood in which they grew up. The decision of the children, particularly of the daughters, is a reinforcement of the familial order. I rely on personal interviews, photographs (both archival and recent), the unpublished journals of Jensen family members as well as my own remembrances, as the

family under examination is my own.

Keywords: landscape, gender, patriarchy, household, American West, LDS

Ole B. Jensen, Dept of Architecture & Design, Aalborg University. Email: obje@aod.aau.dk; *On the Fluid production of Meaning and Identity*

Cities and urban spaces have for long been described and understood in terms of their form, structure and morphology. However contemporary change in the socio-spatial relation has made it clear that urban analysts are in the need of a new vocabulary and new concepts. Thus an increasing number of urban theorists are turning towards flows and mobility practices as something that cannot longer merely be seen as an 'urban side effect'. Rather, they may be seen as a 'room with a view'. The thesis of this paper is that by shifting the balance between the concepts of 'armatures' and 'enclaves' we first of all get a much more sensible understanding of the contemporary city and the multiple mobilities configuring it. Secondly, it opens up a new agenda for the classic discussion about the city as a political space. By arguing for an understanding of armatures as meaningful spaces of interaction we may come to think of these as 'public domains' rather than just instrumental leftovers from the real city with is predominantly fixed agora as the main political sphere. In an age of increased electronic and mediated communication is makes no sense of thinking of the 'polis' as this bounded space. Rather the new networks and flows reconfigure the city as a networked space of multiple mobilities contributing to a fluid production of meaning and identity.

Keywords: urban mobility, power, place, identity

Wendy Jepson, Ph.D., Texas A&M University. Email: wjepson@geog.tamu.edu; *Political Ecology and Economy*

Recently scholars have examined fundamental concepts, such as ecology, culture, environment, and politics, in political ecology, a dominant subfield in human-environment geography. The introspective analysis and subsequent research directions have demonstrated how practitioners and theorists expanded in new directions beyond the subfield's close relationship with biophysical ecology. Despite these critical interventions, underlying economic assumptions in political ecology, grounded in Neo-Marxist political economy, remain unexamined and unchallenged. I briefly review the "economy" in political ecology, argue for a significant reorientation of economy theory that underpins political ecology research, and outline three opportunities to integrate other economies within the subfield.

Keywords: political ecology, human-environment geography, economic theory

Clark Hanna Jessie, University of Arizona. Email: jhc@email.arizona.edu; *Modernizing the Family: Development Strategies in Southeast Turkey*

Following the devastating social and economic effects of a 15 year civil war between Kurdish separatists and the Turkish military, Turkish state focus in the predominantly Kurdish Southeast Turkey is slowly shifting from one of military aggression to social development. In this paper I ask how both Turkish and Kurdish political apparatuses attempt to socially reproduce the modern family in Southeast Turkey through development efforts. Specifically, I look at government influences over marriage, education, and healthcare and investigate ways in which these strategies of self-management are constituted in spaces of state development and how they result in the creation of new social relationships that both coincide and conflict with predominant discourses of modernity. The contents of this paper are based on data collected in the city of Diyarbakir, a traditional stronghold for Kurdish separatist politics as well as a growing target for social reform. Ultimately, I argue that the systematic mapping and restructuring of the family unit are crucial tools for the national integration and modernization project in Southeast Turkey.

Keywords: Political geography, modernity, family, Turkey- Southeast

Nayna J Jhaveri, Colgate University. Email: njhaveri@mail.colgate.edu; *U.S. Petropolitics: Neoliberalism, Globalization, and the Geography of Oil*

Once the Iraq War began in 2003, the relationship between U.S. foreign oil policy and war became a new focus of academic inquiry. This work has mainly clarified how this need for petropolitical control is the outcome of the U.S. economy's intimate oil dependency that began with its increased reliance on imports from the 1970s onwards. While important, there is another more central dimension of this push for global petropolitical control that has been insufficiently examined. This involves deciphering how the United States has pursued the neoliberalization of the global petropolitical system so as to minimize economic chaos by bringing order to the global oil market in a time of increasing economic globalization. Therefore, this is not simply concerned with the need to make America a globally dominant power through secure access to oil but, rather, with reconstructing the globalizing world in the image of American economic ideologies. Indeed, this latter mission began soon after World War II but as the

geography of oil supply took on a new form around the end of the Cold War, this question of political regulation was pursued with intensified mendacity. This paper examines the details of how, with diminishing reserves in the West and key oil sources located in politically “unruly” locations, the American pursuit of petroimperialist control occurred through a combination of militarism and neoliberalist privatization. This paper contributes to a major rethinking of the relationship between natural resource control and American imperialism in both Cold War and post-Cold War periods.

Keywords: neoliberalism, oil, globalization, United States, imperialism

Hong Jiang, University Of Hawaii. Email: hjiang@hawaii.edu; *Critical analysis of environmental and ethnic discourse of China's West*

China's “western region development” program that was launched in 1999 has reenergized the notion of China's west. In its attempt to develop western China, the program, ironically, has highlighted the backwardness of the west. While this “backwardness” has manifested in economic realities, it has also been supported by disparaging environmental and ethnic discourses, which have roots in the imperial time and have only been accentuated by the Chinese socialist state since 1949. This paper explores the official environmental and ethnic discourse of China's west since 1999, taking into consideration historical context. Western China has harsher environments with its many plateaus and deserts; it has also been homes of many minority groups. As in other parts of the world, environmental and ethnic discourses are closely related. This examines two related discourses, each in comparative perspectives. The first is environmental discourse of “ecological construction,” which centers on active human rebuilding of the degraded environment. In contrasting this discourse with the notion of “ecological restoration” in the US, I wish to shed light on the perceptual foundation and practical limitations of “ecological construction.” Second, I will examine the discourse of the minority people in the western China, which, in its implication of the backwardness and cultural insufficiency of the minority people, mimics the discourse of the “third world.” The last part of this paper will consider the connection between environmental and ethnic discourses, and analyze detrimental government policies that are borne of these discourses.

Keywords: China, China's west, ecological construction, ethnic discourse

Ziying Jiang, Clark University. Email: zjiang@clarku.edu; *An Empirical Parameterized Road Extension Model*

Road development is an important proximate cause of deforestation and consequent biodiversity loss. Proximity to roads is therefore often an explanatory variable in land change models. To date most land change models regard road as an exogenous and static factor. In more instances, road development plays an endogenous factor in the land cover change. The interaction between road extension and land use calls for an integration of road simulation into land change model to improve spatial certainty. There have been few attempts to simulate road development to support land change model. This study simulates new roads extending from existing roads. Location of new road is determined through two consecutive steps: defining endpoints, and locating routes. Endpoints of road are systematic randomly chosen, or determined by land cover transition potential. After endpoints are identified, routes linking endpoints and current roads are sought following the lowest cost path. Structural parameters such as average road length and road spacing are employed to control the network pattern during road development. The road extension model is incorporated in the Land Change Modeler for Ecological Sustainability (LCM) in April 2006, as part of the IDRISI GIS. The dynamic integration will improve the spatial explicit and long-term certainty of land change simulation.

Keywords: Land cover change, roads, simulation, model, spatially explicit

Jong-Heon Jin, Seoul National University. Email: metaphor7@empal.com; *The Rediscovery of the Backbone Mountain Range, Paektudaegan, in Korea*

This paper considers changing scientific understanding of the mountain chain-Paektudaegan-that runs the length of the Korean peninsula, and its social and political ramifications. Traditional Korean science, rooted in a broader Chinese environmental theory understood the mountains in terms of pungsoo, the unique Korean version of the Chinese Fengshui. The traditional understanding of the mountains was transformed in the colonial period of the early 20th century by Japanese geologists such as Koto Bunjiro who based his work on the geological concepts of modern European science. The mountains were re-mapped and divided into multiple geological provinces that bore no ‘natural’ connection to the territory of the Korean state. This ‘modern’ scientific representation was accepted by Korean geographers, after independence from Japan. Recent decades have witnessed a popular revival of interest in traditional understandings of the mountains that is closely linked to forms of embodied practice in the mountains, such as watershed walking rather than climbing individual peaks, which eventually aroused scholarly debates. I examine the contested representation of the whole national territory as a symbolic landscape, where the discourse of geography as

scientific knowledge is verified, historicized, and contested in the context of the reworking of pre-modern, indigenous, geographical epistemology. The rediscovery of Paektudaegan emphasizes the role of popular geography, its practice, knowledge, and institution, in the production and circulation of geographical knowledge. The recovery of traditional geographical knowledge, and its contestation with Koto's scientific knowledge, reinforces its discursive nature, while also emphasizing the practical engagement in the construction of geographical knowledge.

Keywords: landscape, mountain range, pung-soo, geographical knowledge

Zhenyu Jin, Geography Department, University of Utah. Email: zhenyu.jin@geog.utah.edu; Nick Clinton, CAMFER, University of California, Berkeley. Email: ncClinton@nature.berkeley.edu; Peng Gong, CAMFER, University of California, Berkeley. Email: gong@nature.berkeley.edu; Zhiliang Zhu, USGS EROS Data Center, Sioux Falls, SD. Email: zhu@usgs.gov; Bing Xu, Geography Department, University of Utah. Email: bing.xu@geog.utah.edu; *A comparison of methods for mapping cheatgrass abundance in central Utah*

Cheatgrass, Downy Brome (*Bromus Tectorum*), is an exotic winter annual weed and has invaded rangelands of the western US. Mapping geographic distribution of cheatgrass abundance will help to combat the cheatgrass-induced debilitation of western ecosystems. In this study, we compared a set of methods for mapping cheatgrass abundance over the region of central Utah. Landsat TM images of two time periods in 2006 were obtained to capture the early phenology (green-up and senescence) of cheatgrass. We used 247 field plots with the ocular estimation of cheatgrass abundance for training and test data. After applying atmospheric and topographic correction of the TM images, different vegetation indices, such as NDVI, SR, SAVI, and EVI, along with the reflective bands of TM data were calculated as explanatory variables, and the abundance of cheatgrass within every pixel was used as response variable. Then four methods including multiple linear regression, logistic regression, regression tree, and neural network were used to predict the cheatgrass abundance. The performance of different vegetation indices and methods in predicting cheatgrass abundance were evaluated based on the error levels.

Keywords: Invasive species, Cheatgrass, Regression tree, Neural Network, Logistic Regression, Landsat

Paola Jiron, Student. Email: p.a.jiron@lse.ac.uk; *Mobile Place-making in Santiago de Chile. The experience of Place Confinement and Place Autonomy*

Places seen as the location of particular sets of intersecting social relations and intersecting activity spaces (Massey, 1985) can be characterised as open, permeable and always in construction, as well as unbound and mobile. Place is constituted through reiterative social practices, one of which is the practice of urban daily mobility, crucial to analysing contemporary urban living. Understood as socially produced motion, mobility implies giving social meaning to the practice of moving from one place to another and suggests the possibility of places being appropriated and transformed during this practice, generating mobile places. Bourdieu (1999) identified confined places as those where people with financial, cultural and social capital have power over space and tend to self-segregate, while people with scarce resources are confined to places they do not choose. Under the mobility lens, this appears as a double exclusion: spatially fixation with agglomerated vulnerability, and limited urban access possibilities, creating parallel cities, where people overlap but never meet. Based on this, this paper will introduce the idea of place confinement and place autonomy in the practice of urban daily mobility, where place confinement relates to the restriction or limitation of individuals to place-making and place autonomy to the freedom of creating mobile places. Using ethnographic research on urban daily mobility practices in Santiago de Chile, this paper will analyse how, despite high levels of mobility in urban areas, there are social, physical, economic, cultural boundaries that contribute to the place confinement or where the experience of mobility generates place autonomy.

Keywords: urban daily mobility, place making, mobile places, Chile

Scott Justo, PhD, Worcester Polytechnic Institute. Email: sjusto@wpi.edu; *US state carbon emissions trends: Variances, policies and politics*

As US states have taken a lead role in developing domestic energy policy to reduce fossil fuel consumption and address climate change concerns, carbon emissions indicators have become increasingly central to the politics, discourses and mechanics of state energy policy development. Sustainable energy advocates use carbon indicators in narratives of accountability and opportunity, competing policy analysts model the costs and benefits of alternative carbon policies and futures, and legislators and regulators enact policies with carbon indicators embedded as metrics of progress. Despite this significance, surprisingly little research has looked at empirical differences in state carbon emissions trends, nor the qualitative relationship of emissions accounting methods to policy develop-

ment. This paper presents a framework for carbon emissions assessment and reports on key differences in emissions trends among states, and discusses the implications of each for state-level climate change policy and politics.

Keywords: Carbon emissions assessment/climate change/states-US/energy policy

Injeong Jo, Department of Geography, Texas A&M University. Email: injeong@geog.tamu.edu; *Aspects of Spatial Thinking in Geography Textbooks*

The present research examines questions embedded in four current secondary geography textbooks to evaluate the degree to which the following three components of spatial thinking are incorporated: concepts of space, tools of representation, and processes of reasoning. A model to assess the questions is developed from the literature on spatial cognition, geography education, and the development of thinking skills. The spatiality of the concepts and skills featured in about 3,000 questions sampled from the geography textbooks was analyzed. The stimuli for spatial reasoning and the degree of use of spatial representations were also measured. Preliminary results indicate that over 30 percent of the questions examined have little to do with spatial thinking. Most questions requiring knowledge about spatial concepts can be answered by knowing only simple concepts such as location and place-specific identity rather than complex concepts requiring the identification of spatial pattern and associations. Questions encourage students to use representations as a stimulus for reasoning, but the level of cognitive skills required is relatively low. Students are asked to recall memorized geographic knowledge rather than to infer, hypothesize, and generalize. The development of questions to help students practice complex processes of spatial thinking is necessary.

Keywords: Spatial thinking, Geography education

Pascale Joassart-Marcelli, Assistant Professor, University of Massachusetts. Email: pascale.joassart@umb.edu; Alberto Giordano, Assistant Professor, Texas State University. Email: a.giordano@txstate.edu; *Does Local Access to Employment Services Reduce Unemployment? A GIS Analysis of One-Stop Career Centers*

The paper uses Geographic Information System (GIS) to investigate (1) the location of One-Stop Career Centers, (2) their level of accessibility to unemployed workers of various demographic groups, (3) their proximity to employment opportunities and (4) the relationship of these spatial characteristics on Census tract unemployment. We build on the nonprofit literature on accessibility to social service providers and on spatial mismatch research that emphasizes the gap between places of work and residence. We argue that One-Stops can play an important role in bridging this gap. We find that, in the southern California, One-Stops are well positioned to serve the unemployed, although accessibility varies by race/ethnicity, age, and location. Access to One-Stops reduces local unemployment, particularly in neighborhoods with limited employment opportunities. This relationship is stronger for groups who experience limited mobility due to gender or race, such as black and female job seekers.

Keywords: Accessibility, Workforce Development, GIS, Spatial Mismatch

Hubert Job, . Email: hubert.job@lmu.de; Ludger Brenner, . Email: brenner@colmich.edu.mx; *Actor-Oriented Management of Protected Areas and Tourism in Mexico*

This paper adopts a political-ecological approach to investigate the management-related problems of nature based tourism in Protected Areas (PA) that occur in developing and recently industrialized countries alike. In the case of different Mexican Biosphere Reserves, structured and semi-structured interviews were conducted with various stakeholders: visitors, entrepreneurs and key informants from governmental organizations and NGOs. Focusing on the interests, strategies and specific actions of the actors involved in PA management and tourism business, different spatial levels are of immense importance. Furthermore, the conflicts involving various stakeholders and concerning the unequal distribution of power among the actors need to be considered. The study results show that with the existence of many actors characterized by conflicting interests and opposing strategies, not only a more participative form of PA management is put at risk but also sustainable development in general. In addition, ill-defined and poorly coordinated activities of governmental stakeholders as well as the competition among actors at local and regional level hinder the successful implementation of tourism projects with local participation. Therefore it is not surprising that PA councils made up of representatives of every stakeholder group did not prove effective. This leads to a new approach by e.g. offering more power to widely accepted NGOs. These then can act as mediators between the conflicting interests of different actors and finally coordinate the development of an integrative management plan trying to foster sustainable development within the reserves.

Keywords: Protected Areas, Tourism, Sustainable Development, Mexico

Christine L. Jocoy, Ph.D., California State University, Long Beach. Email: cjocoy@csulb.edu; Vincent J. Del Casino, Ph.D., California State University, Long Beach. Email: vdelcasi@csulb.edu; Devon T. Nelson, California State University, Long Beach. Email: ; Aregnaz Mooradian, California State University, Long Beach. Email: ; Cynthia Schantz, California State University, Long Beach. Email: ; *The Spatial Politics of Homeless Mobility and the Negotiation of Transportation in Long Beach, CA*

This study examines the travel behavior of adults experiencing homelessness in Long Beach, CA. Central to the research is an understanding of how public transit and access to other modes of transportation help or hinder the ability of homeless individuals to negotiate "spaces of containment" - sites in the city that regulate the movement of homeless individuals through social stigma and/or public laws. Additionally, the study identifies how homeless individuals live within and struggle against socially and spatially restricted mobility. This research is based upon two sets of data: focus groups with self-identified homeless men and women at a local service organization and a survey of adult homeless individuals at various sites in Long Beach, CA. Preliminary analysis suggests homeless mobility is affected by shifting costs of travel, transit schedules and route locations, public stigmatization of the homeless, laws governing the use of public space, homeless individuals' self-perceptions of discrimination and their maintenance of social networks. Moreover, gender and (dis)ability further complicate the use of public transit in Long Beach, creating different patterns of mobility among different homeless populations.

Keywords: homelessness, mobility, travel behavior, stigma, transportation

Gardar Johannesson, Lawrence Livermore National Laboratory. Email: johannesson1@llnl.gov; *What Spatial Statistics has to Offer in Cases of Incomplete and Misaligned Data*

Geographers and the user of GIS are often faced with incomplete data and data at various scale (misaligned data) in their work. Examples include data missing for some counties in an analysis carried out on the county-scale (incomplete data problem) and data reported on the county-scale while it is needed at the zip-code-scale (change-of-support problem). In the incomplete data case, one needs to estimate (or rather predict) the unobserved county variables. Similarly, in the change-of-support problem, one needs to predict a given variable at a finer scale than it is reported at. In both cases, a variable that is not directly observed needs to be predicted. We give overview of statistical models that can help in this regard. In particular, we focus on areal-based spatial models and the use of external information (explanatory variables) to improve on the fidelity of these models. The models are demonstrated using both synthetic data and spatial data related energy economic models.

Keywords: spatial statistics, areal-data, misaligned data, change of support, missing data

Harley E. Johansen, University of Idaho. Email: johansen@uidaho.edu; Anna Panova, St. Petersburg State University. Email: yours_anna@mail.ru; *Location Decisions and Survival: Characteristics of Surviving FDI Firms in Post-Soviet Space*

This paper addresses the problem of business survival through spatial or non-spatial (e.g., management and operational) changes in the context of foreign direct investment (FDI) into post-socialist, emerging market countries. In the case of former socialist transition countries, FDI inflow was primarily from the west for labor and other factor cost advantages as we have witnessed during the past decade. This research project examines characteristics of surviving FDI firms that were among the earliest to invest in Estonia, Latvia, Lithuania, and St. Petersburg/Leningrad Oblast, Russia. It compares adaptation trends, location change, and reasons for these, with firm characteristics such as size, source country, host setting, and original location decisions. Data from the original survey and company visits in 1995 and 1996, are compared with data for each surviving company ten years later. The paper describes a set of cases selected from a larger study of Nordic FDI firms, and examines the common elements among these firms in their experience since entering the Baltic region. The surviving companies exhibit adaptive strategies that result from changes in local and national economies, and in the case of the Baltic countries, the entry into European Union, along with local development trends.

Keywords: Baltic region, foreign investors, post-Soviet, business survival.

Ola Johansson, University of Pittsburgh at Johnstown. Email: johans@pitt.edu; Michael Cornebise, Eastern Illinois University. Email: mwcornbise@eiu.edu; *Andersonville, Home of the Viking Breakfast: Neighborhood Identity and Marketing in Neoliberal Urbanism*

Ethnic neighborhood revitalization is evident in Chicago's attempt to rethink, rework, and reinvent its ethnic heritage. This process is occurring politically both on the city and the neighborhood level. Chicago is eager to display a cosmopolitan urban environment that is consummate with its prominent status as a world city. In this case study, we explore Andersonville, a

historically Swedish neighborhood that retains its ethnic identity through an active branding process. While this is an expression of commodified ethnicity in an era of multi-cultural and neoliberal ideology, multi-scalar forces such as gentrification, immigration, and demographic change act as constant threats to established patterns of neighborhood identity.

Keywords: Chicago, neighborhood change, ethnic marketing, gentrification, neoliberal cities

Rebecca A. Johns, Ph.D., Univ Of South Florida St. Petersburg. Email: rjohns@stpt.usf.edu; *Assessing the Ecological and Social Impact of Voluntary Simplicity*

More than 50 million Americans claim to be simplifying their lives in some way. The voluntary simplicity movement has gathered strength over the past several decades, and is now widely recognized in popular culture as a group of people hoping to reduce the environmental impact of their lives, limit their compulsion to acquire material things, and increase their emotional, spiritual and personal happiness. As of yet, no rigorous assessment has been conducted of the impact of the movement on either the social fabric of American life or the environmental problems that plague us. This project takes the first step in assessing the ecological and social implications of the simplicity movement by investigating the extent of the behavioral transformation experienced by individuals who profess to be simplifying their lives. By definition, voluntary simplicity attracts individuals of high socio-economic status who wish to willingly reduce their material impact on the environment and restructure their lives in a variety of ways. Through on-line survey questionnaires, we were able to assess the actions of self-identified voluntary simplicity participants to determine if the movement is effecting change in people's behavior, and at what scale and magnitude this change is occurring. This paper will present the preliminary data and discuss further research.

Keywords: simplicity, sustainability, social movements.

Renee Nicole Johns, Geography Student, AAG. Email: reneej@email.arizona.edu; *Valley Fever and Rodent Activity in Arizona*

Renee Johns AAG Poster Presentation Abstract Coccidioidomycosis (Valley Fever) is an environmentally mediated infectious disease endemic to the Pacific Southwest, particularly Southern Arizona. Valley Fever is produced by inhalation of spores from the soil-dwelling fungal pathogen *Coccidioides posadasii*. We link field observations and vegetation indices derived from Landsat Thematic Mapper data to investigate whether rodent populations, thus Valley Fever, rise during times of increased precipitation and vegetation growth. Our research concentrates initially on Pima, Pinal and Maricopa counties in central and southern Arizona, where we hypothesize local rodent activity, predicted by vegetation amount, creates the hospitable organic environment required for fungal growth

Keywords: Valley Fever, Rodent, Remote Sensing, Arizona

Sarah Johnsen, Centre for Housing Policy, University of York. Email: sj510@york.ac.uk; *Criminalisation or 'Coercive Care': The Use of Enforcement Interventions with People who Beg in England*

The activities of street homeless people have been legislated against for many decades, but recent years have witnessed a marked increase in the use of punitive measures intended to combat aspects of 'street culture' in England. Many of the existing powers used by the police to arrest members of the street population derive from the 1824 Vagrancy Act, but authorities have become ever more creative in their use of civil law to deter people from street drinking, begging and sleeping rough in the city. In particular, the recent advent of the Anti-social Behaviour Order (ASBO) has fundamentally altered the conduct and consequences of enforcement initiatives, as the penalties for breaching ASBO conditions are far greater than those imposed for the same offence under criminal law. This paper explores the motives behind this legislative shift and the implications for people who beg, examining in particular the tactics they use to render aspects of their daily lives less visible, the geographical displacement of street activities, and diversion into acquisitive crime. It assesses the degree to which such initiatives serve to criminalise people who beg and/or reflect a desperate attempt of authorities to 'help' them when all other approaches have 'failed', and explores the extent to which the geographically uneven articulation of enforcement reflects contours of tolerance toward the vulnerable other.

Keywords: homelessness, begging, enforcement, criminalisation, revanchism, social exclusion

Brian E Johnson, Indiana University. Email: bejohns@indiana.edu; *Nature, Privacy, and Affordability: What Motivates Exurban Migration?*

Current demographic trends indicate that the 21st century will be one of exurban growth as more Americans seek out countryside home sites and their accompanying lifestyles. What exactly are these exurban migrants seeking in the countryside? Academic research finds three general characteristics in the exurban population shift. First, exurbanites are seeking home sites in close proximity to

natural areas. Second, exurbanites are isolating themselves from shopping, entertainment, jobs, and doctors. Third, exurbanites are drawn to countryside areas because of the affordability of such locations. This paper uses individual semi-structured interviews to support or refute these three commonly held characteristics of exurban migrants. Using snowball sampling, 39 exurbanites were asked why they moved to their current home site to assess the validity of the literature's "conventional wisdoms" concerning exurbanite migration motivations.

Keywords: exurb, exurbs, exurbia, migration, suburbia, suburbs, suburban

Corey Johnson, University of Oregon. Email: cjohns11@uoregon.edu; *The geopolitics of EU regional policy: Evidence from Germany and its eastern neighbors*

In the paper, EU-funded projects aimed at promoting economic and social cohesion in the border region between regions in eastern Germany and their neighbors to the east and south are examined in their cultural and political contexts. Evidence from Saxony (FRG), Northern Bohemia (CZ), and Lower Silesia (POL) suggests that cultural practices and historical legacies in this part of Mitteleuropa complicate the view of regional policy as a driver of economic development, as envisioned both by local and EU elites. Importantly, in light of the ever-charged political discourse surrounding the nearly two-decade-old project of 'rebuilding' eastern Germany ("Aufbau Ost"), attempts at mobilizing transboundary scales in the region are inseparable from domestic consensus in Germany that something must be done to 'fix' a massive regional development project that to date shows too few successes. In this context, media and elite writings of transboundary space offer insights into how the 'east' is viewed from the German perspective. The paper argues that the politics of scale surrounding the largely national project of Aufbau Ost are largely inseparable from the ways in which place and space to Germany's east are viewed.

Keywords: political geography; economic geography; post-socialist geography; critical geopolitics; eastern Germany; European Union

Donald L. Johnson, University of Illinois. Email: dljohns@uiuc.edu; Diana N. Johnson, Geosciences Consultants. Email: dn-johns@uiuc.edu; *The Global Biomantle: Theory, Exposition, Analyses*

A diorama at Elkhorn Slough Visitor's Center, Monterey Bay, California shows a bird standing in a bucket of slough mud. The caption reads: Millions of organisms lie beneath the feet of this Marbled Godwit as it probes for food. What lives in this much mud? 500 billion bacteria, 500 million diatoms, 50,000 protozoa, 50,027 worms, 5,000 crustaceans, 39 clams. The display epitomizes the biomantle concept as applied to Earth's substrate environments. Our purpose is to demonstrate the breadth and usefulness of the biomantle concept as applied to the global subaerial-subaqueous substrate. Our methods are theoretical, expository, and analytical. The biomantle is the organic-rich, differentiated zone in the upper part of soils produced largely by bioturbation, aided by subsidiary processes (i.e., those emphasized in conventional genetic models — shrink-swell, leaching-precipitation, eluviation-illuviation, etc.). Bioturbation occurs in four process styles: upward biotransfers, biomixing, cratering, and volume increases. These lead to one-layered biomantles — those morphologically isotropic with regard to particle size, where bioturbated particles form a single layer; or two-layered biomantles — those morphologically anisotropic with regard to particle size, where bioturbated particles form two layers, the lower being a stonelayer of gravels. Process vector analysis is a useful device that weights the relative effects and/or rates of two or more coacting processes. Its usefulness is maximized when joined with biomantle principles. We conclude, and submit, that incorporating biomantle principles in our teaching and research strategies automatically opens new doors of understanding on how Planet Earth functions as a bioreactor.

Keywords: biomantle, soils, geomorphology, theory, bioturbation

Elizabeth R Johnson, MA, University of Minnesota - Minneapolis. Email: joh01868@umn.edu; *Is domestic tourism a domestic phenomenon? Development, the state, and global connections in the mountains of Western Sichuan, China.*

In the past 20 years, the creation of a domestic tourism economy has allowed the Hengduan Mountains of Western China and the Tibetan people who live there to gain significance within national narratives. Despite the heightened visibility and stability that tourism has brought to the region, political and economic options afforded to the resident population remain limited. The contradiction begs the question, who does tourism in the Hengduan Mountains benefit, and under what conditions are these arrangements of people, place, and capital produced? To approach this problem, I argue that a focus on domestic processes alone fails to grasp the entire picture. For the state, this commodification of natural landscape and ethnic tradition represents an attempt to preempt threats posed by environmental and ethnic instability and their potential to incite the development of alternative political spaces. However, these solutions put forth to confront these threats cannot be disconnected from

the global processes which enable and drive them. As such, this paper examines how the introduction of global technologies and discourses (specifically, capitalist development, and biodiversity conservation) have fostered the development of tourism in the Hengduan Mountains and, subsequently, allowed the state to secure a claim on its territory.

Keywords: China, tourism, conservation

Holly J. Johnson, University of Wisconsin - Eau Claire. Email: johnsohj@uwec.edu; Harry M. Jol, University of Wisconsin - Eau Claire. Email: jolhm@uwec.edu; Curt D. Peterson, Portland State University. Email: petersonc@pdx.edu; *Imaging Tsunami Deposits in Oregon (USA) Using Ground Penetrating Radar*

To better understand tsunami processes associated with Cascadia subduction zone earthquakes, ground penetrating radar (GPR) transects were collected. Multiple mega-earthquakes, which often create tsunamis, have occurred in the Pacific Northwest of the USA and with increased population in the region, these multiple hazards pose a significant threat to the coastal communities. GPR, a geophysical tool used to image the subsurface, was used at numerous sites to investigate the extent of paleo-tsunami inundation and the magnitude of wave run-up. Six GPR transects were collected in Cannon Beach, OR using 100, 225, and 450 MHz antennae while 14 transects were collected in Seaside, OR using 225, 450, and 900 MHz antennae. These transects ranged from 10 to 690 meters in length and depth of penetration ranged from 0.5 to 10 meters. Laser leveling surveys were carried out to gather topographic data which was used to topographically correct the GPR transects. Both the 1964 (Alaska earthquake) tsunami and the 1700 A.D. Cascadia tsunami were imaged in the project. Both of these tsunamis left extensive sand sheets on the investigated landscape. The internal stratigraphy of the 1964 tsunami deposits was imaged, showing horizontal to sub-horizontal stratification near or on the surface and the 1700 A.D. tsunami deposits, which lie beneath peat and marsh deposits, were imaged. In addition, tsunami pour over fans from the 1700 A.D. tsunami were also mapped.

Keywords: coastal geomorphology, ground penetrating radar, tsunami, Pacific Northwest

Jay T. Johnson, PhD, University of Nebraska. Email: jjohnson18@unl.edu; *Place-based learning and knowing: Critical pedagogies anchored in Indigeneity*

For Indigenous peoples, knowledge and science are written onto the landscapes our languages “talk into being” through the “individual and collective consciousness of our communities (Cajete, 2000: 284).” Our landscapes are the storied histories and sciences of those knowledges pushed aside by the ‘gray uniformity’ of globalization and its predecessor, colonization. It is in places that we can still glimpse alternatives to this gray uniformity of globalization which brings with it a rhetoric of capitalism, modernism, Western science and space. It is this rhetoric of space which seeks to erase our storied landscapes, destroying the libraries embedded within toponyms, creating a terra nullius: an empty land awaiting a colonial history. As Paulo Freire has challenged us to see, critical consciousness requires us to “read our world,” decoding the images of our own concrete, situated experiences with the world (1987: 35). A critical pedagogy of place recognizes the concrete experiences of communities through shared histories and challenges based within a politics of place. A critical pedagogy of place seeks to decolonize and reinhabit the storied landscape through ‘reading’ the ways in which our peoples, places and environments have been injured and exploited. Indigeneity is an identity based in a relationship of ‘reciprocal appropriation’ with our storied landscape; one that requires us to continual reinvest ourselves into the places/stories within our libraries. This paper challenges us to read the places in the world as ‘political texts,’ engage in reflection and praxis in order to understand, and where necessary, to change the world.

Keywords: Indigenous peoples, place, Paulo Freire, globalization

Kenneth Johnson, M.R.P., PH.D., SUNY-Oneonta. Email: johnsoka@oneonta.edu; *The Huntington Family and Rail Transportation in California*

In the late nineteenth and early twentieth centuries, various members of the famed Huntington family were responsible for the construction of some of the most important transportation facilities in the State. This paper will examine their role and the lasting impact they made upon settlement patterns and real estate development in California in the late nineteenth and twentieth centuries.

Keywords: Huntingtons, railroads, streetcars, California Southern

Kevin Johnson, . Email: kjohn258@gmail.com; Kevin M Johnson, . Email: kjohn258@gmail.com; *Energy Efficiency in San Francisco's Green Business Program*

The goal of this paper is to access the effectiveness of the San Francisco Green Business Program in promoting energy efficiency. Efficiency programs on both the federal and state levels have been instrumental in reducing state energy consumption for decades, but in the development of green businesses lay a large potential to further increase energy efficiency. The San Francisco Green Business Program has been successful in promoting the adaptation of energy saving technologies and practices. What is notable, are the discrepancies between how San Francisco accounts for its energy conservation techniques and how it is done for the utility companies making direct comparisons difficult. Compliance for the San Francisco Green Business Program is based on a hard-to-quantify questionnaire based on three business types: office/retail, restaurant and hotel. The highest percentages of the completed measures were either behavioral (i.e. changing behaviors to increase energy efficiency) or completing measures that incorporate large segments of energy conservation such as using energy star appliances. Where possible, direct comparisons are made between the data provided by San Francisco green businesses and PG&E. This is most prevalent in the lighting segment in switching out incandescent light bulbs with compact fluorescent and using smaller diameter fluorescent tubing. Despite the limited nature of quantifiable data, this is a necessary first step in beginning to analyze the new Green Business Program performance in San Francisco. This program will undoubtedly serve as a model for future green business programs both within California and nationally.

Keywords: Green Businesses, Energy Efficiency, Lighting, San Francisco

Lee F Johnson, California State University, Monterey Bay. Email: ljohnson@mail.arc.nasa.gov; Thomas Trout, USDA Agricultural Research Service. Email: Thomas.Trout@ars.usda.gov; Jim Gartung, USDA Agricultural Research Service. Email: jgartung@fresno.ars.usda.gov; John Hornbuckle, CSIRO Australia. Email: john.hornbuckle@csiro.au; *Satellite Mapping of Horticultural Crop Cover in California's San Joaquin Valley - Potential for Irrigation Water Resource Management*

Estimation of crop water use, and associated irrigation demand, is commonly addressed by application of so-called crop coefficients, which express water loss as a proportion of evapotranspiration from a well-characterized reference crop such as grass or alfalfa. For horticultural crops, however, planting date, planting density, variety, and cultural practices can vary widely. It is thus impractical to specify, a priori, a crop coefficient profile that accommodates these potential sources of variability. It is generally recognized that percent canopy cover, as an indicator of intercepted sunlight, is positively related to crop evapotranspiration. Fieldwork was performed in California's San Joaquin Valley to measure canopy cover in support of satellite-based mapping. Radiance-calibrated Landsat Thematic Mapper image data were then converted to top-of-atmosphere (apparent) reflectance and subsequently to normalized difference vegetation index. Over two consecutive seasons, a strong linear relationship ($r^2 > 0.9$) was observed between vegetation index and field measurements up to the point of “effective full cover” (~75%). This relationship was subsequently used to map canopy cover throughout a 20 x 20 km study region. Crop water loss was then mapped by incorporating routine ground measurements of reference evapotranspiration collected at point locations by the California Department of Water Resources. The study results demonstrate the feasibility of using vegetation index imagery for improved, spatially explicit parameterization of crop coefficient-based models in regions of high-value horticultural production.

Keywords: evapotranspiration crop coefficients, horticulture, Landsat, NDVI, San Joaquin Valley

Leigh T Johnson, University of California, Berkeley. Email: leighjohnson@berkeley.edu; *Extraction Frontiers and Climate Change in the Arctic: Accumulation by Degradation*

As human-induced climatic change raises average global temperatures ever higher, the planet will experience major ecological changes and attendant economic and social transformations of world-historical import. This demands an understanding of how institutions of capital function as they encounter and anticipate the effects of global warming. I propose the term “accumulation by degradation” to refer to the process by which institutions of capital take material advantage of the physical consequences of global warming and turn particularly affected regions such as the Arctic into sites for capital accumulation. Bringing recent advances in the quantification of earth's changing radiative balance into conversation with Marxist environmental historians, I suggest that anthropogenic perturbations of the climate system beginning in the Industrial Revolution laid the groundwork for a metabolic rift on a truly planetary scale. Although this rift threatens to generate systemic crises of accumulation in the future, in the short term it is already generating tremendous possibilities for new rounds of capital accumulation. Changes in Arctic ice cover have opened up spectacular

expanses of geographical territory and previously uncommodified stores of raw materials to capitalist development. Chief among these is an expanded commodity frontier for hydrocarbons, which comes fortuitously at the moment that global capital faces an unpredictably fluctuating world oil supply. Symmetry emerges as the previous combustion of fossil fuels by industry generates the geophysical changes that are then instantly exploited in order to identify, extract, and combust additional hydrocarbons.

Keywords: climate change, metabolic rift, accumulation, resource extraction, Arctic

Lynn E. Johnson, Ph.D., University of Colorado At Denver - Civil Engineering. Email: Lynn.Johnson@cudenver.edu; Brian H. Muller, Ph.D., University of Colorado at Denver - Planning and Design. Email: Brian.Muller@cudenver.edu; Fred Nuszdorfer, MEng-GIS, M.S., University of Colorado at Denver - GIS. Email: Fred.Nuszdorfer@cudenver.edu; John Wyckoff, Ph.D., University of Colorado at Denver - Environmental Sciences. Email: John.Wyckoff@cudenver.edu; *Regional Accounting Of Cumulative Environmental Effects*

A GIS-based approach for regional accounting of cumulative environmental effects was designed to identify the cumulative impacts on the environment which result from the incremental impacts of multiple transportation and other projects, and related urbanization in the Denver metropolitan region. To identify and characterize critical resources we held seven workshops with agency and other environmental professionals which addressed CEA procedures in the various domains including land use change, habitat and threatened and endangered species, water resources, and community impacts. Then we designed and implemented a demonstration project focusing on land use change, habitat and water quality. GIS and remote sensing tools were demonstrated to provide the means for data and models integration, thus providing a technical foundation for characterizing environmental effects. Based on project results, we argue that the GIS-based approach is feasible and will provide valuable support to both project-specific assessment of cumulative impacts and regional transportation planning.

Keywords: GIS, environmental impacts, transportation planning

Mark S. Johnson, University of British Columbia. Email: msj8@cornell.edu; Johannes Lehamann, Cornell University. Email: CL273@cornell.edu; *Decadal Dynamics in Watershed Loadings in a Mixed-Land Use Watershed*

Stream water loadings of nutrients and pollutants to water bodies integrate internal and external processes that vary in both space and time. While land cover dynamics can be assessed remotely, changes in land use practices within a land cover class can be difficult to ascertain. Here we explore nitrate and alkalinity fluxes for 1972-2005 from the Fall Creek watershed, a 326 km² mixed-land use catchment in western New York. Annual watershed loadings were computed for each year and normalized by dividing loading fluxes of water quality constituents by annual discharge. Normalized loadings for both nitrate and alkalinity increased during the 1970s and 1980s, peaking in the early 1990s. Both nitrate and alkalinity fluxes then decreased from 1992 through 2005. In this paper, we explore the driving factors for these trends by looking at internal factors such as changes in land use/land cover, dynamics in agricultural production and fertilizer use, and external factors such as atmospheric deposition. Decreases in agricultural acreage within the watershed during the 1990s is detected in remotely sensed data as well as through farm-level data compiled by the USDA. This change appears to be replaced by regenerating forest cover. The implications for these findings on downstream water quality and carbon cycle dynamics are also discussed.

Keywords: land use/land cover change, watershed biogeochemistry

Tamara M Johnson, University of North Carolina - Chapel Hill. Email: johnson5@email.unc.edu; *Community, Identity, and All That Jazz: An Examination of The Galaxy Jazz club's role within the Coloured Community in Cape Town*

Music and dance have an intensive emotive affect on the listeners and participants involved in the spaces of music production. In times of hardship, such cultural expression becomes critical for communities seeking escape, solace, and commiseration. Cape Town Jazz is a unique form of cultural expression for the coloured community in Cape Town, South Africa. Gaining popularity in the mid-twentieth century, Cape Town jazz is located in the social/political context of forced removals, Apartheid and the struggle against it, and in the challenges of the New South Africa. Throughout this time period, jazz clubs served as spaces of resistance, release, and the (re)creation of a Coloured identity both during Apartheid and in post-Apartheid Cape Town. The Galaxy is a jazz club established in the early 1980s and located in the community of Athlone, a Coloured township outside of the Cape Town city center. This paper traces the role of the Galaxy night club in identity formation and community-building within the

Coloured community both in the most contentious years of the anti-apartheid struggle and into the post-Apartheid era, and interrogates the changing nature of political, social, and cultural identities through an examination of the spaces of collective jazz production and enjoyment.

Keywords: South Africa, music, cultural identity

Karen D. Johnson-Webb, Ph.D, Bowling Green State University. Email: kdjohn@bgsu.edu; Mark C. Zeller, Ph.D., Bowling Green State University. Email: zeller@bgsu.edu; *The Culture of Economic Development in Defiance County, Ohio*

The economic restructuring of the 1970s presented challenges to economic developers in rural Northwest Ohio. Local factors also impact on local economic development efforts. This is a case study of rural economic development in a postindustrial economy in terms of the culture of economic development. In order to gain a better understanding of the cultural influences on economic development in Defiance County, OH, qualitative data were gathered through in-depth interviews with key economic decision-makers. The results revealed that the culture of economic development in Defiance County could be described in terms of four major themes: the widely embraced economic strategy of improvement of the business climate, a lack of "state vision" in economic development, perception of the need for collaboration between state government and private enterprise, and the process of globalization as a force that had dramatically affected the social and economic fabric of their community. These results suggest that there is a need for the state to foster interpersonal networks across government agencies and private enterprises. However, the perceived unwillingness or inability of the government to collaborate, suggests that continuing to embrace the current economic development framework may be detrimental to progress in local economic development.

Keywords: Economic Development, Culture, Qualitative, Ohio

Andrew Johnston, Sheffield University Management School. Email: A.Johnston@Sheffield.ac.uk; *Cities and Economic Development in the UK - Centres of Knowledge or Centres of Consumption?*

Cities have long been perceived as the drivers of economic growth; traditionally, in industrialised economies, they were centres of production and manufacturing. However the relative decline of the manufacturing sector in the UK has led to a re-assessment of their role in the economy. There is a large body of work, both academic and policy based, which focuses on cities as centres of innovative activity and 'knowledge hubs,' i.e. the physical manifestation of inter-firm networks. As a result economic development within cities is increasingly centred on developing the 'knowledge driven' economy through encouraging the growth of high added value, high-technology industries in niche sectors. This paper, however, proposes an alternative perspective and examines the proposition that cities in the UK have, instead, evolved into centres of consumption. These cities are dominated by leisure based industries such as retail, hotels and restaurants; thus, altering the urban landscape of UK cities, as industrial sites are transformed into leisure sites, and the economic landscape, as the economy becomes increasingly based on service industries. Using examples from a number of UK cities, this paper aims to highlight this evolutionary process and examine the implications for economic development.

Keywords: cities, UK, economic development, consumption

Lynda T Johnston, University of Waikato. Email: lyndaj@waikato.ac.nz; *Queer geographies of 'Big Love'*

The mutually constitutive relationship between sexuality and space has become an area of considerable interest for geographers. There is, however, one aspect of sexuality that has escaped geographers' attention, that is, love. In this paper I aim to develop some geographical research agendas that examine the embodied emotion of love as an important component of sexualised subjectivity. The first part of the paper highlights some possible reasons why love has been, for the most part, absent from geographical research. I draw together the limited references that geographers have made to love, sexuality and place. In the second part of the paper, the US television channel Home Box Office (HBO) domestic drama about a Utah polygamous family - 'Big Love' (2006) - is used to examine (non)normative expressions of love and sexualities. I argue that love expressed between sister wives carries with it both possibilities and risks. To make sense of this love I utilise feminist and queer theorising that posits love, on the one hand, as a means of subordinating women to men, yet on the other hand, as an embodied emotion with queer and non-normative affects.

Keywords: love, non-normative sexualities, emotional geographies, 'Big Love'

Ron Johnston, University of Bristol. Email: r.johnston@bristol.ac.uk; *Ethnic Segregation in English Schools and Cities*

There is substantial ethnic segregation in the primary and secondary schools of most large English cities. These levels are greater than those for residential

segregation in the same cities, suggesting processes of school sorting that are more intense than those underpinning residential choice. Furthermore, there are suggestions that the segregation is increasing. Using data on the ethnic composition of school entry cohorts over a 7-8-year period, this paper examines that case, concluding that although school segregation remained high there was little evidence that it was increasing substantially.

Keywords: segregation

Ibipo Johnston-Anumonwo, SUNY Cortland. Email: johnstoni@cortland.edu; *Countering Ethnocentrism in Teaching Human Geography: The Case of Africa*

Africa's cultural and physical diversity presents a platform through which teachers can teach college students engaging ways to apply concepts in human geography and also acquire a non-superficial and nonjudgmental understanding of the continent. Based on the premise that the teaching of human geography in colleges is improved with a perspective that explicitly challenges ethnocentrism, and that avoids limitations of traditional teaching styles, this paper reviews best pedagogical practices and contemporary print and visual resources that do not idealize the African condition, but that counteract the predominance of pessimistic analyses about the continent.

Keywords: Africa, pedagogy, Human Geography

Brad Jokisch, Ohio University. Email: jokisch@ohiou.edu; Kendra McSweeney, Ohio State University. Email: mcsweeney.14@osu.edu; *Land conflicts and environmental futures: demographic and economic pressures facing Shuar of Eastern Ecuador*

Indigenous societies across lowland Latin America have made impressive political and territorial gains, in part, by emphasizing their stewardship over and attachment to particular rural spaces/landscapes. These gains have been accompanied by persistent or new threats (e.g. colonists, oil development) and significant demographic change. Impressive population growth, urbanization, and international/transnational migration are increasingly common and may appear to undermine territorial claims and conservation efforts. Shuar of Southeastern Ecuador exemplify these trends. They face challenges to their territorial claims and land rights from oil development, settler encroachment, eco-tourism, and perhaps most important, intra-family and inter-community quarrelling over land inheritance and demarcation. Class differentiation is emerging, population growth is rapid, and migration is conceptualized as both a safety valve and opportunity for Shuar empowerment. This paper examines how land use and environmental conservation are embedded in the numerous political economic and demographic stresses that Shuar face. We combine ethnographic work with empirical findings from a large demographic and health survey (n = 1,800 households) conducted with the Shuar Federation of Morona-Santiago, Ecuador in 2005.

Keywords: Ecuador, land conflicts, migration, indigenous

Andrew E G Jonas, Professor, University of Hull. Email: A.E.Jonas@hull.ac.uk; Aidan H While, Dr, University of Sheffield. Email: A.H.While@sheffield.ac.uk; David C Gibbs, Professor, University of Hull. Email: D.C.Gibbs@hull.ac.uk; *Managing infrastructural demands in new economic spaces*

Research on the geography of local economic development has attempted to explain the attractiveness of particular locations for the growth of leading-edge technology industries. Initial research focussed on the attributes of high tech industries and firms, whereas recent studies emphasise the qualities of the local labour market, such as presence of workers possessed with a range of skills and creative talents and sought after by growth industries. These workers, along with employers, have demands for housing and services. As hitherto successful high technology spaces enter into a new phase of growth, such demands have intensified. This paper identifies a spatial politics of collective provision in select new economic spaces. It further considers the different forms such politics takes in different national contexts. Examples from the United States, Europe and Asia are examined, drawing upon primary and secondary sources. The paper considers the implications of the politics of collective provision for existing knowledge of what sustains growth in new economic spaces.

Keywords: new economic spaces, collective provision, state, USA, Europe, Asia

Andrew Jones, Birkbeck, University Of London. Email: a.jones@bbk.ac.uk; *Theorising global economic practices: the ongoing challenge of using an actor-network approach*

The relational and practice turn in economic geography has drawn heavily on the actor-network approach (ANT) over the last decade. However, the use of ANT remains marginal to many key debates about the nature of the global space economy, and critics have argued ANT cannot offer adequate 'mid-level concepts' to explain key transformations. This paper argues that such criticisms misconstrue the core epistemological arguments around which ANT is based, and

that an ANT-based approach can fruitfully address several of the major problems currently faced in theorising the nature of global economic activity. Yet it also argues that Bruno Latour's recent development of the actor-network approach presents significant challenges for economic geographers in applying ANT to global economic practices. It proposes a series of ways to overcome these difficulties which will have to be adopted if the 'practice turn' is to harness the power of actor-network explanation. The paper illustrates these arguments with reference to how an ANT approach might offer a better means to theorise economic practices within transnationalising firms.

Keywords: economic practice; actor-network theory; transnational firms

Benjamin M. Jones, SAIC/United States Geological Survey, Alaska Science Center. Email: bjones@usgs.gov; Steve V. Stehman, College of Environmental Science and Forestry, State University of New York (SUNY ESF). Email: svstehma@syr.edu; Kenneth M. Hinkel, Department of Geography, University of Cincinnati. Email: kenneth.hinkel@uc.edu; *Lake Surface Water Area Changes in the Yukon Basin Unified Ecoregion of Alaska*

The Yukon Basin Unified Ecoregion of Alaska is located south of the Brooks Range in the eastern-central portion of the state and spans 5.6 million hectares. This ecoregion is unglaciated, has gently-sloping terrain along the margins of the basin underlain by continuous permafrost, and has vast expanses of wetlands in the low-lying interior underlain by discontinuous permafrost. Analysis of Landsat ETM+ image mosaic from circa-2000 has revealed 7,356 lakes greater than 1 hectare with a total lake surface water area of 80,456 ha. Comparing these results with a lake classification conducted on a Landsat TM mosaic from the mid-1980s indicates that total lake surface water area has decreased by 1.1%, while the number of lakes has increased by 0.9%, over the 15 year period. The net decrease in lake surface water area with an associated increase in the number of lakes could reflect the disjunction of larger water bodies due to lake level lowering. Further, the changes that have occurred in the ecoregion have not been uniform across the study area. Regression tree analysis of potential explanatory variables are conducted to explore the spatial variability of lake changes as well as potential drivers of change. * Work performed by SAIC under U.S. Geological Survey contract 03CRCN0001

Keywords: Alaska, Lakes, Change Detection

Bryan Jones, University of Colorado - Boulder. Email: bryan.jones@colorado.edu; *Inferring Migration Flows from the Migration Propensities of Infants: The United States*

Beginning with the 2010 decennial census, the U.S. Census Bureau plans to drop its long-form questionnaire and to replace it with the American Community Survey (ACS). The resulting absence of the larger sample provided by the census count will complicate the measurement and analysis of internal migration flows. Additionally, the strategy of averaging accumulated samples over time will mix changing migration patterns. The migration question will refer to a one-year time interval instead of the five-year interval used in the censuses between 1960 and 2000, complicating historical comparisons and the production of multiregional projections based on five-year age groups. Consequently, students of territorial mobility increasingly will find it necessary to complement or augment possibly inadequate data collected on migration with estimates obtained by means of "indirect estimation". This paper expands upon a method, previously tested on American, Mexican, and Indonesian data, that allows one to infer age-specific directional migration propensities at the regional level. The method uses birthplace-specific infant population data to approximate infant migration propensities, and from these infers the migration propensities of all other ages. The method is applied at both a four and nine region spatial scale.

Keywords: migration, indirect estimation, United States

Greg Jones, Southern Oregon University. Email: gjones@sou.edu; Andrew Duff, Southern Oregon University. Email: duffa@sou.edu; Joey Myers, Southern Oregon University. Email: myersj@students.sou.edu; *Modeling Viticultural Landscapes: A GIS Analysis of the Viticultural Potential in the Rogue Valley of Oregon*

Terroir is a holistic concept that relates to both environmental and cultural factors that together influence the grape growing to wine production continuum. The physical factors that influence the process include matching a given grape variety to its ideal climate along with optimum site characteristics of elevation, slope, aspect, and soil. While some regions have had 100s and even 1000s of years to define, develop, and understand their best terroir, newer regions typically face a trial and error stage of finding the best variety and terroir match. This research facilitates the process by modeling the climate and landscape in a relatively young grape growing region in Oregon, the Rogue Valley. The result is an inventory of land suitability that provides both existing and new growers greater insight into the best terroirs of the region.

Keywords: Wine, Climate, Landscape, Terroir, GIS

Jennifer A. Jones, Minnesota Historical Society. Email: jaj319@gmail.com; **Lisa E. Fischer, Colonial Williamsburg Foundation. Email:** lfischer@cwf.org; *People, Buildings, and Space: Recreating Property Boundaries and Land Transfer in Eighteenth-Century Virginia*

For more than eighty years, researchers at Colonial Williamsburg have sought to understand the development of Virginia's eighteenth-century capital by studying the population of the town and the surrounding countryside. Recent research has focused on connecting people and places in an effort to understand the development of neighborhoods and commercial centers and to create new ways to access previously compiled information. In the 1980s, Colonial Williamsburg's research staff transcribed and indexed the surviving York county court records and created a comprehensive biographical database of colonial-era Williamsburg and York County residents. In the last eight years researchers at the Foundation have extended this work by connecting people to specific properties they owned and occupied during the eighteenth century. Geographic Information Systems have been instrumental in this ongoing effort. Documenting and visualizing property ownership across the eighteenth century has proven more complicated than initially expected due to discrepancies in the primary sources. This paper will describe three phases of work Colonial Williamsburg has undertaken to understand aspects of eighteenth-century population and land ownership. The creation of a county tract map for 1704 based on surviving quitrent rolls and deeds provided a process for using documents to recreate historic property boundaries. We applied these techniques to Williamsburg and discovered that the town was not a persistent grid of rectangular lots as suggested by the surviving maps. Most recently we have begun to connect both people and buildings to town property, a process that will result in a temporal GIS for reference and analysis.

Keywords: GIS, Virginia, land transfer, colonial, plats

Mark C. Jones, University of Connecticut at Hartford. Email: mark.c.jones@uconn.edu; *Survey Results on Teaching Political Geography to Undergraduate Students*

This presentation will share partial results of my doctoral research on the teaching of political geography at U.S. and Canadian universities. Specifically, it will include the data and interpretations of the same from a web-based survey of political geography instructors who belong to the AAG's Political Geography Specialty Group. Survey respondents completed a 25 question survey that asked them about instructor characteristics, curriculum issues, course content, readings, and key issues in teaching political geography. Findings were broadly consistent with my expectations about contemporary practice in the teaching of political geography. Questions asking respondents to define political geography, and to identify key issues in teaching political geography, both produced great variety in responses.

Keywords: political geography, geography education, survey research

Martin Jones, University Of Wales, Aberystwyth. Email: msj@aber.ac.uk; *Encouraging Relational Space to be Dialectical: The Assemblages of Phase Space*

Recent years have witnessed a burgeoning of work on 'relational space'? a perspective that sees spatiality as unbounded and formed through the imbrications of non-territorial flows and networks. According to its advocates, this challenges territorial and scalar readings of space, by insisting on an open-ended, mobile/flat/ internal, and always actor-centred politics of geographic becoming. The paper discusses the importance of, and limits to, this paradigmatic thinking. By opening up a dialogue between relational thinking and 'dialectical critical realism', it then offers a different take by talking about 'phase spatiality'. This acknowledges the relational nature of space but insists on the confined/stratified, internal/external, sometimes inertial, and always contingent nature of emergence. The nuances of, and challenges for, this approach are discussed and debated.

Keywords: Spatiality, Dialectics, Phase Space

Peter D. Jones, University of Bristol, UK. Email: p.d.jones@bristol.ac.uk; *The Political Economics of Scale in the European Union: Supranational Knowledge Economy as Discursive Fix for National Education Reform?*

In this paper, the knowledge economy strategy of the European Union, its Lisbon Strategy, is examined at two scales: the supranational and the national. Drawing on interviews with European Commission officials and participatory observation of the processes of coordinating education policy at the EU scale in line with a knowledge economy strategy, it is argued that the rationale, formation and management of the EU's knowledge economy strategy are conditioned by interactions between European Commission politics and the intergovernmental architecture of the EU and that a knowledge economy strategy provides, at best, a highly unstable discursive fix for EU policy development. At the national scale, a series of interviews with policy makers in Bulgaria, in the run-up to the

European Commission's recommendation for Bulgaria to join the EU from January 2007, places Bulgaria's strategy for reform of the national school sector within the context of both the knowledge economy and EU membership. The viability and significance of EU policy development in pursuit of a knowledge economy is seen as even more questionable in both political and economic terms when viewed at the national scale. In conclusion, it is argued that an EU knowledge economy strategy does not even provide a discursive fix for national education reform for a country on the verge of accession and undergoing a sustained disciplinary monitoring of progress towards meeting EU norms.

Keywords: Knowledge Economy; European Union; Scale; Bulgaria

Reece M Jones, University of Wisconsin - Madison. Email: reecejones@wisc.edu; *Narrating and Enacting Difference in the Borderlands of India and Bangladesh*

An important aspect of the reproduction of national identity categories is the process of bounding that establishes the perception of distinctions between those who are members of the group and those who are on the outside. This paper investigates the everyday narratives and practices that create, maintain, and break down social boundaries in the Bengali-speaking communities along the border between India and Bangladesh. Borderlands play a significant role in the bounding process because they are often areas where the boundaries between these categories are tested on a daily basis. In Bengal, this process is complicated by linguistic, cultural, familial, and economic connections across the sixty-year-old border, which has only recently become strictly enforced. Employing interview and focus group data, this paper explores how communities living near border narrate and enact the boundaries between group identity categories such as Bengali, Bangladeshi, Indian, Hindu, and Muslim.

Keywords: Borders, boundaries, Asia, performativity, India, Bangladesh

Rhys Jones, University Of Wales Aberystwyth. Email: raj@aber.ac.uk; *Boundaries in nationalist and academic discourse*

For social scientists, one of the key facets of the reproduction of nationalist discourse is the use of boundaries and territories. Boundaries help individuals to position their own national identity with respect to national 'others', while territories enable individuals to connect to both a national past and the state. The importance of boundaries and territories, redolent of a 'regressive sense of place', has increasingly been questioned with the discipline of geography; originally by Massey and latterly by a broader relational school of thought. In this paper I discuss the various tensions that arise when trying to reconcile these two perspectives within academic discourse; in both research and teaching. The use of relational and topological understandings of space can be useful as a way of challenging popularly-held assumptions about the 'naturalness' of national territories and boundaries, and, indeed, nations in general. At the same time, the use of such concepts can also serve to undermine the validity of any type of nationalist discourse or, at least, position it as a regressive and naïve perspective. Moreover, efforts to negotiate a compromise between contemporary understandings of space and some of the geographical underpinnings of nationalist discourse allude in broader terms to the role played by academics in reproducing nationalist discourse, either critically or uncritically. Research on the contemporary definition of national boundaries within Wales, undergraduate students of nationalism, along with some personal reflections arising from my experience of teaching and researching nationalist themes, are discussed in order to elaborate on these themes.

Keywords: Boundaries, territories, nationalism, nationalist discourse, academia

Richard C. Jones, Professor of Geography, University Of Texas at San Antonio. Email: richard.jones@utsa.edu; *Changing Migration Patterns to the U.S. from Villanueva, Zacatecas: a Longitudinal Analysis*

Mexico's recent economic history is a good example of the failure of neoliberalism and privatization to benefit the poor rural sectors in a developing country. Villanueva, a corn and beans agricultural municipio in the dry Mesa del Norte of central Mexico, epitomizes this trend. An analysis of cross-sectional survey and interview data with several hundred families, collected by the author in 1988 and 2002, indicates increases in long-term U.S. migration and inequalities between migrant and non-migrant classes, as well as decreases in agricultural investment. Overall levels of living have apparently improved owing to remittances and their multiplier effects locally, but the permanent out-migration of many families has left the prospects for growth and development in the municipio very much in doubt. This out-migration is to an important degree a result of restrictionist U.S. immigration policies, which as Douglas Massey has pointed out have effectively "walled in" Mexican undocumented migrants in the U.S. and encouraged them to move their families to the United States (since return to Mexico and then re-entering the U.S. is so difficult). Rural central Zacatecas is becoming a landscape of semi-deserted villages, abandoned homes,

older people, and disinvestment? its young working families having moved to California, Illinois, and Texas, and forced to sever many ties to their home.

Keywords: migration, remittances, immigration policy, Mexico

Trevor Gareth Jones, UBC. Email: tgjones@interchange.ubc.ca;
Nicholas Coops, UBC. Email: ; *Integrating advanced spectral and structural remotely sensed data to improve vegetated terrestrial ecosystem mapping and monitoring*

The Gulf Islands National Park Reserve in British Columbia, Canada, encompasses 61 square kilometers of terrestrial, intertidal, and marine ecosystems spread over 15 islands. Rapid urban development is principally responsible for the area's current status as one of the most threatened landscapes in Canada. In order to ensure current and long-term ecological integrity of the Reserve, accurate and up-to-date information on the structural, compositional, and distributional components of the ecosystems present is required. Information yielded from conventional aerial photography-based Terrestrial Ecosystem Mapping (TEM) provides some of this ecosystem attribute information; however, it is costly and requires significant interpretation making it poorly suited for use in long-term operational monitoring. Satellite-based remotely sensed data offer a viable option for reliable and repetitive ecosystem mapping in a cost efficient manner; however, broad-band data have limited spectral and spatial resolution, making vegetative species discrimination, and changes in forest canopy structure difficult to predict. Recently, the advent of hyperspectral remotely sensed data has been shown to improve vegetative discrimination whilst airborne LIDAR data is increasingly being used to represent 3-dimensional terrain and forest canopy structure. This research investigates the integration of Landsat TM data with targeted high spatial and spectral resolution hyperspectral imagery, and LIDAR, in conjunction with field observations, to derive structural, compositional, and distributional information related to the various terrestrial ecosystems present within the Reserve. The results of combining these complementary datasets demonstrates improvements in ecosystem mapping, and can be used in implementing a long-term operational ecosystem monitoring program within the Reserve.

Keywords: hyperspectral, LIDAR, multi-spectral, terrestrial ecosystem mapping, terrestrial ecosystem monitoring

Ola Jonsson, Lund University. Email: ola.jonsson@keg.lu.se; *Innovation processes and innovation policies - towards a more polarized regional structure?*

Networks of organisations, it is often claimed, have the potential to loosen interdependencies within existing organisational structures as well as within the regional hierarchy in a national as well as transnational context. At the same time several studies in economic geography have shown that more research- and knowledge intensive regional and sectorial innovation systems, seem to strengthen rather than subvert existing spatial structures of the economic landscape. We witness a 'leap-frog' movement that follows established regional hierarchies on a more or less global arena, favouring 'hot spots', excluding neighbour regions on a lower level in the hierarchy. Empirical analyses presented in this paper, indicate that the spatial organisation of innovation processes has a strong tendency to consolidate these structures and strengthen the positions of core regions rather than to open up new windows of opportunity for non-core regions. Increased divergence between core and non-core regions appears as a threat to ambitions to achieve a more balanced regional distribution of economic growth and welfare. National as well as regional growth policies in many countries have during the last decade focused on regional innovation systems as one way to create regional (and national) growth. This paper address the opportunities and problems involved in these innovation policies seen from the perspective of the regional system in general and the non-core regions in particular. Swedish innovation policy and Swedish biotechnology and software sectors constitute the empirical base for the discussions. Concludingly, directions for future regional innovation policies are suggested.

Keywords: innovation processes, innovation policies, knowledge, proximities, regional hierarchies, non-core regions

Stéphane Joost, LASIG, EPF Lausanne & Zootechnics Institute, UCSC Piacenza. Email: stephane.joost@a3.epfl.ch; *GIScience joining with molecular biology: a novel approach of detecting signatures of natural selection within the genome*

Even if many research projects in population genetics and conservation biology collect a quantity of spatially located biological samples, and despite its present predominance in Science and its direct application to concerns of public society (health, food), molecular data were heretofore rarely studied by the GIScience community. Biotechnologies make it possible to measure this growing amount of genetic data, and GIScience holds promise for being one of the appropriate ways to investigate this information from a complementary point of view, which is somewhat unique to the traditional field of life sciences. In this paper, I describe a novel spatial analysis method (SAM) to detect regions of the

genome being shaped by natural selection. This operation is essential as it gives the possibility to understand which genes are involved in adaptation processes. SAM is the first method to tackle this issue from the environmental angle: with the contribution of GIS, environmental variables and molecular data, it applies multiple univariate logistic regressions to test for association between targeted genomic regions and environmental variables. Several applications to animals and plants demonstrated a strong correspondence between SAM results and those obtained with a standard population genetics approach. In the future, such a method may accelerate the process of hunting for functional genes at the population level. Indeed, it permits to identify ecological parameters which will help to interpret the role specific regions of the genome may play, likely to improve our understanding of the genetic mechanisms of evolution.

Keywords: Spatial Analysis, Population Genetics, Natural Selection

Bella Bychkova Jordan, PhD, University of Texas - Austin. Email: belka@mail.utexas.edu; *Oil vs. Diamonds: Sakha Republic (Yakutia) future development dilemma*

In the mid 1990s Russian government signed power-sharing treaties with some of its individual territories, including the Republic Sakha (Yakutia). With Putin's consistent policy of consolidation of 'vertical power', control over the ownership and distribution of mineral resources is being wrested from republic's authority. The Sakha national elite sees the loss of control over its major diamond producing corporation "Almaz Rossii-Sakha" as an end to all of its autonomy. At the same time, the newly emerging middle class of local entrepreneurs and businessmen, less concerned with ethnonationalist projects, is actively pushing for a larger participation in Russia's mega projects, especially the construction of oil and gas pipelines, headed to China, Japan and South Korea. The proposed route for such lines will traverse the southern regions of the republic and allow significant economic development of the resource rich parts of the republic. The regional leaders are faced with the dilemma: continue to insist on its economic sovereignty and isolate itself from a major transnational economic project, or to forgo the stake in the diamond ownership and invest in a promising future development guarantying a successful participation in global economic processes.

Keywords: Sakha (Yakutia), diamond industry, transnational oil and gas project

Lisa Marie Jordan, Florida State University. Email: ljordan@fsu.edu; *Inferring Social Landscapes: An Exploration of Spatial Weighting Schemes for Social Applications*

Spatial weighting schemes, or the way in which statistical models in social research choose to assign importance to location and distance, were originally pioneered by researchers in regional science, quantitative geography, and spatial econometrics. While much of this research was developed with classical statistical techniques, Bayesian approaches have increasingly been integrated into this research. GIScience has made spatial statistical techniques more useful and available to a wider research community by improving methods of visualization and representation of geographic information. However, an important gap remains in the use of spatial data for social research: a synthesis of geographic research on the relevance of location, distance, and proximity for different social and economic measures and how spatial weighting schemes can be chosen to best model social phenomena across space. To promote the integration of GIScience with other social sciences, this paper evaluates the diverse social applications of spatial weighting schemes and provides a set of heuristics to guide social scientists in the use of univariate and multivariate statistical techniques with spatially referenced data.

Keywords: spatial data analysis, spatial weights, social applications

Peter Jordan, Austrian Institute of E/SE. Email: peter.jordan@univie.ac.at; *Consequences of European Union Enlargement for the Ukrainian Border Region Transcarpathia*

After the fall of Communism and the dissolution of the Soviet Union, Transcarpathia as an economic periphery of the Ukraine benefitted from open borders especially with Hungary and from a growing interest of foreign investors due to its West-oriented attitude and multiethnic structure. In May 2004, three out of four countries neighboring Transcarpathia, Poland, Slovakia, and Hungary became EU members. Another neighbor, Romania, will enter the EU in 2007. These developments created and continue to create an entirely new geopolitical milieu for Transcarpathia. The region finds itself at the edge of an integrated economic and political space. The Schengen border regime is to be extended to the new EU members by 2009, preparations for a stricter border regime have already started. What had become a relatively soft border compared to the Soviet period, could once again turn into a hard border, placing Transcarpathia clearly "beyond the limit" and more distant from European integration than it is now. The paper investigates into the effects of enlargement by Poland, Slovakia and Hungary on the socio-economic situation in Transcarpathia, into measures taken

or taken into consideration to mitigate the effects of the Schengen border regime and into future development perspectives in this Ukrainian outpost in the Pannonian Basin.

Keywords: Political geography, borderlands, cross-border co-operation, EU enlargement

Marina Jordan-Viola, University of Southern California. Email: jordanvi@usc.edu; *Signage Strange and Wonderful: Street Names, Landscape, and Cultural Identity in Oxnard*

Streets are typically named for distinct landmarks, topographic or hydrologic features, cardinal points, and other symbols of power and authority. In this, street signs celebrate man's connection to the landscape as well as his influence over the environment. The street signs of Oxnard, California reflect the area's unique cultural landscape by incorporating names from diverse inhabitants, historical periods, and languages. Yi-Fu Tuan has observed that, "to strengthen our sense of self, the past needs to be rescued and made accessible." So the street names in Oxnard's Historic District, contribute to the city's identity by honoring its utilitarian and agricultural past. In contrast, the streets of newer commercial and residential developments market appealing physical features of the central coast, such as the Channel Islands Harbor and nearby beaches. And then there are other elements of the Oxnard's landscape and history missing from street names that may represent an image or identity the city does not want to own. Street names are a direct expression of the city's intricate relationship between space, place, and identity.

Keywords: Oxnard, street signs, landscape

Stacy Jorgensen, University of Hawaii at Manoa. Email: jorgy@hawaii.edu; *Islands as Laboratories for Understanding Spatial Evolutionary Processes*

The study of island biotas has been a traditional focus of biogeographic research, leading to such important ideas as the theory of evolution. In fact, islands remain indispensable laboratories for testing evolutionary biogeographic theories. The Hawaiian Islands provide perhaps the ideal system for studying spatially explicit patterns of genetic diversity and gene dispersal in the coastal and nearshore marine environment. The linear arrangement of these habitats simplifies distance calculations and considerations, and the predominantly east-west orientation of the island chain produces a naturally replicated system across multiple spatial scales in a narrow latitudinal range. Furthermore, there are drastically differing disturbance regimes on north vs. south coastlines due to variations in the source and season of major ocean swells. I am examining patterns of genetic diversity in a number of coastal plants known to co-occur as well as in nearshore marine invertebrates to determine whether differences in wave regimes influence the pattern and amount of divergence among populations, and whether there are concordant patterns within and among the coastal and nearshore marine species. I am also examining whether similar patterns of genetic diversity occur over multiple spatial scales or if differing patterns emerge at different spatial scales. Studies of intertidal organisms, for example, have detected patterns ranging from broad-scale homogeneity to chaotic genetic patchiness, with disparate patterns seen among closely related and ecologically similar species.

Keywords: disturbance, evolution, genetic diversity, island biogeography

Mikko Juho Mikael Joronen, Department of Geography, University of Turku, Finland. Email: mikko.joronen@utu.fi; *Technological metaphysics of globalization. Ontological conditions of possibility in the age of the planetary space.*

This paper treats globalization as a historical understanding of spatiality of being. Working from a Heideggerian perspective, I argue that in order to study globalization, ontological conditions of the possibility for its very existence should have the primacy. As a way of understanding spatiality of being, globalization is a matter of historical ontology and is defined as a particular way of grasping place. This article claims that in order to reveal the metaphysics of planetary space, thinking should meditate on the recognition of anthropocentric instrumentality and leveling essence of the totalitarian gigantisms of technological ontology of space. As such, globalization is a planetary manifestation of modern metaphysics.

Keywords: globalization, Heidegger, ontology, place, technology

Lawrence Joseph, Arizona State University. Email: lawrence.joseph@asu.edu; *Is Direct Competition a Myth? A Geographical Analysis of How Location Factors Affect the Quick-Service Restaurant Industry*

In the United States, quick-service restaurants commonly locate in close proximity to each other. Notwithstanding, these include areas of diverse racial compositions. Does the racial profile of a store's trade area affect store performance? Furthermore, the retailers in this industry also locate in areas with varying location situations. How are sales impacted by varying neighborhood

characteristics? For these reasons and others, this paper empirically examines any potential statistical relationships between the store performance of quick-service restaurants and a list of carefully selected location factors of the associate trading areas. Following such survey, a set of direct competitors are compared for variations. In total, 68 quick-service restaurants belonging to two retailers and their trading areas are reviewed in two counties in northeast Ohio. Previous sales volumes and the attributes of all areas within a five minute drive of each store were input into geographical information system software for analysis. To that end, multiple regression analysis indicates that there may be possible links between the performance of a quick-service restaurant and the location factors of its trading area. Further analysis illustrates that retailers historically considered direct competitors may in fact have immense differences with respect to consumption patterns when analyzed geographically. The results from this paper may suggest the reexamination of location strategies for direct competitors despite similar value platforms and target markets.

Keywords: retail, location, trade area, competition, regression

Miranda Joseph, University Of Arizona. Email: mirandaj@u.arizona.edu; *Dialectics and the Death Drive*

Marx's prediction that capitalism would produce its own "gravediggers" has always been hedged by theories explaining why we don't foment revolution. Meanwhile, liberal theorists and policy makers have spent a great deal of energy in hand-wringing and theorizing over the fact that many people are not good capitalist subjects, don't work, save and consume as they should (the "culture of poverty" discourse is an obvious example). Taken together, the Marxist and liberal discourses point to subjects who neither take up an explicitly revolutionary subjectivity nor the fully responsible entrepreneurial subjectivity solicited by neo-liberalism. This paper will theorize this neither/nor subjectivity by exploring a body of Lacanian theory?Baudrillard's The Mirror of Production; Rey Chow's The Protestant Ethnic and the Spirit of Capitalism; Lee Edelman's No Future: Queer Theory and the Death Drive?that might be read to suggest that the negations offered by this subjectivity are politically meaningful as resistance to a dominant imaginary of (re)productivism. Is it possible to use this work to make meaningful the acts and speech of those whose "undoing" behavior cannot be understood as heroic or revolutionary? Can this anti-progressive theory be aligned with a dialectical reading of capitalism? Is it possible to understand such "undoing" as an antithetical moment, generated by productivism itself, despite the absence of any sign of revolutionary consciousness in those unproductive subjects? Rather than decisively answering these questions, I aim to better understand what people do and say in contemporary contexts of constrained agency and a dominant discourse of personal responsibility.

Keywords: dialectics, queer theory

Colleen Joyce, US Census Bureau. Email: colleen.d.joyce@census.gov; *Small Area Income and Poverty Estimates for States, Counties, and School Districts*

The U.S. Census Bureau, with support from other Federal agencies, created the Small Area Income and Poverty Estimates (SAIPE) program to provide annual, intercensal estimates of selected income and poverty statistics for states, counties, and school districts. Federal, state, and local agencies use the estimates to administer programs and allocate funds. This poster presentation will include some background information on SAIPE and display thematic maps illustrating the 2004 poverty rate estimates, which the Census Bureau is scheduled to release in December 2006. The maps will show geographic patterns of poverty rates for all U.S. states and counties, and for school districts in the Southeast.

Keywords: poverty, school districts, counties

Wenxue Ju, Louisiana State University. Email: wju1@lsu.edu; **Nina S-N Lam, Louisiana State University. Email:** nlam@lsu.edu; *A Genetic Bayesian Approach for Texture-Aided Urban Land Use/Cover Classification*

The traditional spectral-based maximum likelihood classification method is greatly challenged due to the heterogeneous nature of urban environment, especially when dealing with high resolution satellite imagery. This research uses a texture vector (fractal dimension, lacunarity, and Moran's I) aided classification approach, combined with an innovative genetic Bayesian classifier, to improve urban land use/cover classification accuracy, using IKONOS imagery in New Orleans, Louisiana. A genetic Bayesian classifier is proposed to improve the traditional maximum likelihood classifier by optimizing the prior probabilities with a genetic algorithm. Different texture measurements are used together to form a vector to describe multiple aspects of image texture. Texture layers are extracted from the panchromatic band using a moving window technique, then stacked with multispectral bands and classified with the genetic Bayesian classifier. The results show that the proposed genetic Bayesian classifier significantly improves the traditional maximum likelihood classifier in terms of classification accuracy, without sacrificing the robustness and time efficiency. The use of texture vector aided approach outperforms the individual texture index

aided method. The combined study with texture vector and genetic Bayesian classifier yields the highest classification accuracy.

Keywords: Genetic Bayesian classifier, Land cover, Fractal dimension, Lacunarity, Moran's I

Byong-Woon Jun, Louisiana Tech University. Email: bwjun@latech.edu; An Evaluation of a Dasymetric Surface Model for Spatial Disaggregation of Zonal Population Data

Improved estimates of populations at risk for quick and effective response to natural and man-made disasters require spatial disaggregation of zonal population data because of the spatial mismatch problem in areal units between census and impact zones. This paper implements a dasymetric surface model to facilitate spatial disaggregation of the population of a census block group into populations associated with each constituent pixel and evaluates the performance of the surface-based spatial disaggregation model visually and statistically. The surface-based spatial disaggregation model employed geographic information system (GIS) to enable dasymetric interpolation to be guided by satellite-derived land use and land cover data as additional information about the geographic distribution of population. In the spatial disaggregation, percent cover-based empirical sampling and areal weighting techniques were used to objectively determine dasymetric weights for each grid cell. The dasymetric population surface for the Atlanta metropolitan area was generated by the surface-based spatial disaggregation model. The accuracy of the dasymetric population surface was tested on census counts using the root mean square error (RMSE) and an adjusted RMSE. The errors related to each census tract and block group were also visualized by percent error maps. Results indicate that the dasymetric population surface provides high-precision estimates of populations as well as the detailed spatial distribution of population within census block groups. The results also demonstrate that the population surface largely tends to overestimate or underestimate population for both the rural and forested and the urban core areas.

Keywords: Spatial Disaggregation, Dasymetric Interpolation, Surface Model, Population

WANG Jun, University of Hong Kong. Email: salie312@yahoo.com; Lifestyle and Housing Location Choice: A case study of residential differentiation of professionals in transitional Shanghai, China

Chinese cities are experiencing fast-paced and 'fearless' urban restructuring, with the reshaping of residential differentiation since housing reform being one manifestation. Along with the housing privatization process, households are becoming more visible and active actors, making their decisions in the though limited market. However, knowledge in residential location preference is rarely explored, let alone the possibility of developing appropriate urban planning policies based on it. This study aims to investigate the interaction between lifestyle and housing location choice, and the impact on residential differentiation in Chinese cities. Based on surveys to 659 Shanghai professionals in 2003 and 2005, lifestyle dimensions are derived from discretionary activities according to the time-space frame; and then these lifestyle factors are integrated into discrete choice model to test the correspondence between social groups and location options. According to the comparative study of revealed and stated preferences, the interaction between lifestyle and housing location choice is evident. Driven by a particular lifestyle, households prefer living close to a pole, which is defined by a place in the spatial setting that facilitates the given lifestyle. Generally, individual lifestyle, and factors like income and educational level, together determine where the household live with reference to the pole. In a given region, the influential strengths of varying lifestyles also differ, depending on the interplay between individual lifestyles and the prevailing one signified by the regional social order. The study detects the emergence of multiple poles in Shanghai. Meanwhile, huge disparities between expectations and realities are identified in contemporary Shanghai.

Keywords: housing location, lifestyle, Shanghai

Hyun-Joo Jung, Konkuk University, South Korea. Email: jung0072@gmail.com; Between the East and the West: Production of Cultural Hybridity through Korean Wave

The recent boom of Korean pop culture mainly in East Asia and increasingly in other Asian regions and beyond, appears to tackle the cultural imperialism thesis that maintains the sweep of American pop culture in global market and, as a result, the production of a global culture. The popularity of Korean cultural products, reflected in the term, hallyu or Korean Wave, is largely attributable to their hybrid nature, carefully engineered through culture technology of entertainment industry. Their neither American nor authentic Korean characteristics appeal to contemporary Asians who live in between the East and the West. Deconstructing examples of cultural products, the paper not only confronts with the cultural imperialist discourse but also interrogates the emerging body of literature that celebrates hybridity as an emancipatory means against cultural imperialism. The case study illustrates that the entertainment industry produces

hybrid Asian identity to expand its market. Cultural hybridization, particularly in cultural production, is a strategy of cultural capitals in the era of globalization.

Keywords: cultural hybridity, Hallyu, Korean Wave, cultural imperialism

Jin-Kyu Jung, University at Buffalo. Email: jjung4@buffalo.edu; Computer-Aided Qualitative GIS (CAQ-GIS): A New Approach to Qualitative GIS

There have been tremendous efforts by various geographers in doing GIS, which means conducting research using GIS, particularly by pursuing the socially-relevant uses of GIS. Innovative human geographers have started to employ mixed-methods research using both quantitative and qualitative data in GIS, and some feminist scholars recently have shown what non-positivistic GIS looks like based on feminist and social constructionist epistemologies. Further, researchers who are interested in Public Participatory GIS (PPGIS) have tried to find ways to represent and empower marginalized social groups by using GIS as a communicative discourses. These examples are all emerging and innovative ways of conducting research using GIS, and Qualitative GIS is one of this progress happening. I see Qualitative GIS as a growing set of strategies involving a GIS for critical researchers who are exploring the interlocking relationships between GIS and society, and for those who critically question that relationship and also want to use GIS in mixed-methods research. In this paper, I first develop a framework for defining qualitative GIS. Secondly, I place various qualitative GIS practices in a larger perspective so that their cumulative insights can be reviewed. I then explore a new area of the blending of qualitative research with GIS, CAQ-GIS, that I have been working on, creating a software-level approach to integrating mixed methods through linking CAQDAS (Computer-Aided Qualitative Data Analysis Software) to GIS. I suggest that by providing one approach to the challenge of qualitative GIS-this one at software level- new insights may be gained.

Keywords: CAQ-GIS, Qualitative GIS, Critical GIS, Mixed Method, GIS & Society

Namji Jung, Cornell University. Email: nj33@cornell.edu; Source of the Strength a creative industry cluster

This paper investigates causes for a digital content industry cluster's re-emergence as leading digital content industry center in Seoul, Korea, despite its severe economic downturn after the dot com bubble crash in the early 2000s. In particular, this paper analyzes the role of collaborations between creative small firms and resource-rich large firms, and the role that governmental institutions play in balancing the power relationship between them. Evidence regarding large-small firm collaborations shows that they provide opportunities to experiment with new ideas and new technologies, and to test the practical adaptability of new products. In fact, the distinctive strength and capacity of small firms in Teheran Valley is results of strategic governmental policies that aim to promote the small and medium-sized entrepreneur sector as well as ICT industry promotion. In particular, governmental institutions make up for the lack of localized intermediary service firms by providing consulting service for small firms. These services aid small firms in identifying export markets and diversifying distribution. This shows that unlike the prediction that the role of national government will decrease dramatically with the growing importance of fast developing technology and international market transaction, in some regions, national governments still take an important role in shaping and promoting local industry clusters as well as industry sectors.

Keywords: Cluster, Cultural Industry, Government

Jason Jurjevich, University of Arizona. Email: JRJurjev@email.arizona.edu; David A Plane, University of Arizona. Email: Plane@email.arizona.edu; Voters on the Move: Assessing the Importance of Migration on State Partisan Political Realignment

Since the 1970s, waves of Sunbelt migrants have poured out of the Midwest and Northeast for destinations in the South and West. According to recent U.S. Census projections, by 2030, two-thirds of all Americans will live in the South and West, and 30% of Americans will live in California, Texas, and Florida. This large differential in regional growth rates has significantly altered political representation as the South and West have gained seats in the U.S. House of Representatives at the expense of the Northeast and Midwest. This study draws on existing Political Science literature and constructs a model that assesses the relative importance of migration as a factor of partisan realignment at the state level by considering its effect for states with high levels of in- and out-migration. The study combines U.S. Census migration data with National Election Survey (NES) data to also assess the likelihood of migrating based on partisan identification as well as increases in mobility across socioeconomic categories. Using the population geographer's concept of demographic effectiveness, we explore the "political effectiveness" of recent interstate migration streams.

Keywords: Migration, Electoral, Population

Peter Kabachnik, UCLA. Email: petkab@ucla.edu; "Where Can We Put Our Homes?" - Seeking Social Justice for Gypsies and Travelers in England

It is estimated that 100,000 Gypsies and Travelers live a nomadic way of life in the UK. Recent legal changes, coupled with a shortage of 4,500 caravan sites, have criminalized the traveling way of life. Thus, many Gypsies and Travelers are homeless since they have no legally recognized place to put their homes - their mobile homes. I will compare the situation of Gypsies and Travelers in England with the homeless in the US, which will help to highlight the multifarious manifestations of the process of othering. The common link of both groups is that their homes do not fit into the dominant ideal of home, and subsequently there is either no legal recognition of their homes or legal places for their homes. Their discursive construction as "homeless" reveals the normative notion of home in American and British society, not a common sense reflection of their state of being without a home. Both Gypsies and Travelers and the homeless are seen as problematic and deviations from the hegemonic norm by their respective dominant groups, as made evident by the similar strategies employed against the groups. I identify several strategies that utilize geographic narratives which serve to other and segregate Gypsies and Travelers in England, and parallel the circumstances that homeless people face in the US. These themes reinforce negative images of these groups, deflecting attention away from the need for social justice, fulfilling basic human rights, and securing a legal place to call "home".

Keywords: Gypsies, Travelers, Nomadism, Social Justice, England, Homelessness

Lesley V Kadish, Minnesota Historical Society. Email: lesley.kadish@mnhs.org; WebMapping Minnesota's Geography and History

The Minnesota Historical Society has developed an online mapping tool that will integrate the museum's archives and three-dimensional collections with over 200 layers of geographic and historic spatial data. The mapping website is compact. Along with map layers, it contains pre-packaged curriculum for 5-8th grade Social Studies classrooms, live links to related resources, editing and navigation tools, and a repository for uploading or viewing new maps and narratives. This presentation will showcase the GIS website and discuss how historic map resources are being re-imagined by Minnesota's History and Geography teachers and researchers.

Keywords: GIS Historic maps

Robert Kaiser, University of Wisconsin - Madison, Department of Geography. Email: rjkaisel@wisc.edu; Enacting Europe and European-ness at the borders of 'New Europe': The Case of Narva, Estonia

Following Frederick Barth and more recently Etienne Balibar, I argue that the symbolic, discursive and practical enactments of place and identity occur at the borders, where the interior and exterior are continually constructed, contested and configured. Enacting Europe and European-ness are bordering processes, and so one must look to the borders as the sites of their social construction. These enactments are especially visible in Narva, Estonia, which has been defined as 'the easternmost outpost of Europe and the West'. The exteriorizing of Russia and Russian-ness in the enactment of Europe and European-ness in Estonia poses a dilemma for actors representing Estonia and Europe, since the population of Narva remains overwhelmingly Russian and Russian-speaking. The city has itself become an example of what Avtar Brah refers to as 'diaspora space', a nexus where diaspora, dis/location and border intersect, and where not only diaspora identification, but also dominant or normative place-making and identification processes (i.e., Estonia and Estonian-ness, Europe and European-ness) become. In this paper, I explore Narvan activists and their efforts to configure Europe and European-ness in ways that place themselves on the interior, as well as the ways in which Narvans - activists as well as non-activists - transgress the bordering discourses and practices exteriorizing Russia and Russian-ness from Europe and European-ness.

Keywords: enactment, identity, Europe, border, diaspora space

Ronald V. Kalafsky, University of Tennessee. Email: kalafsky@utk.edu; Export Activities of Canadian Manufacturers: Producer Performance and Strategies

Many manufacturers in mature economies see export activity as a way to expand beyond limited local or regional markets. The potential of distant markets is promising, yet exporters often encounter a number of challenges with regard to products, internal processes, and customers. This paper examines the export dynamics of Canadian manufacturers, with a focus on new markets and internal strategies. Many firms enjoy considerable export success, while many producers acknowledge that numerous competitive issues exist, especially for smaller firms.

Keywords: manufacturing, exporting, Canada

Susan Kaleita, University of Arizona. Email: kaleita@email.arizona.edu; The Geography of Medical Tourism

International medical tourism, the phenomenon of people traveling outside their native countries to obtain medical services, is a growing trend. Consumers of medical services abroad tend to originate from developed countries such as the United States and the countries of the European Union. These countries possess some of the most advanced medical facilities and the highest numbers of doctors per capita. However, especially for the uninsured in America, certain medical procedures are often out of reach because of extremely high costs. International medical tourism is one way for patients from the developed world to obtain cheap medical services fast, and in many cases, another draw is the chance to take an exotic vacation at the same time. The rise of this trend has many implications for health care provision in both the developing and the developed world. In this paper, I investigate the scale and scope of medical tourism and consider some of its geographic implications.

Keywords: medical tourism, tourism, medical geography

Adam Justin Kalkstein, Arizona State University. Email: adam.kalkstein@asu.edu; Geographical Variations in Seasonal Mortality Across the United States: Climatic Influences

Human mortality exhibits a strong seasonal curve with deaths in winter far exceeding those in the summer. Surprisingly, this seasonal pattern is evident in all major U.S. cities, seemingly independent of climate. While the pattern itself is clear, it is unknown if the causal mechanisms behind this curve vary across space. This study will examine seasonal mortality across the United States to determine what is driving the seasonal mortality curve in different geographical regions. Furthermore, by examining the frequency of air mass types in various locations, this study will shed new light on what role, if any, climate plays in seasonal mortality across the United States.

Keywords: Climate, Health, Air Masses

Kirsi Pauliina Kallio, University Of Tampere. Email: kirsipauliina.kallio@uta.fi; Performative bodies as political selves: children's agency in everyday life

This paper concentrates on children's everyday life politics, where children and young people are understood as political selves, in reference to Chris Philo & Fiona Smith's (2003) conceptualisation. The everyday life situations, where children do participate in social meaning making and reproduction, are approached from two directions. One the one hand, following my recent study the political aspects of children's agency are contemplated by applying some ideas of Albert O. Hirschman's (1970) Exit, voice, loyalty -model. It is recognised that whether it reflexive or unintentional, children's autonomous political participation mostly takes place in bodily action. Thus, it is difficult to envisage how their own politics could take place in official political arenas. From this point of view, in the second place, the performative aspects of children's everyday life are emphasised. I question whether children's politics can always be put effectively in words: that is, represented. Here, some current works on performativity and non-representational 'theory' are briefly examined in order to bring their ideas into political childhood studies. In conclusion, Judith Butler's statement of "playing differently" and Nigel Thrift's discovery of understanding the world in terms of "effectivity" are suggested to be useful tools in exploring the political and performative aspect of children's everyday lives.

Keywords: childhood, body politics, performativity, non-representational style

Giorgos Kallis, Dr, Post-Doc Fellow, Energy and Resources Group, UC Berkeley. Email: gkallis@berkeley.edu; Michael Kiparsky, PhD Candidate, Energy and Resources Group, UC Berkeley. Email: kiparsky@berkeley.edu; Richard Norgaard, Professor, Energy and Resources Group, UC Berkeley. Email: norgaard@igc.org; Collaborative governance and its limits: the rise and crisis of CALFED

This research sheds light to the rise and crisis of CALFED, "the world's most extensive - and expensive ? water management program". The purpose is to contribute to a better understanding of the advantages and limitations of collaborative environmental governance (CEG). CEG refers to processes of negotiation and coordination between state agencies, private actors and non-governmental organizations directed to the joint realization and implementation of decisions, plans or policies that address an environmental problem. CEG programs proliferate in the U.S., Europe and the rest of the world, as an antidote to the perceived failures of states and markets in environmental regulation. The CALFED Bay Delta program aims to improve the health of the San Francisco Bay/Sacramento-San Joaquin River Delta. While early-CALFED was celebrated as an international model of collaborative environmental management, recent evaluations portray a CALFED in crisis and in need of a major overhaul. This paper uses Jessop's theory of governance failure to explain the problems of CALFED. We hypothesize that CALFED is undermined by: i) inherent contradic-

tions in collaborative governance; ii) limitations in governing such a complex socio-eco-system as the Delta; iii) restrictions posed by the dominant political-economy; iv) failure to address distributive issues by focusing primarily on technical questions.

Keywords: governance; collaborative environmental management; California Bay Delta; water

Rajrani Kalra, Kent State University. Email: rkalar1@kent.edu; *High Technology and Socio-Cultural transformation of Bangalore/Bengaluru, India*

Today the high tech industries are transforming the physical, economic, and also the socio-cultural setup of the cities. Hence, the cities are becoming wealthy, opportunities are increasing and further attracting the multinational firms. In this research I have taken the case of Bangalore, which is attracting almost six high tech firms every week. There are many definitions of high technology but in this research, I have defined high technology as a combination of information technology, hardware, software and services, business process outsourcing, computer chips, telecommunications, data processing, electronics industries and research and development which are reasonably predominant in the city of Bangalore. The main focal point of this research is to portray and evaluate how the city and its populace transforms itself with the noticeable and concealed changes with the rise of high tech firms. This study applies primary and secondary data to conclude that is high technology the sole factor for creating disparities in Bangalore?

Keywords: High technology, disparities, Information technology, Bengaluru

Daniel Kammen, Energy and Resources Group - UC Berkeley. Email: Kammen@berkeley.edu; *California's Global Warming Solutions Act: Is it a viable solution?*

2006 may well be remembered as the year that, in face of two decades of clearer and clearer science on the risks of global warming. True action began to appear on the global political landscape. In California, AB32, introduced by Assemblywoman Fran Pavley, D-Agoura Hills, and Assembly Speaker Fabian Núñez, D-Los Angeles, imposes for a cap on greenhouse-gas emissions statewide, and a 25 percent reduction by 2020. More important than the target, which is itself dramatic, is the fact that California established emission controls on the largest industrial sectors, including utilities, oil refineries and cement manufacturing, and will use market mechanisms — emissions trading — to find the economically most-efficient ways to reduce global warming. The reach of AB32 is regional, as AB32 also comes with a cap on carbon emissions from power sold in California, thus impacting most western U. S. states as well. Can AB32 work? Will the market opportunities it opens be realized? What technologies — from biofuels to plug in hybrid vehicles, to building integrated solar energy, to carbon sequestration — will be, or will need to be, implemented to make this work? This talk will examine the environmental and economic imperative behind this climate action, and consider the opportunities to move from California's AB32 target of a 25% reduction in greenhouse gas emissions by 2025, to the ecologically demanded 80% or more reduction by mid-century.

Keywords: climate change, carbon emissions reductions, carbon caps

Ulrich Kamp, University of Montana. Email: ulrich.kamp@umontana.edu; Tobias Bolch, Technical University Dresden. Email: tobias.bolch@tu-dresden.de; Manfred Buchroithner, Technical University Dresden. Email: manfred.buchroithner@tu-dresden.de; André Kunert, Technical University Dresden. Email: andre.kunert@tu-dresden.de; *Mapping Debris-Covered Glaciers Using Morphometry and DEMs*

Glaciers are sensitive climate indicators and appropriate objects of environmental and climate change monitoring. Remote sensing techniques allow for monitoring of glaciers in remote mountains where fieldwork is difficult. Furthermore, such techniques allow for a simultaneous monitoring of a larger number of glaciers than would otherwise be possible. Although several glacier mapping approaches exist, the analysis of debris-covered glaciers still bears problems. A morphometry-based glacier mapping (MGM) approach was applied to glaciers at Mt. Everest (Nepalese Himalaya), in the Bernina Group (Swiss Alps), and in the Tien Shan (Kazakhstan/ Kyrgyzstan). While in the Bernina Group and the northern Tien Shan supra-glacial debris exists mainly in the form of medial moraines and also covers the glacier margins, at Mt. Everest entire glacier tongues are heavily covered by debris resulting in diverse forms of "cryokarst". The morphometric analyses are based on DEMs generated from ASTER and SRTM3 data, and for the Bernina Group also by using the Swiss DHM25L2. The MGM includes a cluster analysis combining plane and profile curvatures which allows for an identification of debris-covered valley glaciers in both the Bernina Group and the Tien Shan. The mapping quality depends on DEM resolution and quality. For Mt. Everest, the specific glacier surface characteristics require a more complex MGM approach including slope, elevation, and other statistical parameters, for example standard deviation and

diversity of curvature. Additionally, the thermal ASTER band was used to improve the mapping results. Multi-temporal analyses of ASTER imagery and DEMs demonstrate the MGM's potential in glacier monitoring.

Keywords: digital elevation model, gis, glacier, mapping, mountains, remote sensing

Ranbir Kang, Oklahoma State University. Email: ranbirkang@hotmail.com; Richard A Marston, Kansas State University. Email: ; Daniel E Storm, Oklahoma State University. Email: ; *Geomorphic Effects of Urbanization in an Ex-Urban Watershed*

This project evaluates the impact of imperviousness (roads, buildings, parking lots and sidewalks) on the channel morphology of Stillwater Creek, Oklahoma. Stillwater Creek is an ex-urban stream with mixed land-use (pasture, woodland and crops) lying adjacent to an expanding urban area. Urban growth in Stillwater has paralleled the expansion of Oklahoma State University. This research differentiates upstream-to-downstream changes (channel cross-sections, channel bed materials, channel unit types and riparian vegetation) from changes due to urban run-off and sediment load. Fieldwork was conducted to measure all these elements in 30 reaches of the creek. Aerial photographs taken at different times were used to measure growth of impervious areas. Although the creek receives runoff and sediment from construction and impervious areas, statistical analysis of data revealed no significant impacts of urban growth on channel morphology. The study demonstrated that three factors counter urban impacts on channel morphology: 1) a thick cover of riparian vegetation, 2) highly entrenched channel characteristics and, 3) the nature of bed materials.

Keywords: urbanization, channel morphology, riparian vegetation

Sarah E Kanouse, Southern Illinois University Carbondale. Email: kanouse@siu.edu; *"Marking and Missing: memory-performance and the radical present"*

The widespread impulse toward delimiting memorial space is often expressed through visible gestures of spatial marking: naming a street, building a monument, erecting a plaque. These practices largely seek to "make the past present," often rely on very literal relationships between space and event, and generally must become incorporated into bureaucracies of government and tourism in order to realize their spatial ambitions. However, the performance of memory?understood both as vernacular practices and self-consciously artistic gestures?opens up acts of spatial marking to much more fluid, evocative, and potentially critical outcomes. While cultural geographers have become increasingly sensitive to the role of performance and performativity in the production of space, artists have begun to explore space as a significant conceptual, aesthetic, and political ground for performative works. This paper examines several recent politically-engaged performative memorials, including the author's, to argue for a project of memory-performance that foregrounds how understanding mediation, inexactness, irresolution, and absence is crucial for abiding with and contesting our pasts.

Keywords: space, memory, place, performance, art

Samantha W. Kaplan, University of Wisconsin. Email: swkaplan@wisc.edu; Benjamin H. Von Korff, University of Wisconsin. Email: bhvonkorff@wisc.edu; *A Multi-Proxy Approach to Questions of Climate and Fire Regime in Northern Wisconsin Using Lake Sediments and Tree Rings*

Germain Hemlocks, in northern Wisconsin, is a 36-hectare tract of old-growth northern mesic forest dominated by hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*). Field and historical evidence indicate larger white pines were selectively logged from the property in the 1880's, and although new pines were recruited in their place between 1880 and 1910, younger pines are scarce or non-existent. Hemlocks, on the other hand, are regenerating well despite strong deer-browse pressures. Forest managers would like to encourage pine establishment, but need more information on fire frequency and forest dynamics in this area prior to European settlement. Periods of growth release are evident in the hemlock tree rings, and the pines to a lesser extent, particularly in response to logging and following a disturbance in the 1820's. Climatically, warm and damp spring conditions and cool, damp summers, correlate to increased ring width in both the pines and hemlocks, with historical droughts coinciding with narrow rings, especially in the hemlocks. While it is assumed that changes in fire regime, anthropogenic or otherwise, have played a role in the dominance of hemlock versus pine, there is no fire scar evidence to test this hypothesis. Alternatively, we are examining charcoal abundance and pollen ratios in a sediment core from Corner Lake, the smaller of two lakes on the property. Comparison of the charcoal, pollen and tree-ring records will give insight into past forest composition and determine whether canopy-opening disturbances were related to fire, or the result of climate stress or wind throw.

Keywords: tree rings, climate, charcoal, pollen, Wisconsin

Bandana Kar, University of South Carolina. Email: yourbandana@yahoo.com; *Spatial Distribution of Potential Residential Loss from a Storm Surge*

The East Coast of the US experiences numerous hurricanes and storms each year. Recently, the number and severity of hurricanes affecting the US coast has increased. In addition, according to the National Ocean and Atmospheric Administration, as of 2003, more than 50% of the total US population was residing in counties close to the coastline. The risk from hurricane occurrence combined with increasing coastal population contributes to enormous potential financial loss. To protect individuals from storm surge and other coastal flooding impacts, the National Flood Insurance Program was implemented in 1968. However, in 1995, only 25% of the total eligible homeowners were found to have purchased flood insurance. Uninsured homeowners, however, have little protection from other sources. The recent hurricane Katrina (2005) induced storm surge in coastal Mississippi is a good example. Nevertheless, the potential dollar loss due to residential structure damage from storm surge activities has been poorly studied. No study has also been conducted to evaluate the sensitivity of estimated residential damage from storm surges to the geographic scales of analysis. This research investigates the observation scale and modeled loss relationship. Using this relationship, the pragmatic research question will be explored: What is the geographic distribution of potential residential loss from a category 'n' (e.g. IV or V) hurricane storm surge along the East coast? ? Given the same magnitude hurricane, will the modeled loss be similar for cities of similar sizes? ? What cities are at greatest risk and why?

Keywords: storm surge, scale of analysis, property damage, dollar loss

Mehmet Karakuyu, Fatih University. Email: mkarakuyu@fatih.edu.tr; *Application of the Urban Realms Model to Istanbul*

The sprawling masses of cities like Los Angeles, Chicago and Istanbul, driven by car-culture, need a model that accounts for the car, mass transportation and, in Istanbul's case, marine links. Urban realms model provides this descriptive and interpretive framework and replaces the models used to address the characteristically single-centered metropolis of prewar decades. In the urban realms model, these urban realms are large self-contained areas: within which a mix of land uses is such that daily life can be carried on without normal resort to external locations in other realms. There will always be a turning to other realms for some purposes by those living or working near the boundaries between realms. Istanbul is unique because its urbanization rate is higher than almost anywhere else in the world. Human behavior, transportation initiatives, and governmental policy have all been instrumental in their effect on the urban morphology of Istanbul. In this paper, the urban realms model is employed as an analytical framework for Istanbul.

Keywords: Istanbul, Transportation, Urban realms model, Urban geography

Pradyumna P. Karan, University Of Kentucky. Email: ppkaran@uky.edu; *Ellen Churchill Semple and Japan*

After the publication of *Influences of Geographic Environment*, Ellen Churchill Semple visited Japan in 1911. Semple spent three months in Japan studying Japanese agriculture. This paper will discuss Semple's research in Japan and her contribution to Japanese geography.

Keywords: Semple, Japan

Herman Karl, Ph.D., USGS. Email: hkarl@usgs.gov; Beaudry Kock, MS, Massachusetts Institute of Technology. Email: bkock@mit.edu; *Collaborative process and modelling approaches for addressing value-laden water conflicts*

Basing natural resource management decisions on sound science began at the end of the nineteenth century in the belief that science would provide a means of objective and rational management. Unfortunately, the highly contentious debates that surround complex natural resource issues often marginalize the contribution of science to decision-making. This is in large part due to adversarial processes that are created by and often dominate regulatory disputes. Increasingly, it is becoming recognized that the human dimensions of a problem must be considered in the deliberations that lead to natural resource management decisions and environmental policy. Such decisions are unavoidably based on a range of values and interests of social, political, economic, and aesthetic derivation. Science cannot be separated from these values. Decisions based on sound science should therefore integrate social and natural science as part of the policymaking process. Western water conflicts in particular are value-laden, complex and contentious. In this context, scientific information and models are often not used as effectively as they might be. A failure to incorporate the societal dimensions of resource conflicts into scientific processes and models is often to blame. Consequently, regulatory agencies are beginning to explore consensus-seeking collaborative processes that engage the full range of stakeholders who have a say in or who are affected by a decision, as a way to mitigate conflict and make more effective, wise, and durable policy decisions. We will

describe the framework of a well-designed collaborative process and present preliminary results from research developing a multi-agent simulation model.

Keywords: water conflict, collaborative process, modelling

Abdurazack Karriem, Cornell University. Email: ak11@cornell.edu; *The Rise and Transformation of the Brazilian Landless Movement into a Counter-hegemonic Political Actor: A Gramscian Analysis*

The Brazilian Landless Movement (MST) is acknowledged as one of the most organized, dynamic and influential mass movements in Latin America today. It increasingly engages in counter-hegemonic struggles against neoliberalism, leading conservatives and leftists alike to describe it as a "first class actor" on the political scene. This raises two key questions: Why is a rural movement regarded as one of the most organized and influential in a country that is eighty percent urbanized? And, what explains the move from corporatist struggles for land to broader counter-hegemonic contestations? Most analysts reduce the MST's prominence to conjunctural factors, thus downplaying the agency of its members. This analysis fails to explain why other movements were unable to exploit conjunctural factors. I employ Gramsci's concept of hegemony to argue that the MST's organizational praxis allows its members to practically and ideologically challenge the 'common sense' of hegemonic ideas. For the MST, the struggle for land and agrarian reform constitutes an integral component of a broader project of social transformation or a protracted 'war of position,' which requires alliances with other popular forces to build an alternative hegemony. This paper posits that the MST's emphasis on organization building, political education, the development of its own 'organic intellectuals,' engagement in national-popular struggles, and the forging of rural-urban and national-global alliances explains the MST's rise and transformation into a vibrant counter-hegemonic actor. A Gramscian political economy approach has much to offer for both analyzing hegemonic rule and the shaping of a counter-hegemonic politics of collective action.

Keywords: hegemony, social movements, MST, Brazil, Gramsci

Bonnie Kaserman, University of British Columbia. Email: bonnie_kaserman@hotmail.com; *It's not exactly rocket science: NASA's environmental education as a site of challenging and re-working Cold War politics*

The lingering politics of the Cold War and, as Cynthia Enloe (1993) writes, its "multitude of endings" have provided salient entry points in examining the implications and interconnectivity of nation and empire building on the mundane practices that secure the bodies of citizens. As part of the multitude of Cold War endings, in 1990, one year after the symbolic finale of the Cold War, the US Congress legislated the Global Climate Change Research Program. By congressional mandate, the US National Aeronautics and Space Administration (NASA) has taken a large role in this climate change research effort. NASA, who has historically influenced US education, has established a variety of educational programs to promote climate change science in schools around the world and, primarily, in the United States, where efforts have been executed to include climate change science in individual U.S. states' science curricula. In this paper, I examine one NASA-affiliated environmental education program, GLOBE, in order to explore how GLOBE serves as a site of US nation and empire building. I rely upon NASA and GLOBE documentation as well as interviews conducted with North Carolina public school-teachers who have implemented GLOBE classroom materials. How does climate science education constitute a site of citizenship? How do material requirements and practices of GLOBE delimit who practices climate science in the classroom? In working through these questions, I suggest that GLOBE both re-works and offers challenges to persisting Cold War politics and threats that are embroiled in securing the national body.

Keywords: science, geopolitics, feminist geography

Michael J Kashuba, Sustainable Transportation Technologies Branch, California Air Resources Board. Email: mkashuba@arb.ca.gov; *California's Hydrogen Highway Network - Mission, Policies and Implementation*

California is the only state with the authority to adopt standards, rules and regulations to reduce emissions from vehicles and fuels in order to meet the states ambient air quality standards. Emissions from motor vehicles make up over half of the states air pollution and contributes significantly to greenhouse gas totals. Hydrogen fuel cell vehicles have zero tailpipe emissions and have the potential to play a key part in helping California meet its clean air targets. This presentation will review the findings and recommendations of the California Hydrogen Blueprint Plan. This includes the phases of station development, funding, policies and partnerships, modelling of environmental goals and implementation. The talk will conclude with a status report of vehicle placement and station infrastructure, and some thoughts on what the future may bring.

Keywords: Alternative Fuels

Devva Kasnitz, PhD, UC Berkeley. Email: devva@earthlink.net; *Creative Options for Rural Accessible Transportation and Employment*

The lack of transportation is one of the most significant and frequently reported problems affecting people with disabilities who live in rural communities and those who serve them. Historically, federal transit resources have been inequitably allocated between urban and rural areas, with only 6% of resources going to support public transit for the 25% of the population living in rural communities. Some studies estimate that the population living in 40% of the rural counties has no access to any public transportation whatsoever. This study examined the effectiveness of a voucher model of rural transportation for people with disabilities. Ten independent living centers or Indian tribes in ten states operated the voucher program to provide transportation to 588 adults with disabilities. Participants took a total of 92,587 rides covering a total of 1,018,391 miles at an average cost of 39 cents per mile. The rides were used primarily for employment and employment preparation, with 171 individuals securing either part-time or full-time employment through the program. This paper explores the disability research theory and method that underpins these dry facts and how research and demonstration project funding can be used to advance creative public policy. Unexpected findings include participants' adamant priority on micro-employment, the ability to leverage volunteer programs, the variety of transportation options for people who experience different impairments, and the effectiveness of elderly and disability coalitions.

Keywords: Disability, Transportation, Rural, Employment

Shlomy Kattan, University of California, Berkeley. Email: shlomy@berkeley.edu; *Anxiety, Family, and Schooling Across Borders: Israeli Emissaries and their Children in the United States*

Based on data collected as part of two multi-sited ethnographies that follow the transitions of Israeli families moving to the United States, one with families of emissaries (shlichim) sent by the Jewish Agency for Israel (JAFI) to New York for two years, and another with a family sent to California as employees of an Israeli bank, this paper looks at how children and their parents transition to their new surroundings while anticipating their eventual return to their country of origin. The paper examines how shlichim cope with the anxieties of transnational dislocation and what role parents consider formal education to play in easing these transitions for the children. More specifically, the paper discusses the competing ideologies held by adults on how children cope with cultural and linguistic shock and how these ideologies figure in family decisions on school and language choice. By focusing on the transition from Israel to the United States, this paper is able to get a view of migration often unavailable to researchers: the preparation for departure and initial arrival to the country of destination. This period of transition is formative in the migrants' experiences as emissaries and in defining themselves vis-à-vis their country of origin and their host country. Data collection for this project has taken place in Israel, California, and New York at the homes of the families, the children's schools, and other settings. Data include videotaped interaction between parents, children, peers, and educators, interviews with study participants, and ethnographic observations of neighborhoods and classrooms.

Keywords: Transnationalism, Globalization, Children, Education, Migration, Emissaries

Cindi Katz, CUNY Graduate Center. Email: ckatz@gc.cuny.edu; *The Child as Spectacle: Cultural Geographies of Childhood in the United States*

Spectacle, according to Guy Debord, is the accumulation of capital to the point of collapse; where capital itself becomes image. As the 21st century picks up speed and settles into place 'the child' has become a form of spectacle—a site of accumulation and even commodification—in whose name much is done. In this paper I ask why and through what means this spectacularization has occurred, examine the consequences of these material social practices for actual children and the historical geographies of their everyday lives, and explore what is accomplished political and socially by these cultural formations.

Keywords: Children, Childhood, Everyday Life

Brent Zachary Kaup, University of Wisconsin - Madison. Email: bkaup@ssc.wisc.edu; *Negotiating with 'Nature': Neoliberal Cracks and the Constraints of Natural Gas*

Transnational extraction firms would like to fashion Bolivia as just one more supplier of cheap natural gas in their global sourcing regime. However, these firms face a paradox. In their attempts to establish a footloose global sourcing regime, the fact that raw materials are held within, upon, and underneath the earth's subsoil makes these firms dependent upon place. While today's transnational manufacturing firms are able to seek out the most profitable sites of production, nature's reproductive capacities do not give extraction firms the same luxury of choice. In this research, I explore how these transnational firms are, of necessity, plunged into the natural, social, and political messiness of place that their global strategies attempt to avoid. Drawing from ethnographic research

utilizing in-depth interviews, participant observation, and archival analysis, I argue that as today's oil and gas firms seek access to Bolivia's natural gas reserves, they must not only take into account the highly volatile properties of natural gas and the difficult geographic landscape of the Bolivian countryside, but also the shifting social and political realities. In this context, I note that by accounting for both the social and biophysical constraints of natural gas extraction, the cracks within the current paradigm of neoliberal globalization can be further illuminated and widened, thus providing local actors with more entry points and opportunities to influence how neoliberal globalization is touching down in place.

Keywords: Materiality, Neoliberalism, Natural Gas, Bolivia

Navjot Kaur, . Email: dhillon_navu@yahoo.com; *Comparing Spatial Mobility Internationally with GPS data: Tracking Faculty of an Indian University and a US University*

Spatial mobility is an integral aspect of human activity. One way of understanding human spatial mobility is to track movement patterns. The research proposed here is an effort to compare spatial mobility patterns in general, of faculty at University of Nebraska at Omaha (US) and Punjab Agricultural University (India). Using a GPS tracking device and associated software, data will be gathered and analyzed. By comparing these variables, the similarities and differences in spatial movement at an international level will be determined. There is little international research that analyzes differences in spatial mobility patterns between countries. Studies that have examined differences in spatial mobility did not use the same set of variables and collection techniques, so comparison of data is difficult. Part of the significance of this study lies in finding new method and variables to examine spatial movement patterns internationally. It also explores the growing similarities in spatial movement patterns in the two countries. Although GPS cannot collect other demographic and socio-economic data, GPS data in combination with survey or interview method can be used effectively in studying spatial mobility.

Keywords: GIS, Spatial mobility, GPS, Daily mobility, movement patterns.

Mizuki Kawabata, The University of Tokyo. Email: mizuki@csis.u-tokyo.ac.jp; *Modal Accessibility Inequality and Urban Spatial Structure: An International Comparison*

Equity in access is increasingly recognized as an essential component of sustainable urban development and transportation. It is known that in the highly car-dependent US, the number of accessible job opportunities, or job accessibility, is considerably lower for public transit users than for car users. It is also known that job accessibility varies by location. However, the degree and intra-metropolitan variation of inequality of job accessibility between cars and public transit, referred to hereafter as modal inequality of job accessibility, has not yet been sufficiently examined. Neither is the extent to which modal inequality of job accessibility greater in the US than in a less car-dependent area well understood. Selecting the Boston, San Francisco, and Tokyo metropolitan areas as the study areas, I examine the following two questions concerning modal inequality of job accessibility in connection with urban spatial structure. First, to what extent does modal inequality of job accessibility exist and vary by location within the three metropolitan areas? Second, to what extent do the degrees and intra-metropolitan variations of modal inequality of job accessibility in the US metropolitan areas differ from Tokyo, a less car-dependent metropolitan area? The first question is answered by measuring and plotting modal inequality of job accessibility using GIS and spatial data. The second question is addressed by comparing the results of the US metropolitan areas with the results of Tokyo. Our empirical results provide useful data in developing transportation and land use policies to safeguard equity of accessibility.

Keywords: modal inequality, accessibility, US metropolitan areas, Tokyo, GIS

Tatsunori Kawasumi, Ritsumeikan University. Email: kawasumi@lt.ritsumei.ac.jp; *Restoration of Heiankyo using GIS/VR: Kyoto circa 8th-12th Century*

Heiankyo in Kyoto had been the capital in Japan since 794 AD. For the last half a century, in the Heian capital site, large number of historical data has been collected from archaeological excavations and historical documents. Restoration of Heiankyo has been one of major challenges of archaeologists, historians, historical geographers and historical architects using such accumulated data. In this research, firstly, we compiled spatial database of excavation findings to estimate ground surface of the Heiankyo. Second, we digitalized land uses in Heiankyo created by historians and archaeologists. Third, we created CG models of various buildings in Heiankyo using CAD, from blueprints restored by historical architects. Finally, we integrated the above sources in GIS to created virtual Heiankyo in a VR space. The virtual Heiankyo is the digital diorama of the Heiankyo. The purposes of this project are (1) digital archiving of existing historical materials and findings and (2) visualization of historical spatial data in the archive. Our aim at creating virtual Heiankyo has been to use it as a platform

for placing digitally archived materials to be broadcasted as Web 3D GIS, but there are also demands for it to be displayed at museums.

Keywords: gis, virtual reality, Japan, kyoto

Rebecca Kay, Senior Lecturer, Department of Central and East European Studies, University of Glasgow. Email: r.kay@lbs.gla.ac.uk; *The Invisible Man: Gender, Care and Social Support for Men in post-Soviet Russia*

This paper seeks to explore some of the ways in which gendered understandings and practices of care impact on perceptions of men's needs for and entitlement to social support in post-Soviet Russia. These perceptions affect the attitudes and behaviours of men, women and caring professionals and shape institutional patterns of service provision in ways which often marginalize and exclude men from both formal and informal systems of care and social security both as recipients and as providers. The paper draws on an ethnographic study of the Altai Regional Crisis Centre for Men and its attempts to identify men's needs for social support, to provide appropriate forms of care and to enhance the social security of men in the Altai Region of western Siberia. The specific focus of the Crisis Centre on developing a coherent system of social support for and work with men is virtually unique in post-Soviet Russia. Its work is avowedly experimental and firmly embedded in the context of changing understandings of the role of the state, non-state structures and more informal networks in the provision of social security and support to the population. Whilst the paper focuses on a detailed study of men's needs and experiences in a post-Soviet Russian context, many of the questions raised here are equally significant to wider debates and theorising about the gendered nature of care and its interactions with constructs of gender and power in families, local communities, wider societies and state-led institutions.

Keywords: Men, Russia, Care

Jukka Käyhkö, Department of Geography, University of Turku, Finland. Email: jukkay@utu.fi; Petteri Alho, Department of Geography, University of Turku, Finland. Email: mipeal@utu.fi; Mikko Selin, Department of Geography, University of Turku, Finland. Email: mianse@utu.fi; *Coping with floods - modelling, mapping, adapting and mitigating*

Climate change is believed to have a substantial impact on river floods in the coming decades due to changes in hydrologically relevant parameters such as temperature, precipitation and snow cover. A comparable impact may result from projected changes in catchment land use and river channel management. In order to minimize flood hazards, the societies need to be better prepared for flooding in the future. This can be achieved by production of accurate flood scenarios and flood maps, and by effective dissemination of this information to relevant stakeholders. These include e.g., landowners, planners, public employees, business companies and rescue services. We present the Finnish system for flood damage prevention. This involves hydrologic and hydraulic modelling supported by high-accuracy DEM, involvement of relevant databases for infrastructure and population for the inundation area, GIS techniques for spatial database management, cartographic techniques for visualization, and interactive stakeholder involvement. Key components in a successful flood strategy include 1) cost-efficiency in relation to the data demand vs. accuracy of the final product (to allow mapping over large regions), 2) cartographic design in terms of both printed maps and digital GIS layers (for different end-users), 3) appropriate scales on which the maps will be made public (to give necessary information but to discourage over-interpretation), 4) effective dissemination of the flood risk maps in an appropriate and accessible format to different stakeholders from planners and engineers (long-term need) to rescue services (acute need). The Finnish flood mapping system parallels with the EU flood directive currently under final preparation.

Keywords: flood, modelling, map, hazard, risk

Niina Käyhkö, . Email: niina.kayhko@utu.fi; *Landscape Change Trajectory Analysis in the Assessment of Ecosystem Space-Time Dynamics: Case Study from Zanzibar, Tanzania*

Landscape Change Trajectory Analysis (LCTA) can be used to analyse landscape dynamics and to dissect evidences of the major driving forces of landscape change. The emphasis of the change analysis is on the retrospective relationship between the present-day and the past landscape patterns with the aim of identifying the relevant spatio-temporal processes in the landscape. In this case study, the approach was applied for the change analysis of the coral rag landscapes of Zanzibar Island, Tanzania. There is a growing concern over the sustainability of the natural resources, particularly forests, in the intensifying and dynamic agricultural environments of Zanzibar. The study was based on the land cover/land use information derived from the aerial photographs dating to 1953, 1978, 1989 and 2004. Geographical Information Systems (GIS) were used to construct a combined spatio-temporal database of the separate time slices. Landscape change trajectory analysis resulted with information of the spatial and temporal dynamics of the forest and agricultural ecosystems. It was further

applied to provide spatial indicators, such as forest cover stability, continuity and land use trajectories, for the discussion of the quality and sustainability of the natural resources in the coral rag areas. While change trajectory analysis is retrospective in character, its applicability is clearly forward looking. To be able to argue for ecosystem space-time persistence, their present state needs to be assessed as a function of the past dynamics.

Keywords: landscape ecology, land cover, forests, shifting agriculture, Geographical Information Systems, spatio-temporal

Brenda A Kayzar, San Diego State University and University of California, Santa Barbara. Email: kayzar@rohan.sdsu.edu; *Analyzing Revitalization Outcomes in Downtown San Diego*

My research examines change in downtown San Diego as a result of formalized revitalization efforts. I employed a multi-method approach for this case study and utilized a network framework based on actor network theory to develop a narrative about the city's morphology. Through the narrative I analyzed the dynamics of power relations between actors in various networks of redevelopment activity as economic, political and social contexts changed over time. My analysis suggests the center city's historically minor role in the region facilitates boom and bust cycles of investment due to a lack of attachment to, and confidence in, downtown. The city's planning strategies and policies are aimed at rapid growth however, and thereby produce uneven outcomes since they are continuously employed regardless of the level of investment interest. The result is an incomplete duo-scape of tourist destinations and housing units, which contracts with the city's live, work and play environment envisioned in the downtown community plan.

Keywords: downtown revitalization, urban growth strategies, San Diego

Sheila A Kazar, West Virginia University. Email: sakazar@earthlink.net; *Multitemporal Characterization of Surface Mine Reclamation Sites—a Tasseled Cap transformation*

Debate around the "missing sink" has elevated the terrestrial ecosystem to the top of the list in the search of potential global warming solutions. Current terrestrial carbon research typically focuses on forested land and its current and potential carbon storage. Thousands of hectares of land a year are disturbed by surface coal mining in the United States. Since the passage of the Surface Mine Reclamation Act in 1977 (SMCRA), much of the land transformed by surface mining has been reclaimed. The Office of Surface Mining reports that in 2004, 128,495 total hectares of land were under permit for surface coal mining in West Virginia and 74,971 hectares classified as "disturbed." An additional 1645 hectares were considered revegetated under SMCRA regulations. The purpose of this study is to characterize the multitemporal changes of vegetation growth within reclaimed coal surface minesites in Monongalia County, West Virginia. Spectral signatures of the minesites were analyzed using the Tasseled Cap green vegetation index (GVI), brightness index (BI) and wetness index (WI) for a temporal series of Landsat Thematic Mapper (TM) images. Results of this study will be used in combination with field estimates of biomass to assess carbon storage within reclaimed minesites.

Keywords: Tasseled Cap, surface mine, aboveground carbon

Michael J. Keables, University Of Denver. Email: mkeables@du.edu; Shitij Mehta, University of Denver. Email: smehta3@du.edu; *Kansas Soil Water Budget Climatology Using GIS*

A soil water budget climatology for Kansas was modeled using GIS technology. Using mean monthly temperature and precipitation observations and estimates of potential evapotranspiration for the period 1895-2005, and observed soil water capacities, a local water budget model was constructed using GIS to calculate the water budget climatology for soils at the soil unit level. The model is initialized by assuming the soils are at field capacity at the beginning of the period of record, and then run until soil water is depleted to ensure that the representation of soil water conditions in the model accurately depict the soil hydroclimatology for the period 1950-2005. Spatial patterns and temporal variability of soil water surplus, deficit, utilization, and recharge are presented.

Keywords: water resources, local water budget, climatology

Barbara Kearney, Ph.D., Maryland-National Capital Parks and Planning Commission. Email: dr.kearney@gmail.com; *Using a Residential Capacity Estimate to Evaluate the Effectiveness of Montgomery County Zoning on the Rural to Urban Interface*

In 2004, the Maryland National Capital Parks and Planning Commission issued a "Residential Capacity Study" (RCS), since development capacity is a critical factor in determining the magnitude and location of the forecast this study provided an estimate of the amount of housing that can be built in Montgomery County under current conditions. This estimate of development capacity was based on current plans, regulations, and development practices, and took into account current regulatory and physical development constraints. It

reflected the actual number of units developers typically build on residentially zoned land. This estimate served as a baseline for measuring the need and impact of changes to current plans and in preparing growth forecasts. The RCS found that future residential capacity represented 18 percent of the total of existing and future units, or a 22 percent increase over the 2003 base. The location and density of future housing units conformed to the Commission's smart growth priorities. More than 85 percent of future units are located within designated Priority Funding Areas (PFAs) and a full 54 percent are within a ten-minute walk (half-mile radius) of existing commuter rail stations. In addition, to being a strong tool for policy makers; the Residential Capacity Study has demonstrated the continued effectiveness of county planning policies to direct growth in designated areas and maintain and protect an agricultural wedge, while promoting infill development in more urban areas. This research demonstrates the utility of using a residential capacity estimate for projecting areas of future growth to inform land use policy.

Keywords: community planning, land use, residential capacity, smart growth

Gerry Kearns, University of Cambridge. Email: gk202@hermes.cam.ac.uk; Simon Reid-Henry, Queen Mary, University of London. Email: s.reid-henry@qmul.ac.uk; *Vital Geographies: politics, meaning, life*

The state is involved with the management of life in terms of both the limits and the capacities of lives. This paper explores the geopolitical and geographical dimensions of these issues and reflects upon their moral and political significance. In terms of limits, any theory of justice has to address the geographical luck that birthplace confers longevity. Likewise in terms of limits, a cultural, technological and political geography is created by the styles and contexts in which the beginning and end of life is defined and regulated by and between states. In terms of capacities, we need to reflect upon the ways that biological potential is commodified by state power. Slavery is the most direct version of this but it shades off into various other non-consensual forms of selling the use of bodies in, for example, the pharmaceutical industry. Finally, the capacity of life contributes in geographically variable ways to an understanding of what it means to be human. This is where issues of human rights become pertinent and their suspension in the enclosures of the war on terror become part of a new geography of unfreedom.

Keywords: Geopolitics, Biopolitics, Demography

Robin A. Kearns, The University of Auckland. Email: r.kearns@auckland.ac.nz; Denise Bijoux, The University of Auckland. Email: dbijoux@orcon.net.nz; *Keeping heads above water: Provider perspectives on activism, partnership and collaboration in the New Zealand community/voluntary sector*

In this paper we draw on preliminary results from the New Zealand component of a cross-national (UK/NZ) study that seeks to examine the importance of place for understanding the interrelationship between government and community/voluntary sector organisations, with particular focus on the notion of 'activists'. We draw on questionnaire and interview data gathered in 2006 to explore the extent to which organisations operating within the fields of mental health and community safety view themselves as activist in intent and how this may have changed over time. We grant particular attention to how these organisations and constituent 'activists' understand the concepts of 'partnership' and 'collaboration', as well as the significance of the spaces in which activism occurs for the future of the sector. We also grant attention to paradox of 'prescriptive partnership' - the way in which the viability and diversity of ethnically-based projects is apparently undermined by a dominant and bureaucratised (Pakeha, i.e. western) set of norms. We explore the apparent curtailment of activism (vis a vis earlier eras) by the discourse of partnership and the ways that the quest to 'keep heads above water' (i.e. deal with questions of funding and security) are inhibiting more sustained collaboration between the state and the voluntary sector.

Keywords: Voluntary sector, place, activism, mental health, community safety, New Zealand

Philip L. Keating, Indiana University. Email: pkeating@indiana.edu; *Understanding the geographic dimensions of forest recovery in the Ecuadorian Andes: problems and prospects*

During the past several decades, Ecuador's montane forests have received increasing attention from geographers, ecologists, and conservationists. After 7000+ years of human occupation, areas above 3000 m elevation include a complex mosaic of agricultural lands, forest and páramo (tropical alpine) ecosystems. In many sections of the Ecuadorian Andes, upper montane forest extends up to 4300 m elevation on the outer flanks of both cordilleras. Within the central valley, however, inter-Andean forests typically occur as small patches or corridors. Collectively, studies of Ecuadorian forests have shown that their composition, structure and disturbance regimes vary tremendously with both

elevation and geographical position. Whereas some authors have suggested that forest removal has largely been unidirectional, irreversible and/or catastrophic, recent evidence suggests that secondary forest cover is now more extensive than what was previously believed. This paper reviews both the current ideas concerning Ecuadorian upper montane forests and the common methodologies used to investigate their regeneration dynamics. Using a series of case studies, I will demonstrate that a wide array of factors have contributed to the spatial distribution and physical stature of forests that exist today. Although environmental history, contemporary disturbance regimes, and protected areas have influenced forest cover, I will emphasize the role of topographic factors in shaping forest recovery. Several quantitative methodologies will be presented, and I will make recommendations for future research.

Keywords: Andes, Tropical Montane Forest, Geographic Information Science, Ecuador

Jon J Kedrowski, MA, Ph.D. Student. Email: StellarHoops32@hotmail.com; *Assessing Human-Environmental Impacts on Colorado's 14,000-foot Mountains*

This research focuses on documenting and analyzing the factors that affect mountain climbing in the state of Colorado and assessing the potential environmental impacts caused by the growing number of climbers visiting the Fourteeners?the 58 mountain peaks located within the Rocky Mountains exceeding an elevation of 14,000 feet. Key objectives were to: 1) identify factors that have a significant effect on mountain climbing frequency; 2) collect information from physical trail and route evaluation to develop an interim classification index; 3) combine relevant variables to formulate a composite Fourteeners Environmental Degradation Index (FEDI) and use it to evaluate, rank, and compare the 58 fourteeners within the six major mountain ranges; and, 4) examine sensitivity of this composite index based on changing relative importance of the input variables. The FEDI indicated that Mount Evans (Front Range) was ranked highest (highest level of adverse impacts), while Culebra (Sangre de Cristo Range) ranked lowest. The mountain ranges closest to Denver (Front Range and Tenmile/Mosquito) yielded the highest average ranks, while ranges farthest from Denver showed lowest ranks. Sensitivity analyses of the FEDI suggested that rankings were not drastically altered by adjusting relative importance of input factors. The findings provide important insights on identifying preservation needs within heavily visited mountain environments and can be used to guide future protection efforts, trail construction, and maintenance for existing trails and routes.

Keywords: fourteeners, climbing frequency, trails, erosion, alpine degradation

Sya Buryn Kedzior, PhD Student, University of Kentucky. Email: sya@insightbb.com; *Environmental Movements in India: A Rural-Urban Dialectic?*

Studies of environmental social movements in India often argue that their unifying characteristic is an anti-development orientation (see for example Guha and Martinez-Alier 1998, Karan 1994, Routledge 1993). This is often based on an assessment of Indian environmental social movements that classifies them as peasant struggles for autonomy and livelihood in the face of unjust development policies and programs. Interestingly, most of the studies that share this conclusion focus on movements that take place in rural contexts, where relationships to the environment and natural resources, especially in terms of access and ownership, can vary drastically from those experienced in urban areas. Some scholars, such as Paul Routledge (1993), who uses the term "fourth world colony" to describe the exploitation of certain rural areas as domestic colonies internal to the state, acknowledge the ways in which rural areas are differently incorporated into governmental development policies and programs than their urban counterparts. In this paper, I compare two environmental social movements in India that confront issues related to river water resources: the well-known rural Narmada Bachao Andolan (Save the Narmada Movement) and the urban Sankat Mochan Foundation, whose goal is to rid the Ganges River of pollution, in order to examine how the relationships between environmental movements and water resources are differently constructed in rural and urban contexts. In doing so, I ask whether these relationships lead to different movements perspectives on "development" and whether urban movements in India share the same anti-development orientation as their rural counterparts.

Keywords: environmental social movements, india, urban, rural, water

Arn Keeling, PhD, Memorial University of Newfoundland. Email: akeeling@mun.ca; Graeme Wynn, UBC. Email: wynn@geog.ubc.ca; *From Splendour to Desolation: Strathcona Park and the Environmental History of British Columbia*

As a cultural landscape, British Columbia's Strathcona Park embodies not simply the "natural" values associated with wilderness parks, but also the enduring conflicts within B.C. and Canadian society over the preservation or development of natural resources. Decades-long political struggles over the status of the

park?the province's first?as a protected area exemplified the larger tensions within B.C.'s "frontier" society between aesthetic and material values in nature. Set amidst the rugged mountains of central Vancouver Island, the province created the park by special legislation in 1911 "for the benefit, advantage, and enjoyment" of British Columbians, as well as to attract tourists. The planned tourist infrastructure never materialized, however, and Strathcona remained a largely remote, wilderness park best known for outstanding sport fishing. Over subsequent decades, the park's integrity was repeatedly undermined by boundary alterations, resource extraction, hydroelectric projects and industrial pollution. Pro-development provincial governments both abetted and initiated efforts to exploit the material resources of the park. Beginning in the 1950s, conservationists and recreationalists, including the internationally known angling writer and local resident Roderick Haig-Brown, bitterly opposed these developments, citing the importance of preserving aesthetic and "non-material" values in the park. As a contested landscape, Strathcona Park magnified the growing public dissension in the mid-twentieth century over the appropriate use and protection of the province's natural spaces.

Keywords: parks, historical geography, environmental history, cultural landscape, British Columbia

David J. Keeling, Western Kentucky University. Email: david.keeling@wku.edu; Policy Implications and Regional Geography in the Geographical Review, 2001-2006

Examines recent publications in the Geographical Review (2001-2006) in terms of their geographic reach and their implications for policy makers. Few publications in geography journals address the implications for policy makers of the research conducted. Yet policy implications are implicit in just about all geographic research published in the Geographical Review. Discusses the types of policy influence that could stem from research published in the GR and explores the spatial distribution of research articles over a five-year period.

Keywords: regions, place, Geographical Review, AGS

Amanda Keen-Zebert, Texas State University. Email: keen-zebert@txstate.edu; Channel boundary forcing in the Upper Guadalupe River, a mixed alluvial-bedrock river

In general, forcing mechanisms control geomorphologic processes to such a degree that they eclipse, outweigh, overshadow, or punctuate processes operating at other scales. Channel bed boundary forcing interrupts longitudinal processes operating in streams. Forcing agents can be anthropogenic or natural in origin. They exert local control on fluvial processes and cause divergence from basin wide trends in erosion or deposition. In mixed boundary rivers, where both bedrock and alluvial reaches alternate downstream, the impact of channel boundary forcing is potentially great. Anthropogenic channel boundary forcing agents include any human built feature that locally influences the channel boundary type. Examples of anthropogenic channel boundary forcing agents include road crossings, small run of the river dams, and human built stream network links, such as channelized drainage paths that empty into streams. Any naturally occurring feature of a stream that locally controls flow and sediment transport rates may be considered a natural channel boundary forcing agent. Examples of obstruction type forcing agents include logjams, large individual boulders, and debris flows. Tributaries might be considered local forcing agents if the flow or sediment load contributed to the main channel is different from basin wide trends. The Guadalupe River is a mixed alluvial-bedrock river in a suburbanizing area of central Texas. Longitudinal effects of forcing agents on the channel boundary type of the Guadalupe River are quantified through field investigation and mapping. Channel boundary forcing in the Guadalupe River is put into the context of local land use and illustrates local geomorphologic forcing concepts.

Keywords: fluvial geomorphology, channel boundary type, mixed channel, alluvial bedrock channel, forcing agents

Julia Keenan, University of Sheffield. Email: j.keenan@sheffield.ac.uk; What's transmitted? Food geographies and transitions to motherhood

The everyday provision of food and meals plays a central role in family life both practically and symbolically. There is also increasing attention paid towards making healthy and ethical food choices. Pregnancy and the arrival of a child(ren) are times when family processes, attitudes, and expectations, including those concerning food consumption may be examined and revised whilst negotiating new personal and familial roles and identities. Research in progress as part of the Leverhulme Families and Food programme suggests that women continue to see themselves as responsible for feeding their families and for inducting young children into eating environments both within and outside of family settings. This paper presents some preliminary findings from longitudinal interviews with 30 women experiencing the transition to motherhood for the first time, and single interviews with 30 mothers in the UK. Through an exploration of the accounts of women holding and catering for a range of ethical,

political and dietary beliefs and preferences, analysis considers whether, and to what degree, maternal understandings about food and related issues are transmitted to children; and the extent to which these are influenced by agents such as other family members and outside influences. Analysis shows that women's thinking about, and responses to, food and its consumption during this transition is shaped by a range of factors such as concerns with being seen to be a 'good' mother, health or body weight and available funds, transport and time.

Keywords: food, family transitions, motherhood.

Erin L Kees, University of Minnesota. Email: erinkees@hotmail.com; Peter Anthamatten, University of Minnesota. Email: anth0021@tc.umn.edu; Susy S Ziegler, University of Minnesota. Email: ziegler@umn.edu; Integrating Three-Dimensional Visualization into Geography Education

In recent years, the combination of new projection technology, low-cost high-performance graphics cards, and fast computers has made it possible for university departments to construct stereographic projection and viewing systems. This technology helps students view images and geographic features in three dimensions (3-D) and can support a broad range of learning styles. Beginning in Spring 2004, the Department of Geography at the University of Minnesota began to integrate 3-D visualization into courses using the GeoWall projection system. Since then, we have developed teaching modules for various classes including a large biogeography lecture, an introductory course on maps, visualization, and geographic reasoning, and advanced cartography and GIS courses. After the initial in-class GeoWall presentation of a topographic contour visualization presentation, we conducted written surveys to determine student reactions to the technology and to evaluate its effectiveness. A majority of students stated that GeoWall helped them stay focused on the lecture and that they would like to see more 3-D visualization technology in future courses. Currently, we are working to improve the contour visualization module and are developing a module to help students understand map projections. The department recently acquired a second GeoWall computer to enable students in the Master of GIS program to design and develop their own 3-D projects. 3-D visualization technology offers an untapped potential in geography instruction at many levels.

Keywords: education, 3-D visualization, GeoWall

James R. Keese, Cal Poly State University, SLO. Email: jkeese@calpoly.edu; Identifying and Assessing Tropical Montane Forests on the Eastern Flank of the Andes of Ecuador

The forests of the mountain topics comprise one of the most unique and bio-diverse of all vegetation regions, but they are also among the most threatened. Threats include colonization, road building, habitat fragmentation, logging, livestock pasturing, and agriculture. However, large areas of tropical montane forest on the eastern flank of the Andes Mountains of Ecuador remain intact, at least for now. This research uses Landsat 7 ETM+ satellite data and field study to identify land covers and land uses between Sangay and Podocarpus National Parks in Ecuador and to identify a potential conservation corridor between the two parks. The analysis reveals that eighty-eight percent of the study area remains in forest or highland tundra (páramo). However, there are three significant breaks in connectivity, and the adjacent areas of the upland valleys and Amazon Basin colonization zone are largely cleared, suggesting that deforestation pressures will intensify in the future. The results of this study demonstrate the benefits and drawbacks of moderate resolution satellite data for identifying, mapping, and monitoring land cover in less developed countries. GIS is also used to analyze relationships between roads, slope, and deforestation. Potential actions by government, NGOs, and local communities are suggested.

Keywords: tropical montane forests, Ecuador, conservation corridor

Artimus Keiffer, Ph.D., Wittenberg University. Email: akeiffer@wittenberg.edu; The "Delivery": Packaging the Future of the Industrial Landscape

As the world continues to evolve into a landscape of consumption, industry has relocated to regions that are more tolerant of the environmental problems it causes. A good example of this change is the United States, where outsourcing has become a buzzword and much of what is consumed is produced in developing and less-developed countries. Although the marketing is fueled by basic economic principles, the burden of the externalities is assumed by the producing areas. Although this may reduce the price of commodities due to exploitation of goods and services, the industrial landscape continues, albeit in a different location. This presentation deals with a surrealistic view of such a place that could be located in any venue that will tolerate pollution in an effort to produce and distribute commodities to other areas that will pay the price. The price, however, does not reflect the long-term damage being done to the environment as we continue to consume and exploit. "Delivery", a short animation by Till Nowak, a graphic designer in Mainz, Germany, provides a metaphysical twist on the

perception of industrial production and a Kafkaesque view of how it could be packaged in the future. Based on this short, award-winning film, a critique will be offered about the changing cultural perceptions of the industrial landscape.

Keywords: Industry, Landscape, Culture

Innes M. Keighren, University of Edinburgh. Email: innes.keighren@ed.ac.uk; The "bogy-lady of a slightly silly concept": rethinking the legacy of Ellen Churchill Semple

2007 marks the seventy-fifth anniversary of the death of Ellen Churchill Semple. For almost three decades at the beginning of the twentieth century she exerted an important influence on the disciplinary development of Anglo-American geography. Although not "written out" of geography's history in the same way as many of her female contemporaries, her contribution is often presented simply as a brief and misguided flirtation with environmental determinism. Semple was responsible, in part, for training a generation of American geographers, for providing the discipline with a novel methodological focus, and for encouraging and promoting the work of women scholars. With particular reference to her 1911 volume "Influences of geographic environment", I consider the ways in which her perspective on environmentalism shaped the practice of geography in the United States and Britain. I hope to explain why Semple's book was read both as a timely manifesto for a scientific approach to geographical research, and also as a text which might damage the discipline's legitimacy. In exploring what I would like to call "Influences'" trajectory of diffusion, I argue that it is possible to chart a geography of its reception - to reveal a spatial particularity in its reading and reviewing. In so doing, I address more general questions relating to the epistemic and methodological bases of book geography, and describe the contribution that geography can make to explaining how knowledge and ideas, in the guise of the book, are communicated and received.

Keywords: historiography, textual reception, geographies of the book, environmentalism

Barry D. Keim, Louisiana State University. Email: keim@lsu.edu; Royce Fontenot, National Weather Service. Email: royce.fontenot@noaa.gov; Claudia Tebaldi, NCAR. Email: tebaldi@rap.ucar.edu; Jennifer Couret, Louisiana State University. Email: jcouret1@lsu.edu; Hydroclimatology of the U.S. Gulf Coast Region under Global Warming Scenarios

The empirical climate of the US Gulf Coast, in addition to climate change scenarios, were examined to assess the past and future temperature and hydrology of the region. The empirical record shows an annual temperature pattern with high values in the 1920s-1940s, with a drop in annual temperatures in late 1950s, which persisted through the 1970s. Annual temperatures then began to climb over the past 2+ decades, but still have not reached the highs of previous decades. Annual precipitation shows a suggestion toward increasing values, with some climate divisions, especially those in Mississippi and Alabama, with significant long-term trends. Over the entire record since 1919, there was an increase in rainfall, and that combined with relatively cool temperatures, led to a 36 percent increase in runoff. To assess future extremes in regional hydroclimatology, the A1B and B1 emission scenarios were examined for the region. Output from an ensemble of 21 regional climate models run with the two emission scenarios indicate a wide range of possible climates out to the year 2050. The models agree to a warmer Gulf Coast region of about $1.5^{\circ}\text{C} \pm 1^{\circ}\text{C}$. Precipitation projections are more convoluted with indications of increases or decreases by the various models, but the models lean slightly toward a decrease in annual rainfall across the Gulf Coast. However, by compounding changing precipitation with increasing temperatures, overall runoff is likely to remain the same or decrease, while deficits (or droughts) are more likely to become more severe.

Keywords: Climate Change, Hydroclimatology, U.S. Gulf Coast

John D Kelley, New College of Florida. Email: j_d_kelley@hotmail.com; Out in the Woods: Landscapes of Queerness and Community

The experiences of queer people have been described mainly in urban settings. To date, explorations of queers in rural environments have been minimal. This ethnography centers on a radical green community formed in the 1980s to maintain sanctuary for emerging queer culture. I examine the performances of social identity among the twenty residents of the sanctuary, how they assert or deny cohesive identity and how they negotiate their individual experiences. The sanctuary is also a site of convergence and "pilgrimage," where hundreds gather in the fall and spring to engage in a week's worth of saturnalia-style festivities. Gatherings present an opportunity to observe the social performances of these "pilgrims" and their temporary community in "liminal" time and space. Another inquiry involves related communities and households that have developed around the sanctuary during the last twenty years. The multiple levels of community are linked through intersubjective relations. This interplay presents an opportunity to investigate the relationship between genealogies of performances and subjectivities. To understand how these queer

identities play out in the context of this rural space, I draw from poststructural, queer and performance theory. My findings show that although the sanctuary provides the "safety" of queer space, the interplay of community, landscape and experience destabilizes spatial and identity fixity. Furthermore, this unique example of rural queer community resists the confinement of people to homogenized areas and places.

Keywords: Queer, Community, Social Identity, Performance, Experience

Maureen Ann Kelley, University of Oregon. Email: mkelley1@uoregon.edu; Amy Lobben, PhD, University of Oregon. Email: lobben@uoregon.edu; Route-directions using maps and satellite imagery

Sex differences have been documented in route-direction studies. Females use more landmarks compared to males when giving directions, whereas males use more distances and cardinal directions when giving directions. These previous studies investigated route-direction strategies using line maps with no topographic or photographic base information present. To our knowledge, no studies investigated whether map type influences route-direction strategies. Current Internet mapping services such as Google Maps and Microsoft's Live Local allow users to choose between a line map, satellite image, or photomap. These on-line mapping services are used by many Internet savvy people to generate driving directions. The driving directions in these systems do not use landmarks as key features but use directional turns and distances only. The main research hypothesis is that females use more landmarks than males regardless of map type. An alternative research hypothesis is that map type determines landmark usage regardless of sex.

Keywords: map, navigation, human subjects research

Charles J. Kelly, Benfield Hazards Research Centre, Univ. College London. Email: 72734.2412@compuserve.com; Life in a Small Dangerous Place: Managing Hazards in Mountain Areas: Experience from Gorno-Badakhshan Autonomous Oblast, Tajikistan.

The potential impact of a hazard is significantly influenced by the environment in which the hazard exists. Mountain environments are characterized by intense exploitation of limited areas. These areas are often under threat of, and in many cases, also created by, hazards such as flooding, landslides, debris flows, rock falls, avalanches, mud flows, severe winter weather and earthquakes. Added to this mix is the fact that human actions can trigger some of these hazards, such as with poorly maintain irrigation channels which lead to mud slides. The presentation will describe a hazard risk management project in Gorno-Badakhshan Autonomous Oblast, Tajikistan, which has linked hazard mapping, risk assessment and community capacity building to reduce the threat of hazards becoming disasters. The project is innovative in its matching of technical field assessments, GPS and GIS, and community participation to define and implement hazard-specific mitigation activities and improve overall disaster risk management.

Keywords: Hazards, Tajikistan, Hazard Management, GIS, Mountain Areas.

John H. Kelly, University of Kansas. Email: jkellyma@ku.edu; Deconstructing PROCEDE Property Maps through Participatory Research Mapping

From 1992 to 2006, the Mexican government, through its PROCEDE program, surveyed over nine million individually-held parcels within social property communities, creating for the first time a single rural land cadastre which will gradually merge with the existing urban and private registry as parcels are fully privatized. The participatory research mapping (PRM) component of the México Indígena project (and First Bowman Expedition), a collaboration among U.S., Canadian, and Mexican geographers, university students from the Universidad Autónoma de San Luis Potosí, and trained community representatives, includes two products from study sites in the Huasteca Potosina region (completed) and Sierra Norte de Oaxaca (in process): community maps, and GIS data layers of property transactions since PROCEDE. Comparing PROCEDE cadastral maps (and legal registry updates) with PRM community maps and property transaction data reveals severe, potentially conflictive discrepancies between the neoliberal model and local knowledge and practice, and between the neoliberal ideal of transparency and the reality of state obfuscation. Mexican indigenous communities continue to demonstrate their historical capacity to adapt to (and proactively define) land tenure change, but they must now adjust their strategies in the post-PROCEDE era of state-directed property standardization.

Keywords: Mexico Indígena, land reform, participatory GIS, Mexico, Bowman expedition

Maggi Kelly, University of California. Email: mkelly@nature.berkeley.edu; Qinghua Guo, University of California, Merced. Email: ; Barbara Allen-Diaz, University of California, Berkeley. Email: ; Mapping the historic range of Quercus species in California using one-class Support Vector Machines and BIOCLIM models

Oak species are an important component of California ecosystems, and are under pressure from a range of sources, including urban development, disease and climate change. As a precursor to investigating the potential changes to oak woodlands as a result of future climate change we modeled the range of California oak species early in the 20th century. Presence data was selected from ~18,000 plots in the floristically detailed and geographically broad Wieslander California Vegetation Type Mapping (VTM) collection. The VTM crews collected information on California plants across California in the 1920s and 1930s, and the collection has now been digitized and georeferenced. The historic presence data was used with Support Vector Machines and BIOCLIM modeling to map the historical potential niche for oaks across the state.

Keywords: Oaks, California, VTM, Environmental niche models

Philip F Kelly, York University. Email: pfkelly@yorku.ca; Capital and Labour Mobility in a Philippine Locality

This paper examines the developmental implications of intersecting global capital and labour flows in a Philippine locality. In an influential analysis almost 20 years ago, Saskia Sassen suggested that FDI in countries such as the Philippines explained, in part, the increasing numbers of transnational migrants that they were generating. Sassen's analysis lacked empirical depth in such source areas of migration, and while her analysis of world city labour markets has been influential, her attempts to unite an analysis of capital flows and labour flows in the developing world has not subsequently been pursued. This paper takes a contemporary look at the linkages between FDI and migration in the Philippines. Using household survey data from a locality that has seen significant flows of inward national migration, outward international migration, as well as manufacturing FDI and remittances, this study will trace the local developmental implications of capital and migration flows.

Keywords: Philippines, migration, remittances, foreign direct investment

John A. Kelmelis, United States Geological Survey. Email: jkelmeli@usgs.gov; Conducting Geographic Research in Areas of Conflict and Instability

Geographers often work at the interface of social and biophysical domains. At times these areas are socially unstable or fraught with intra or intercultural antagonisms. While this instability can provide a unique opportunity for cultural analysis, it can also act as a complicating factor by frustrating geographers' efforts to accomplish scientific work. Conducting field work in areas of conflict can put the scientist in harms way. While the science can be policy neutral it may not be viewed that way in regions of conflict. At other times, the science can support an agenda of one or other side of a conflict with or without the geographer's knowledge. In still other cases, the scientists can be conducting either basic or applied research to further an agenda. Any of these views can further complicate the geographers' situation. There is no single United States national policy toward scientists conducting work in conflicted areas. There are a number of policies which vary from situation to situation, time to time, and even organization to organization. In this presentation I discuss several types of conflict, the objectives of U.S. foreign policy strategy, transformational diplomacy, and the importance of geographic research to them. I consider several cases involving different nations, different types and levels of conflict, different scientific activities, and some existing policies with relation to scientific activities.

Keywords: conflict, research, war, instability, international relations

Steven Kemble, California State University, Fullerton. Email: stevekemble@earthlink.net; Barcelona: The Olympics and Urban Development in a Global City

Every 4 years, the world comes together to celebrate athletic achievement at the Olympic Games. The games have gone through many changes in their 108 years, from the original connection with world fairs to the current standalone event. With the evolution of television, the games have taken on a larger role in giving the public an impression of the host city. Accompanying this is the emerging view of the games as a conductor of urban redevelopment. This paper examines past trends in the Olympic Games and their relation to the cities that hosted the games. Barcelona is used as a case study of how a city can improve its global status through urban redevelopment related to hosting the games. This paper also looks at what the future holds for cities hosting the Olympic Games.

Keywords: world cities, mega-events, urban development

Karen Kemp, PhD, GISP, . Email: kkkemp@earthlink.net; Reflections on GIS Curriculum Development in the US: From Core Curriculum to Model Curricula

Spanning almost 20 years, a series of national GIS curriculum development projects in the US have recently culminated in the publication of the Geographic Information Science and Technology Body of Knowledge. This presentation will review the recent history of GIS curriculum development and discuss how the evolution of these curricula reflects significant change in the ways that the academic community undertakes GIS education.

Keywords: GIS education, GIS curriculum

Jo Lynn Kemper, University of New Orleans. Email: jlkemper@uno.edu; Restoring Avian Critical Habitat in the Louisiana Gulf: A Critique of Dredged Material Bird Islands

The barrier islands off the coast of Louisiana in the Gulf of Mexico provide a protective habitat for numerous species of nesting, migratory and wintering birds. However due to severe erosion caused by the natural forces of water currents and wind these islands either completely dissipate or are often left in fragments resulting in a significant reduction of available habitat. I discuss the efficacy of critical habitat restoration using dredged material islands created through the Army Corps of Engineers' Beneficial Use of Dredged Materials Program from 1970 through 2006. I identify successful restoration techniques using aerial photography, remote sensing and the analysis of ecological data recorded by government agencies. Birds are taking to these islands in increasing numbers which indicates that the dredged material program preserves critical habitat and provides future protection for Louisiana's fragile coastline and its inhabitants.

Keywords: critical habitat, barrier islands, coastal restoration, Louisiana

James M. Kendra, Department of Public Administration, University Of North Texas. Email: jmkendra@unt.edu; Tricia Wachtendorf, Disaster Research Center, University of Delaware. Email: twachten@udel.edu; Geographic Aspects of Sensemaking: The Waterborne Evacuation of Lower Manhattan on September 11, 2001

Sensemaking is integral to organizational and collective social experience and as a theoretical framework includes consideration of environmental cues and the construction of environment. We present research on the waterborne evacuation of Lower Manhattan on September 11, 2001, in which several hundred thousand people were evacuated in an improvised fleet of ferries, towboats, tour boats, and various other harbor craft. We find that boat operators and other participants developed their organization around their concepts of New York Harbor as a place and as a community, orchestrated their organization via a shared operational and cartographic knowledge, and indexed it to particular features of the New York Harbor waterfront. In addition to advancing theoretical understanding of sensemaking and improvisation, the research points toward disaster preparedness and response strategies that emphasize developing community-based resources and toward policies for enhancing transportation infrastructure.

Keywords: Improvisation, Sensemaking, Infrastructure, Hazards

Therese E Kenna, The University of New South Wales, Sydney, Australia. Email: t.kenna@student.unsw.edu.au; Kevin M Dunn, The University of New South Wales, Sydney, Australia. Email: k.dunn@unsw.edu.au; Ian H Burnley, The University of New South Wales, Sydney, Australia. Email: i.burnley@unsw.edu.au; Expanding the methods and extending the 'measures' for research on residential segregation

Urban research on residential segregation has been heavily reliant on one method - the use of segregation indices. The Index of Dissimilarity (ID) has been the index of choice since the seminal work of Duncan and Duncan in 1955. Debate about the application of the ID, and other such indexes, has been ongoing. In large part, and from a geographical perspective, this debate has been concerned with the aspatiality of segregation indices, in that such indices do not give the researcher, and the audience, any sense of where segregation is occurring, or of the spatial distribution of a given population group across the city. This paper begins with a review of the debate about the application of segregation indexes and a discussion of some of the limitations to their use. Following from this we connect with the debate about qualitative versus quantitative methods in geography and, in attempting to reduce the dichotomy, propose a mixed method, multi-staged approach to research on residential segregation. The utility of these stages is examined by a staged analysis of the Vietnamese-Australian community in Sydney, Australia, using statistical measures and field based interviews. It is our contention that a mixed method approach to urban geographical research on residential segregation will help to counter the aspatiality of segregation indexes as the supplementation of segregation indexes, with alternative methods, will

enrich our knowledge of the complex urban process, segregation.

Keywords: Segregation, segregation indices, mixed-methods, multi-staged research, urban geography, policy relevance

Christina B Kennedy, Ph.D, Northern Arizona University. Email: tina.kennedy@nau.edu; *Affect, Images, and Experience: Student Reflections on "Smoke Signals"*.

Films may have a strong emotional impact on an audience and reify or challenge stereotypes of people and place. An audience's background, experience of non-filmic places, and the context within which a film is viewed may affect the degree or type of emotional impact a film has. Students in three courses focusing on geography and media literacy viewed Sherman Alexi's purported comedy, "Smoke Signals". The courses were taught simultaneously in spring, 2006, at NAU, ASU and UA. Students were asked to reflect on the film immediately after viewing it by responding to a series of open-ended questions. This paper explores the reported emotional impact of the film and specific scenes, identification with the film's two main characters, potential relationships between experience with reservations and response to filmic images of reservations, and the context within which the student's viewed "Smoke Signals"

Keywords: film, reservations, Native Americans

Lisa M. Kennedy, Virginia Tech. Email: kennedy1@vt.edu; Amos Desjardins, Virginia Tech. Email: amosd@vt.edu; *Potential for Paleoenvironmental Reconstructions in Coastal Lakes of Eastern and Southwestern Dominican Republic*

We recovered cores from several lakes on the eastern and southwestern Dominican Republic coasts during a pilot study to assess potential for paleotempestology and other paleoenvironmental reconstructions. Sediments from two lakes, Laguna Los Flamencos and an unnamed pond, situated on an uplifted terrace of Pleistocene reef on Isla Saona (~18.14°N, 68.75°W) were shallow (~40-50 cm to bedrock) and AMS dates on plant material from near the bottom of the cores dated to ~1700 and 2200 cal yr BP (respectively). Loss on ignition indicated high calcium carbonate content (30-40%) and relatively low organic content for both lakes. Similar sediments (as yet undated) from Laguna Mala Punta (18.17°N, 68.78°W) on the eastern coast contained a coarse deposit near the surface that we interpret to be from Hurricane George (Category 4, 1998). Nearby Laguna Bavaro, with mainly calcium carbonate sediments about 60-cm in depth, has a wide barrier that probably filters out storm deposits. On the southwest coast, we collected 185cm of sediment from Laguna Alejandro (informally named, 18.31°N, 71.03°W) in the arid Enriquillo Valley region. Three AMS dates indicate that Alejandro is >1000 years old. Sediments contained deposits of organic material, two deposits of sands matching the nearby beach, and a variable distribution of invertebrates. The biotic indicators, such as calcareous Serpulidae tubes and mussels, are helping us piece together lake history at that site. We are continuing analyses of GEOTEK® multi-sensor core logger data and x-radiography on all cores. Several lakes are promising for further paleoenvironmental study.

Keywords: paleoenvironments, sediment, Dominican Republic

Patrick J. Kennelly, CW Post Campus of Long Island University. Email: patrick.kennelly@liu.edu; James Stewart, Queens University. Email: jstewart@cs.queensu.ca; *Illumination Models for Cartographic Displays*

Shading and shadowing can add shape and depth cues to cartographic displays by modulating the brightness of the surface. Such variations in shades of gray are typically realized by applying an illumination model to a virtual model of the surface to be rendered. Cartographers, however, generally apply illumination models only to continuous, smoothly varying surfaces such as topography, and then generally use a simple point source illumination model. We used more detailed illumination models to create alternative displays of terrain. Additionally, we demonstrate how these illumination models can be used to shade and shadow statistical surfaces with abrupt edges, such as enumeration units on choropleth map displays.

Keywords: Shading, shadowing, illumination model, terrain model, GIS, choropleth map

Judith T. Kenny, University Of Wisconsin-Milwaukee. Email: jkenny@uwm.edu; *The Moral Landscape of Madras' People's Park, 1860-1890: "Improving" India*

Incorporating the benefits of nature in a city's design and advocating its use for a growing portion of the population was relatively novel in Europe and America during the mid-nineteenth century. Yet in 1859, endorsed by Governor Charles Trevelyan, the Madras Corporation laid out the 116 acre People's Park to the west of the area known as Black Town. Trevelyan recommended its construction specifically as a means of improving civic life and the interaction of Indians and British colonials. This paper interprets the moral landscape of the People's Park as a means of understanding contemporary planning activities in a

colonial city in contrast to park development in Britain. I examine the contemporary discourses of nature and civic life in the context of this park's design, its users' activities, and administrators' expectations of benefit - asking to what extent a public space associated with liberal interpretations of the modern city was transformed in its colonial implementation. I use newspaper accounts, public documents, government records and personal diaries in this analysis.

Keywords: park planning, civic space, India

Julia Kentnor, University of Denver. Email: jkentnor@du.edu; *Juggling Risk and Opportunity: Neoliberalism and Cooperativism in Mendoza's Wine Industry*

This paper explores how neoliberal economic reform in Argentina has presented cooperatives with both potential for success and challenges to survival. The wine industry in Mendoza exemplifies the ways that some cooperatives in Latin America cope with globalization and neoliberal economic reform through centralization of decision-making power. In the wine industry, new standards in quality and consumer trends stress the fabric of these cooperatives trying to serve both the farmers needs and consumer tastes. Many local cooperatives in the district of San Rafael produce basic table wines, even with the best varietals, due to less advanced machinery. They are cautious about making capital investments, weighing market unpredictability against providing more immediate member benefits. Their historical relationship to the wine industry is littered with booms and busts that coincided with national politics and consumer tastes. FeCoViTA, the regional co-op and the marketing and bottling enterprise of the cooperative system, succeeded in pulling its members through the recent financial and consumption crises in Argentina. The increasingly competitive market challenges it to continue to buy from its member cooperatives while providing a quality product to consumers. This research involved in depth interviews with employees and directors of three wine co-ops in San Rafael and at FeCoViTA, as well as numerous community members of varying professions, agronomists and the national agricultural extension agency. Historical data from the national wine institute showed the impact of the historical and political underpinnings of cooperative formation on risk assessment and benefit provision.

Keywords: Cooperatives, Mendoza, Wine, Neoliberalism

Laura N Keogh, King's College London. Email: laura.2.keogh@kcl.ac.uk; *Place, heritage and the construction of sustainable communities: waterfront regeneration in the Thames Gateway*.

The UK Labour government's Sustainable Communities Plan launched in 2003 promotes brownfield regeneration as a sustainable solution to housing shortages and socio-economic decline in Britain's urban areas. Within this plan the Thames Gateway area in the South East of England is highlighted as a major growth area where there is the intention to build 120,000 new homes by 2016. Waterfront regeneration is a key part of the plans with the River Thames providing a focus for many of the developments that are taking place. The emphasis is on the creation of new vibrant 'places'. Within these plans heritage is presented as an important aspect of place-building, in that it is thought to help create communities with a strong sense of identity, vitality and 'sense of place'. It is recognised that waterfront sites can have significant heritage value that can be utilised in regeneration projects, however there is little empirical research which explores the politics and practice of this process. Focusing on the Royal Arsenal development in Woolwich, South London, this paper will examine the role heritage can play in waterfront regeneration and the construction of sustainable communities. The politics of heritage and different understandings of the concept in relation to waterfront transformation will be explored. The paper will also address how a focus on heritage can inform waterfront regeneration and the development of sustainable communities.

Keywords: urban regeneration, community, heritage, waterfront

Noel Keough, PhD, University of Calgary. Email: nkeough@plannet.ca; *Deliberative Policy-Making: From Indicators to Action*

Since 1996 Sustainable Calgary Society, a non-profit community organization has employed sustainability indicator reporting to engage citizens in debate and discussion of critical issues facing Calgary. In 2005 SC embarked upon a Deliberative policy-making process whereby 1000 citizens came together to assess a decade of sustainability indicator reporting and trend analysis, and identify critical issues of importance. Ultimately 12 Priority policies and actions to make Calgary a more healthy, caring and vibrant community were selected and a process begun to realize 'a City Built for Everyone' by bringing together decision-makers, thematic experts and citizens to chart a course for the implementation of the Priority policies and actions. This paper will discuss the lessons learned in moving from indicators to action in Calgary.

Keywords: deliberative policy, sustainability indicators, inclusive city

Sara Beth Keough, University of Tennessee. Email: skeough@utk.edu; Canadian Cultural Policy and Newfoundland Radio Broadcasts: A Study of Music and National Identity in Newfoundland, Canada

As our access to information increases with the aid of communication technologies, there is concern that cultural homogenization threatens to become a reality. Ironically, in the face of globalization in the media, the local often becomes increasingly important. This study explores how Canada's cultural policy, known as the Canadian Content regulations, has helped to foster a feeling of local identity in Newfoundland. I examine how Canadian Content regulations apply to radio, and how these radio regulations influence broadcasting in the St. John's, Newfoundland radio market. Interviews with radio station personnel (DJs, program directors, music librarians, etc.) and radio listeners show that many radio stations in St. John's emphasize local (Newfoundland) music in the face of more popular Canadian and American music. Furthermore, the act of broadcasting local music on the radio in St. John's has allowed radio listening to become incorporated in to several of the listeners' Newfoundland cultural traditions and thus, an integral part in development of a Newfoundland identity.

Keywords: identity, Canada, cultural policy, music, radio

Matthew Kerfonta, Western Carolina University. Email: mkerfonta@juno.com; Extracting Potential and Existing River Cane Sites within Jackson County, North Carolina using Remote Sensing Data

The RTCAR initiative is a multi-year program whose purpose is to assist the Eastern Band of Cherokee Indians to restore the traditional Cherokee balance between maintaining and using natural resources. The goal of this project is to identify existing and potential river cane habitat within Jackson County, North Carolina. To this end, the first objective is to develop a site suitability map of river cane habitat in a GIS. This will identify potential river cane habitat based upon criteria identified through field work. The second objective is to extract existing river cane sites from aerial photographs and Landsat images using a mask based of site suitability. This project requires the use existing data, therefore aerial photographs acquired in 1995 and Landsat images acquired in 1998, 2000, and 2003 are used in the analyses. Aerial photographs were chosen for their spatial resolution but are limited in spectral resolution (blue, green, red). In comparison the Landsat data has a higher spectral resolution, but lower spatial resolution (30 m). The third objective is to map river cane potential and existing habitat. It is expected that the aerial photographs will be of appropriate spatial resolution, however, it may not have a high enough spectral resolution to discriminate native river cane from other evergreen vegetation. It is anticipated that the Landsat data will not be able to detect the smallest fields. But the higher spectral resolution may better discriminate between native river cane and other evergreen vegetation compared to the aerial photographs.

Keywords: Natural Vegetation, River Cane Habitat, Site Suitability Map, Cherokee Native Americans

Simon Kerma, . Email: simon.kerma@zrs-kp.si; Janez Berdavs, . Email: janez.berdavs@zrs-kp.si; Slovenian borders and the European integration: the case of Slovene Istria

Slovenia experienced fast geopolitical transition in the last sixteen years; from being one of Yugoslav federal republics to entering the European-Atlantic alliances four years ago. From 2004 Slovenia is an EU member and the first country among new member states introducing the euro currency. This caused basic change in the nature of its borders: what used to be a borderline between Yugoslavia, Austria and Italy, and also a line of division between two different political systems, is now a boundary between the EU member states. A border regime on borders with Austria and Italy, quite liberal before 1991, has further relaxed since, and will be dropped with Slovenian accession to "Schengenland". Hungarian border experienced even deeper changes: once a strict border with Warsaw pact member state has become an internal EU borderline. Development took opposite direction on Croatian border: once internal border between two Yugoslav republics is nowadays outer border of the EU and with Slovenian accession to the Schengen agreement, border regime will become even stricter. The paper investigates the influence of changes in border regimes on intensity and types of cross-border contacts. Focus is put on the case of Slovene Istria, a region divided by internal and external EU border. Research of border contact intensity will include an analysis of traffic on border crossings, public opinion research; research of EU supported cross-border cooperation programmes, analysis of regional media etc.

Keywords: EU, Slovenia, Slovene Istria, political geography, border regions, borders

Leslie Kern, York University. Email: lkern@yorku.ca; The (Re)definition of Urban Living: Gender, Condominium Development and the Privatization of City Life in Toronto

In Toronto, a massive boom of condominium development over the past ten years has drastically re-shaped the residential landscape of the city, particularly in the urban core. Condominium development, as a unique tenure form and particular lifestyle choice, has tipped the city's tenure structure in favour of home ownership, and has also prompted a re-vision of city life in Toronto, reshaping both urban citizens and urban citizenship. I suggest that condo ownership and the condo lifestyle are both a reflection and source of an increasing privatization of city life in Toronto, where a collective notion of "quality of life" is being re-defined as an individualistic pursuit of "quality of lifestyle." In this paper, I draw on interviews conducted with women condo owners to argue that condos function as a form of neoliberal governmentality, working to produce private subjects in a privatized city. However, the framework of neoliberalism does not allow much space to examine the specifically gendered dimensions of this re-visioning of city life. Thus, I argue that a feminist lens - both methodologically and theoretically ? is necessary to highlight the intersections of gender, class, race and other social relations in shaping and governing subjectivities and lifestyles in the privatized, neoliberal city. This project challenges both the mainstream discourse that suggests that condominium ownership represents a form of empowerment and emancipation for women, and the critical urban literature that relies heavily on the prism of neoliberalism to explain all forms of privatization in the post-industrial city.

Keywords: citizenship, Toronto, gender, privatization, neoliberalism

Hannah Kerns, Indiana State University. Email: hkerns@indstate.edu; Jay Gatrell, Ph.D, Indiana State University. Email: jgatrell@isugw.indstate.edu; School Performance, Educational Attainment, and Socio-Economic Indicators in Vigo County, Indiana

The purpose of this poster is to examine the observed relationship between socio-economic conditions, educational attainment, and school performance indicators in Vigo County, Indiana. The poster demonstrates that indicators of school performance at the building scale for elementary schools co-vary with household educational attainment levels*as well as other demographic variables. Additionally, the poster will consider various poverty indicators obtained from the school corporation (e.g., reduced lunch and free lunch availability) and how these do or do not reflect observed household trends based on census. Finally, the poster will consider how the composition of local schools does or does not necessarily reflect the composition of the communities and neighborhoods within which they are contained. The objective of investigating the observed disjuncture between neighborhood and school building data is to understand the unique challenges facing public schools and the pitfalls of developing place-based strategies to school reforms within the context of larger school structures (such as targeted school programming and residency waivers).

Keywords: economic geography

Laura M Kerr, Macalester College. Email: lkerr@macalester.edu; A Cultural and Political Ecology of Hmong Agriculture in the Twin Cities

Over one and a half million Hmong refugees predominately Laos have arrived in the United States since the fall of Saigon in 1975. The Saint Paul and Minneapolis metropolitan area is home to the largest urban population of Hmong immigrants in the United States. Despite their urban location, a significant number of Hmong refugees living in the Twin Cities metropolitan area have chosen farming as both a primary and supplemental source of income. While living in the metro area many Hmong rent and increasingly buy land in surrounding countryside to farm and subsequently sell at local markets. Using a cultural and political ecology framework, this research critically examines this phenomenon. By exploring farming in the context of adaptation of refugees, the socio-economic forces as well as the cultural and historical forces which bring these refugees to farm are uncovered. Additionally, this research reveals the agricultural systems employed by Hmong growers and the structural forces which have impeded these farmers in achieving greater success.

Keywords: Cultural and Political Ecology, Agriculture, Refugees

Ruth Kerry, Brigham Young University. Email: ruth_kerry@byu.edu; Margaret Oliver, University of Reading. Email: m.a.oliver@reading.ac.uk; Why are geostatistical methods not more widely applied in Geography?

Hartshorne in 1959 said that geography is concerned to provide accurate, orderly, and rational description and interpretation of the variable character of the earth's surface. The quantitative revolution followed in the 1960s and many classical statistical techniques were applied to spatial studies of the human and natural world. For example, trend surface analysis to show spatial variation, the analysis of variance to determine whether the characteristics of one area were significantly different from those of another, correlation to determine the

strength of relationships between variables and using regression equations to predict one variable from others. These methods assume that the data are independent, random and unbiased. This means that spatial autocorrelation in the data should not exist. Many geographers ignore these assumptions whereas others adhere strictly to them. Either approach means that spatial autocorrelation is not investigated. Autocorrelation is at the heart of geostatistics, either through the correlogram or the variogram. Geographers have used the correlogram since the late 1970s, yet few have embraced geostatistics with any enthusiasm. They have generally preferred the tools embodied in GIS which provide far less analytical capability than geostatistics. This paper investigates why this might be so. One possible reason is a perception that geostatistics can only be used for interpolation. Case studies illustrating other uses for improving our understanding of spatial phenomena will be presented. These will include investigating spatial variation and relationships, determining probabilities of exceeding critical thresholds, filtering data, simulating data, spatially weighting classifications and determining optimal sampling schemes.

Keywords: Geostatistics, soil, quantitative methods

Joseph J. Kerski, Ph.D., ESRI. Email: jkerski@esri.com; Web-Based GIS Opportunities and Challenges in Education

Using Geographic Information Systems (GIS) technology and methods in education via software and data resident on a personal computer is rapidly changing. Web-based GIS and virtual globes have rapidly matured beyond the ability to make simple online maps to becoming powerful tools that allow for problem-based, inquiry-driven learning. Tools such as ArcGIS Explorer, Scalable Vector Graphics, ArcWeb Explorer, YourGMaps, Batchgeocode, and others allow educators and students to upload their own information and analyze it online. Many of these tools enhance teaching and learning with traditional desktop-based GIS, while others serve as standalone applications that desktop systems cannot match. These new tools present new opportunities for the educator as well as new challenges. As never before, educators have a wealth of geospatial tools at their fingertips, most of which requiring less training than traditional GIS. These tools may hasten the ability of educators to meet spatial learning challenges as identified in the National Research Council's Learning to Think Spatially report. Limitations include data quality, functionality, and distractions due to visual appeal of these new tools. These tools can be used in a variety of ways such as in teaching about spatial measurement, landforms, population, map projections, and analyzing field-collected data. In each application in education, students learn about the processes that are active on our planet, and the reasons why those processes exist?the "whys of where."

Keywords: Webmapping, Web-based GIS, Geographic Information Systems in Education, Problem-Based Learning

James A. Ketchum, Ph.D., Association of American Geographers. Email: jketchum@aag.org; Ethics in the Practice of Teaching

This presentation describes research for a chapter on ethics in teaching for the AAG's current EDGE Project by focusing on two practical suggestions for re-thinking teaching practices in ethical terms. Included is an argument for using complex case studies in order to provoke the geography instructor's "ethical imagination."

Keywords: EDGE, ethics, teaching, ethical imagination, geography education

Erja Kettunen-Matilainen, Helsinki School of Economics. Email: erja.kettunen-matilainen@hse.fi; Kristiina Korhonen, Helsinki School of Economics. Email: kristiina.korhonen@hse.fi; Riitta Kosonen, Helsinki School of Economics. Email: kosonen@hse.fi; Juha Kotilainen, University of Joensuu. Email: juha.kotilainen@joensuu.fi; The Governance of State Relations in Emerging Markets

This paper analyses state relations of international companies operating in rapidly changing markets. Doing so, we investigate and compare the state relations of Finnish companies in North-West Russia, coastal China, South Korea, and Estonia. The four rapidly developing economies are challenging for foreign investors as they have considerably reorganized their formal institutional framework and the role of the public sector in business. Theoretically, our study contributes to the governance approach (Jessop 1997) in institutional economics, especially to the discussion on formal and informal institutions in the organization of social relations of foreign companies. The study identifies the challenges and problems in state relations in the four host countries. Also, we point to the successful mechanisms of governance, i.e. how problems have been solved in the companies under investigation. Empirically, our analysis is based on the database of interviews with internationalized Finnish companies that represent various company sizes and lines of business. The findings uncover both similarities and differences in the governance mechanisms in the four emerging economies. Also, drawing from the evidence from the four differently restructured economies, the study points to the diverse roles of formal (e.g. rule-based) and informal (e.g. relationship-based) institutions in business.

Keywords: state relations, governance, institutions, emerging markets, foreign companies

Lisa Keys-Mathews, University of North Alabama. Email: lkeysmathews@una.edu; Arleen A. Hill, PhD, University of Memphis. Email: aahill@memphis.edu; A Holistic Approach to Exploring Disaster Recovery: Combining Remote Sensing, Fieldwork and Traditional Individual Surveys

Characterization of the recovery process associated with natural disasters is complex. The spatial and temporal characteristics of recovery are dependent on the characteristics of the disruption/event, community resilience, and relief characteristics. Little is currently known about the potential role of satellite imagery for monitoring and assessing the recovery phase of the disaster management cycle. The purpose of this research is to assess the applicability of remote sensing tools and techniques to the documentation of recovery expressed as changes to the human and natural landscape. This work takes an integrative approach using a traditional survey of residents to establish their perception of recovery benchmarks while physical recovery will be documented through imagery analysis and fieldwork. The impact of Hurricane Katrina provides a unique opportunity to explore in-progress recovery using commercially available high-resolution satellite imagery that is optimal for such studies. The spatial, spectral and temporal signatures of the recovery process are currently being explored based on image analysis, field observations, and surveys of residents along the Mississippi Gulf Coast. The fieldwork has two components: Ground truth for image analysis including documentation of damage and rebuilding; and human-based surveying of the residents to obtain their view of recovery and their personal progression through the recovery process. This illustrated paper includes synthesizing the human, environmental and techniques subdisciplines of geography and begins a longitudinal profile of change associated with recovery in the coastal Mississippi region.

Keywords: disaster recovery, remote sensing, surveys, fieldwork

Belayet Khan, Eastern Illinois University. Email: bhkhan@u1.cts.eiu.edu; Trends in Selected Weather Parameters in Bangladesh

Bangladesh, a tropical deltaic country located in South Asia, has been experiencing fluctuations in its weather elements. Seasonal and annual temperatures, precipitation, humidity, and wind speed have shown departures from long term averages. Temporal and spatial variations in weather patterns have also been noted in the region. The prime goal of the current paper is to investigate and identify any significant departure of selected weather elements in the country in recent years from long term averages. Long term data on selected weather parameters representing the entire country will be subjected to statistical analysis to determine any major fluctuations in the weather patterns of Bangladesh. A fruitful outcome of the current research will be utilized as a basis for further research on the topic of weather anomalies in the region.

Keywords: Bangladesh, weather patterns, anomalies

Sriram Khe, PhD, Western Oregon University. Email: khes@wou.edu; An autoethnographic approach to understanding urban sprawl

Urban sprawl has been well covered in the academic literature, which speaks of the importance of this subject. However, nowhere in these publications do we get a sense of how and where the authors live with respect to their workplaces. We do not know how they personally balanced the different variables that households face in order to reach a decision on their respective home purchases. After all, understanding social issues such as urban sprawl is different from, say, research in nanotechnology: unlike with nanotechnology, how I live has an immediate impact on the spatial layout of the town. Given the intricate relationship between the observer and the observed, how do I draw that line between social issues and my own professional and personal life? Through discussion in this paper, which is simultaneously about urban geography and planning, I hope to persuade the reader that (a) autoethnography is an important research method, particularly in topics that have public policy implications, and (b) an autoethnographic research illustrates the complexities of urban planning.

Keywords: urban sprawl, urban geography, autoethnography, planning

Shahram Khosrowpanah, Professor of Civil Eng., University of Guam. Email: khosrow@uog.edu; Michael Park, University of Guam. Email: ; Development of a GIS based Erosion Model for Southern Guam Watersheds

Soil erosion has created several problems for the southern portion of Guam. Excessive soil loss has leads to a gradual degradation of the soil quality and the ability to sustain agriculture, detached soil particles which are transported to local streams and rivers make it highly turbid and unfit for human consumption, and soil erosion is a major source of non-point source pollution. Large amounts of sediments are carried out into the sea where it damages marine biota and coral

reef communities. This paper details the development of a GIS-based soil erosion potential model for the Ugum Watershed, which is located in southern Guam. The two main components used are the Universal Soil Loss Equation (USLE) and a geographic information system (GIS). The USLE computes average annual soil loss by multiplying individual factors that represent the local rainfall, soil types, land terrain, and vegetation cover. GIS software is used as the central framework to create, store, and analyze each of the USLE factors. By combining the USLE and GIS, the digital model can predict soil erosion potential on a cell by cell basis. Model development and how the model can be used for managing southern Guam watersheds will be presented at this conference.

Keywords: Soil Erosion, Guam, GIS Erosion Model, Watershed

Lawrence M Kiage, LSU. Email: lkiage1@lsu.edu; Lawrence M Kiage, Louisiana State University. Email: lkiage1@lsu.edu; Kam-biu Liu, Louisiana State University. Email: kliu1@lsu.edu; Multi-proxy evidence of vegetational change and land degradation around Lake Baringo since AD 1650

Multi-proxy evidence of vegetational change and land degradation around Lake Baringo since AD 1650 By Larry Kiage and Kam-biu Liu, LSU This paper presents the findings of a multi-proxy investigation of the history of vegetational changes and land degradation in the Lake Baringo basin, Kenya, East Africa, during the Late Holocene. 14C- and 210Pb-dated stratigraphic records of fossil pollen, fungal spores, microscopic charcoal, and lake-sediments were used to reconstruct the paleoenvironment in the East African region. More recent changes in the ecosystem are examined using remote sensing imagery. This study provides one of the first high-resolution Holocene pollen records from the semi-arid region of Kenya. The record, based on a 363-centimeter core retrieved from Lake Baringo, reveals a largely dry environment that is punctuated by a succession of centennial- to decadal-scale wet and dry episodes separated by sharp transitions. The lake almost dried up during two intense dry episodes at ca. AD 1650 and AD 1750-1820. The two episodes were characterized by poor pollen preservation and by relatively high percentages of dry-indicator species such as *Podocarpus*, *Olea*, *Euclea*, *Acacia*, *Balanitaceae*, *Gramineae*, and *Cyperaceae*. The extremely high sedimentation rate in Lake Baringo effectively constrains the chronological record of the cores to the last 300 14C yr BP.

Keywords: Paleoenvironment, land degradation, vegetation change, East Africa, climate change

Tadesse Kidane-Mariam, Edinboro University Of Pennsylvania. Email: TADESSE@edinboro.edu; Tadesse Kidane-Mariam, Ph.D, Edinboro University of Pennsylvania. Email: tadesse@edinboro.edu; Ethiopia: Regional planning and development discourse and praxis under a Marxist government (1974-1991)

Regional Planning and Development Discourse and Praxis under Ethiopia's Marxist government :1974-1991 by Tadesse Kidane-Mariam, Ph.D Edinboro University of Pennsylvania Edinboro, 16444 I Abstract The desire to create a well-balanced and integrated national development surface has captivated the imagination of policy makers, planners, international development agencies, financial institutions, non-governmental organizations and civil society in both developed and developing countries. This desire is driven by both political and socio-economic objectives and goals as nations strive to improve the quality of life of their populations through sustained mobilization, development and management of their natural and human resources. Unfortunately, the mismatch or disconnect between the rhetoric and development praxis is often greater than the desire and commitment to promote equitable distribution of the benefits of modern development and welfare. The paper examines the multifaceted features of Ethiopia's regional planning and development discourse and praxis under a marxist military government (1974-1991).

Keywords: Ethiopia, regional planning, monarchy, Marxist, ethnic federalism, Dergue

Bora Kim, . Email: bkim06@maxwell.syr.edu; The Evolutionary Model of Free Economic Zone: The Case of the South Korea

This research aims to explore how the model of Free Economic Zones (FEZs) has been evolutionary transformed in the South Korea since the 1997 Asian financial crisis. In particular, it focuses on a series of controversies and contestations concerning the 'Incheon FEZ' project in Kyunggi province, South Korea. The South Korean government recently announces its development plan, through which it will create 'global hubs' of international movement of capital and skilled labor in several cities, designating three FEZs (Incheon FEZ, Busan/Jinhae FEZ, Gwangyangman FEZ). This master plan includes several important issues such as labor regulation, deregulation of foreign investment in the educational and medical sectors. Another big issue is that it includes the construction of what is called, 'Ubiquitous City' which is based on the concept of digital city. However, while FEZs have become a truly global phenomenon, most studies regarding FEZs focus narrowly on the theoretical analysis of benefit and cost as well as the economic characteristics and roles of FEZs in developing countries.

Little consideration has been given to when, why and how FEZs are influenced by, or adapt to diverse economic, political, socio-cultural and spatial conditions on an international, regional, national and local scale. Accordingly, these bodies of literature rarely explore the interrelation between political economic logic of urban development strategy, evolutionary natures of FEZs and state sovereignty. Through this paper, I argue that the model of FEZs have been evolutionarily transformed into spaces for 'neoliberalization' and 'new paradigm for urban development strategy' in South Korea.

Keywords: Free Economic Zones, economic liberalization, urban development strategy

ChangHwan Kim, Kangwon National Univ.. Email: hillskim@kangwon.ac.kr; HeeJun Chang, Portland State University. Email: changh@pdx.edu; Who is responsible for increasing flood hazards?: The case of Gangwon province of Korea

Flood hazards are increasing around the world. The Gangwon province of Korea is also subject to flood hazards. During recent past years, the province experienced multiple extreme floods caused by heavy rainfalls. Additionally, as cities grow, intensive land use adjacent to floodplains is believed to contribute to flood impacts. We examined the anthropogenic and natural causes of flood hazards in major urban areas in Ganwon province. There are significant upward trends in monsoon season precipitation intensity and heavy precipitation days (50mm>day) in three of the six major cities between 1973 and 2005. Flood damages also generally increased during the same period, particularly during the 1990s and 2000s. Intensive land use in lowlands, including encroachment of humans and industries into floodplain areas, contributed to the increased flood damages downstream. We estimated the number of people that could be potentially affected by a rising river level for each city. Without changes in current flood management systems in these cities, their vulnerability to flood hazards remains and may even increase under changing climate conditions and population pressure.

Keywords: flood hazards, climate change, land use management, GIS, Korea

Daehyun Kim, Department of Geography, Texas A&M University. Email: geokim@geog.tamu.edu; David M. Cairns, Department of Geography, Texas A&M University. Email: cairns@tamu.edu; Jesper Bartholdy, Institute of Geography, University of Copenhagen. Email: jpb@geogr.ku.dk; Spatial patterns and long-term dynamics (1933-2006) of salt marsh vegetation on the Skallingen peninsula, Denmark

The Skallingen salt marsh in Denmark provides a unique opportunity for long-term biogeographical research in that data on plant species frequency along three transects perpendicular to the shoreline have been acquired in 1933, 1949, and 2006. These data enabled us to investigate the changes in species composition and richness under broad spatial and temporal perspectives. Cluster analysis produced four vegetation associations, dominated by 1) *Puccinellia maritima*, *Suaeda maritima*, and *Salicornia herbacea*, 2) *P. maritima*, *S. maritima*, and *Limonium vulgare*, 3) *Festuca rubra*, 4) *Halimione portulacoides*. These associations clearly indicate the temporal dynamics of salt marsh vegetation. Nonmetric multidimensional scaling (NMDS) was used to illustrate dominant vegetation gradients. The first and second NMDS axes correlate with time since the first data were collected and surface elevation, respectively. Species richness increased, decreased, or fluctuated through time depending on the transect considered. This result differs from previous research that has usually reported a decreasing tendency of species richness. In general, the Skallingen salt marsh shows a convergent succession into an ecological state where one key species, *H. portulacoides* dominates. We, however, argue that spatial variation of changes in species composition and richness at a local scale should also be appreciated as a result of site-specific stochastic processes. This aspect is discussed in terms of human activity, retrogressive succession at cutbank edges, and geomorphic history. We suggest that a hierarchical approach is necessary in order to take into consideration different ecological processes operating across spatial and temporal scales in the salt marsh ecosystem.

Keywords: hierarchical approach, micro-scale processes, species composition, species richness, succession

Hwhwan Kim, University of Georgia. Email: kh008@uga.edu; GIS integration of daily commuting movement and population density surface model

Accurate estimation of population distribution in the city at any moment in time is crucial information for transportation planning and emergency response. This research integrates human activity patterns and grid-based population density surface modeling methods to investigate the daily space-time dynamics of population distribution in the Atlanta metropolitan area. This research combines daily commuting data from the Census Transportation Planning Package (CTPP), daily human activities from the survey results of the National Human Activity Survey (NHAPS) and firm-level employment with population census data at the census tract level to generate a grid-based daytime population model

on an hourly basis. To understand the daily dynamics population distribution change, the NHAPS data are used to generate collective diary for each of the distinctive population subgroups. To obtain precise information on the locations where the daily activities are taking places, raster-based high-resolution land use data, point-based business location data, and daily commuting flow from the CTPP data are integrated. The method of grid binary dasymetric mapping using land use/cover data extracted from National Land Cover Data (NLCD) as ancillary data is employed to produce a series of hour-based population density surfaces, which can be analyzed and visualized dynamically. A by-product of this research is a prototype real-time population estimation system that can be used to gather population distribution data of a particular part of the city at a specific time, which can be useful to the government agencies and as an education tool for students to study population mobility in a city.

Keywords: GIS, Population distribution, Surface model, Daytime population

Hyun Kim, The Ohio State University. Email: kim.1567@osu.edu;
Morton E O'Kelly, The Ohio State University. Email: okelly.1@osu.edu;
p-hub protection models for survivable network design

The design of survivable networks is a critical infrastructure issue. Many current network structures have evolved into hub and spoke type configurations, thereby reaping the benefits of economies of scale but at the same time being more vulnerable to the probable malfunction of hubs. These malfunctions can cause critical degradation of the entire network's performance. This paper proposes hub protection models to design hub and spoke networks in terms of reliability theory. The new model minimizes the probability of potential loss of interacting flows by strategically locating hubs and using inter-hub links and back-up routes. Based on mathematical formulations, hypothetical and empirical analyses are presented utilizing telecommunication networks in the United States.

Keywords: network design, hub and spoke network, reliability, survivability, location analysis, telecommunication

Hyun Joong Kim, Kent State University. Email: hyunjoongkim@hotmail.com;
Jay Lee, Kent State University. Email: jlee@kent.edu;
A Comparative Assessment of Remotely Sensed Images and Land Use Parcel Map Data in Analysis of Urban Growth in Local Communities

During the past few decades, uncontrolled urban growth, sprawling development around urbanized areas has significantly influenced urban landscapes in U.S. cities. Many geographers developed GIS-based modeling tools to assist detailed examination of how urban growth patterns change at regional scale. This research aims to examine urban growth at the level of local communities because we need a better understanding of land use/land cover (LULC) changes in smaller areas that are not yet fully understood by the current GIS-based modeling studies and simulation tools using remote sensing data. In this research, we compare remotely sensed image data and land use parcel map data in analyzing LULC changes with diffusion theories and quantitative landscape indices. The research findings indicate that remote sensing data show limitations in detecting land development changes along both the spatial and temporal dimensions at local scale. In contrast, parcel map-based data provide considerably useful information that has significant implications for urban growth modeling and future planning practice. The results of this comparative assessment of two GIS data sets will provide a better understanding of urban growth patterns in local communities and more insights for urban modeling studies.

Keywords: Urban Growth, GIS-Based Simulation Model, Growth Pattern, Remote Sensing Data

Jinsook Kim, PhD, MPH, DDS, Northern Illinois University. Email: jkim4@niu.edu;
Neighborhood and school effects on children's academic skills

Part of the differences in children's academic skills may originate from differentials in social contexts including school and neighborhood environments. Studies on neighborhood and school effects have been inconclusive, and have been criticized for methodological limitations including model misspecification and omitted variables. Multilevel modeling addresses critical methodological issues in neighborhood and school effect research by providing conceptually and statistically more appropriate ways to analyze hierarchical data than a single level analysis. However, teasing out potential endogeneity of neighborhood and school choice becomes more formidable when researchers encounter complicated real-life data. Individuals can be classified along more than one social dimension where the dimensions are not neatly nested. For example, a significant number of children attend schools located outside their residential neighborhood. Conventional multilevel modeling cannot handle this situation because it assumes clean hierarchical nesting (e.g., individuals nested in schools and schools nested in larger neighborhoods), which is not always true in real life. This study looks at the relative impacts of family, school, and neighborhood characteristics on children's reading and math skills using the Los Angeles Family and Neighborhood Survey data. Using cross-classified multilevel modeling, it is possible to estimate

the proportion of total variance in children's achievement scores that are attributed to differences in school and neighborhood contexts when children are nested in both dimensions and the two dimensions are in non-hierarchical structure. The results show considerable and robust neighborhood contextual effects across test scores. Little variance in children's achievement scores is attributed to differences in school contexts.

Keywords: schools, neighborhoods, cross-classified multilevel modeling

Kamyoung Kim, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: kim.1820@osu.edu;
Alan T. Murray, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: murray.308@osu.edu;
Spatial representation issues in surveillance sensor location modeling

We examine spatial representation issues in the context of siting surveillance sensors in urban environments. The coverage of a sensor, like cameras, is determined by visibility as well as distance from a sensor to a target. While visibility analysis being utilized in current geographic information systems (GIS) and spatial optimization models are discrete, the spatial demand to be observed is generally continuous. That is, we are interested in monitoring an entire region, and not discretized raster grid cells per se. The results of visibility analysis and spatial optimization may be dependent upon a particular representation selected, so evaluation of more general effectiveness is needed. This paper examines how modeling results are sensitive to spatial representation.

Keywords: spatial representation, location modeling, GIS

Mook Han Kim, Rutgers University. Email: yohanna@eden.rutgers.edu;
The diffusion of green buildings as environmental innovations

The aim of this article is to investigate the diffusion pattern and mechanism of green buildings as environmental innovations through feedback loops between emerging environmentally conscious eco-label scheme and local green building practices. Since the US GBC (Green Building Council) started its LEED (Leadership in Energy and Environmental Design) rating system in 2000, the number of LEED green buildings has grown significantly and LEED become a de-facto standard of green building in the U.S. Despite of noteworthy interests from both academics and practitioners, most works are limited to test the feasibility and potential demand of green building. This article shifts the focus to spatial diffusion patterns of green buildings and the role of codes and standards in that diffusion process. Recent studies in innovation research and ecological modernization shed a light on the gains and risks of 'lock-in' mechanism like standards in innovation diffusion. The key to minimize risks in the process is to create close feedbacks between producers and consumers of innovations, so as to leave rooms to innovate standards themselves through diffusion. After brief history of LEED as eco-labeling scheme, geographical distributions of LEED projects until 2005 will be presented and analyzed. Then, experiences of high-rise green building development and organic maintenance of public parks at Battery Park City and their interactions with LEED will be described as a collective effort to keep the standard flexible enough to adapt further environmentally friendly innovations. Finally, policy implications from the research will be proposed accordingly.

Keywords: environmental innovation, green building, diffusion

Myung Jin Kim, Department of Geography, The Ohio State University. Email: kim.1700@osu.edu;
Ningchuan Xiao, Department of Geography, The Ohio State University. Email: xiao.37@osu.edu;
A network flow-based optimization approach to political redistricting problems

A political redistricting plan must satisfy a number of criteria such as population equality, minority representation, contiguity, and compactness. The requirement of contiguous districts has been difficult to formulate. Recent developments in solving land acquisition problems have showed success in addressing contiguity. In this paper, we develop a network flow-based optimization approach based on some recent progress in solution approaches to land acquisition problems. Our approach addresses contiguity mathematically as well as compactness, equal population and minority representation. We also investigate the tradeoff between minority representation and compactness. A set of experiments is demonstrated to the use of our approach based on syntactic datasets.

Keywords: optimization, political redistricting problems

Sookjin Kim, Ohio State University. Email: kimx0630@umn.edu;
Joel Wainwright, Ohio State University. Email: wainwright.11@osu.edu;
Neoliberalism, Transnationalism and the Korea-USA Free Trade Agreement

From the streets of Cancún, Mexico, in 2003, to Hong Kong in 2005, the face of the transnational farmers' movement against neoliberalism is, today, Korean. After the demise of the Doha Round, the most significant trade negotiations in the US today concern the proposed Korea-USA Free Trade

Agreement, slated to conclude with an agreement in 2007. By examining the dynamics of the Korean farmers' movement through participant observation in Seattle from September 4th to 9th 2006, we argue that the Korea-USA Free Trade Agreement negotiations and resistances in Seattle reflect (a) elite practices that aim at facilitating neoliberal transnationalism and (b) resistance practices that reflect 'anti-neoliberal' transnationalism. Yet states, social movements, and elites are not transnationalizing in the same ways, through the same practices, or in the same spaces. This is not only because they reflect the positions of different social classes, but also because the 'nation' that they transcend is different, and the practice of transnationalism varies spatially and in ways that reflect global-local articulations.

Keywords: neoliberalism, transnationalism, Korea, free trade

Yeong-Hyun Kim, Ohio University. Email: kimy1@ohio.edu; *Immigration and Integration of Ethnic Korean Migrants in Seoul, South Korea*

This research explores the return migration of ethnic Koreans from China to South Korea. The Korean Diaspora in China, estimated at two million people, was created after a mass migration of Korean peasants during the Japanese colonial period. Since the early 1990s, however, a growing number of ethnic Koreans have returned to South Korea. A reasonable estimate of ethnic Korean migrants, legal and illegal combined, is 150,000 - 200,000. Many work in low-wage jobs in the manufacturing, construction and service sectors in Seoul. Compared to migrant workers from Southeast Asian countries, another cohort of the growing low-skilled foreign labor force in the city, ethnic Koreans have certainly benefited from government policies favoring migrants of Korean decent. However, they still find themselves battling various social, cultural and legal barriers that the tightly knit Korean society has built to differentiate the newcomers from the native-born. Three research questions are addressed: 1) What political and economic factors have fostered ethnic Koreans' return migration to South Korea?; 2) What policies and institutional provisions have been introduced for ethnic Korean migrant workers' settlement in Seoul?; and 3) How have ethnic Korean migrant communities in Seoul changed, geographically and structurally, in the past decade? The research draws on a series of in-depth personal interviews with ethnic Korean migrants clustered in the southwestern part of Seoul. Little has been known about the existence of such a large Korean Diaspora in China, and even less about ethnic Koreans' return to South Korea and their marginalized position in Seoul.

Keywords: ethnicity, labor migration, ethnic Koreans, Seoul

Young-Sik Kim, San Diego State University. Email: ykim@rohan.sdsu.edu; *Investigating Intra-urban Dualism: The Case of Seoul Housing Market*

Urban dualism is a concept that embodies the class-based polarization of the poor and the rich, mainly in the contemporary information society where one's socio-economic status largely depends on her capability of processing information flow. Housing segregation or spatial mismatch is often regarded as geographical representation of urban dualism, and many urban policies aim at mitigating the effects of disparity. This paper examines a polarizing trend of Seoul housing market over the last decade (1995-2005) and investigates relationship between intra-urban dualism and central/local government housing policies in Korea. The paper is based on an exploratory analysis of housing price at Korean administrative unit level (gu and dong), using the open source exploratory space-time data analysis package, Space-Time Analysis of Regional Systems (STARS). Findings suggest that housing policies of Korean government, which has struggled to control housing price and to reduce the socio-economic gap, has failed to achieve its goal, and spatial dichotomy within Seoul metropolitan housing market has rather contributed to the reinforcement of intra-urban dualism.

Keywords: housing market, urban dualism, exploratory data analysis, STARS

Youngho Kim, The Ohio State Univ. Dept. of Geography. Email: kim.1235@osu.edu; *A Space-time surveillance method for crime occurrences*

This study proposes a new method for space-time surveillance. The new method has no restrictions in shape and size of resulting hotspots. Space-time surveillance methods are generally designed to find spatial hotspots in given time periods based upon the assumption of Complete Spatial Temporal Random (CSTR) process. Existing methods, with their dependence on population at risk data to generate expected values under CSTR process, usually have resulting spatial hotspots bounded by administrative census areal units such as census block groups or tracts. This study, however, generates expected values from previous occurrence counts for flexibly changing local areas. Bootstrap permutations of previous occurrences are applied for significant tests. Consequently, the method, without requirement of population at risk, (1) is free from areal restriction, (2) enables more frequent surveillance for continuously updated registry database, and (3) is readily applicable to criminology and epidemiology surveillance. The study applies property crimes in Columbus OH year 2000 for space-time surveillance. In particular, by finding crime hotspots in daily bases, the study enables provision

of updated information in near real-time, so that efficient allocations of police resources are practically enabled.

Keywords: Surveillance, space-time clustering, criminology

Mindy A. Kimball, M.S., United States Military Academy, West Point, NY. Email: mindy.kimball@usma.edu; Allison L. Day, M.S., United States Military Academy, West Point, NY. Email: Allison.Day@usma.edu; *Do Army Family Social Clubs Reflect Army Culture or Regional Culture?*

Almost every Army post establishes informal social groups such as "Wives Clubs" or "Spouses Clubs," akin to book clubs or "coffee" clubs meant for socialization and sharing experiences with others who have common interests. These social clubs are not officially mandated, nor do official Army policies exist concerning how posts establish or maintain these groups. Nevertheless, most posts have these fringe clubs, and family members are encouraged and expected to participate in them. The disparity arises when different posts establish different criteria (including the club name) for who joins and contributes in those social settings. This disparity matters because today's Army has substantial numbers of dual-military couples as well as female soldiers with civilian husbands. By querying all major Army posts in the U.S., we expected to find a pattern to the naming of social clubs consistent with regional culture. Surprisingly, region has little impact on whether posts name their clubs Officers' Wives Clubs, Enlisted Wives Clubs, Combined Wives Clubs, Officers' Spouses Clubs, Enlisted Spouses Clubs, Combined Spouses Club, Women's Clubs, or Community Clubs. This lack of regional pattern may be explained by military families moving frequently, detaching them from ties to regional subcultures and aligning with a broad Army culture. Overall, today's Army does not have gender-neutral family support roles in social settings. With current plans to "life cycle" and "home-stead" soldiers on Army posts, this study may be worth repeating in a decade to look for social club names having closer ties to regional culture.

Keywords: Army, family, regional culture

James Kimmel, Texas State University. Email: jk02@txstate.edu; *Interpreting Rivers*

The general public knows little about rivers, yet many river conservation programs can be effective only if the public appreciates rivers and understands why river conservation is necessary. This paper draws on the theory, principles, and methods of environmental interpretation to analyze and evaluate the potential conservation effectiveness of interpretive programs and materials on the Rio Grande and the Upper Mississippi River.

Keywords: rivers, Rio Grande, Mississippi River, interpretation, conservation

Alethea Kimmel-Guy, PhD student, Arizona State University, School of Geographical Sciences. Email: Alethea.Kimmel-Guy@asu.edu; Mordechai (Muki) Haklay, Senior Lecturer in GIScience, University College London. Email: m.haklay@ucl.ac.uk; Sarah Theakston, University College London. Email: ; Gemma Moore, University College London. Email: ; *Bottom-up Environmental Justice in the UK: A fairer, Greener London*

Environment Justice (EJ) action in the UK is commonly framed as an issue of marginalised and disadvantaged socio-economic groups and their exposure to adverse environmental conditions. To date, most of the UK work on EJ has been characterised by a top-down approach, wherein researchers use geographical datasets and information to analyse a locale's environmental conditions, then either act with the local community to change the situation or publish the results together with NGOs to advocate policy changes. The London 21 project 'A Fairer, Greener London' was conceived as a bottom-up activity, giving six marginalised communities the opportunity to develop their own understanding of local EJ issues and supporting action plans to address them. The project will rely on accessible GIS technologies and available environmental information sources. The use of Public Participation GIS methodologies within the project will allow participants to integrate their local knowledge into a common framework and to share experiences with others. In this presentation, we will cover aspects that have been explored in two pilot studies of this project. The first used focus groups to expose the way one community organisation and the London 21 team differentially frame EJ. In the second study, the way in which available environmental information sources are evaluated by a community was analysed using focus groups and web discussion. Both studies point to a deeper understanding of EJ as it is perceived by London communities, encompassing ideas of empowerment and social capital, and highlighting the crucial role of information.

Keywords: Environmental Justice, Sustainable Development, London, PPGIS

Peter K Kimosop, University of Cincinnati, Student. Email: kimosopk@email.uc.edu; **Rahim Mustafa, Illinois State Water Survey. Email:** ; **Chansheng He, Professor, Western Michigan University. Email:** He@wmich.edu; **Assessment Of Sediment And Nutrient Loadings In The Davis Creek Watershed, Southwestern Michigan Using The Swat And The AnnAGNPS Models**

The Davis Creek Watershed has been impaired for many years by nonpoint source pollution. A recent modeling research on the watershed simulated both nutrient and sediment movements for the single storm events. This study simulates the movement of sediments and nutrients (nitrogen and phosphorus) in the watershed continuously using both the Annualized Agricultural Non-point Source model (AnnAGNPS) and Soil and Water Assessment Tool (SWAT) for assessing water quality in the watershed. Multiple databases for climate, soil types, DEM, land use and agricultural management practices were used to derive inputs for the two models. Subsequently, the models were run for the period of 1998-2004. Four management scenarios were developed: no till, conversion of agricultural land to urban, expansion of wetland area, and construction of retention ponds in the residential area, were simulated for nonpoint source pollution management. The simulation results from the two models were then compared for any similarities and disparities.

Keywords: nonpoint source pollution, SWAT, AnnAGNPS

Joni L. Kincaid, High Alpine Research Program (HARP) and Department of Geography, Texas A&M University. Email: jkincaid@geog.tamu.edu; **Netra Regmi, HARP and Department of Geology & Geophysics, Texas A&M University. Email:** nregmi@geo.tamu.edu; **Mark W. Barker, HARP and Water Management and Hydrological Sciences Program, Texas A&M University. Email:** mwbarker0@lycos.com; **Elke Sauter, HARP REU Student and Technological University of Costa Rica. Email:** elkesauter16@hotmail.com; **John R. Giardino, PhD, HARP and Water Management and Hydrological Sciences Program, Texas A&M University. Email:** RickG@tamu.edu; **Glacial-Periglacial Landforms of the Blue Lakes -Mount Sneffels Wilderness, CO: A Preliminary Assessment**

At present, management of the Mount Sneffels Wilderness Area by the US Forest Service is based on a limited understanding of the occurrence and dynamic nature of landforms in the area. Because of a lack of knowing what landforms are present, trails, as an example, have been constructed with little regard to dynamic landform processes. Landforms on the south side of the mountain have been mapped, however, the Blue Lakes area on the north side, has not been studied. Although our interest is in the glacial-periglacial chronology of the area, a geomorphic map of the area would provide forest service personnel with a tool to enhance their management strategies in order to preserve the character of the wilderness area. As a first step in understanding the geomorphology of the area, we used traditional field mapping techniques supplemented with high-resolution aerial photography to create a first-approximation geomorphic map of the area. The area consists of series of lateral and terminal moraines and associated glacial forms. Three lakes are situated in a series of compound cirques on the southwestern slopes of Mount Sneffels. Periglacial forms include complex tongue-shaped rock glaciers that cascade down to the lakes, protalus ramparts, active talus slopes, steep cliffs, small debris deposits, and "fluvial talus". In addition, recent landslides, avalanche cones and run outs are present. The streams are characterized with series of step pools, and the lower reaches on the streams are marked with small floodplains.

Keywords: glacial landscapes, mountain geomorphology

Joshua A Kincaid, Glenville State College. Email: joshua.kincaid@glenville.edu; **Joshua A Kincaid, . Email:** joshua.kincaid@glenville.edu; **Structural characteristics and canopy dynamics of Tsuga canadensis in the southern Appalachian Mountains**

I examined the structure and canopy dynamics of four Tsuga canadensis forest stands within the Cataloochee watershed, in the far eastern part of Great Smoky Mountains National Park. I characterized the environmental settings and vertical forest layers, as well as the diameter and age-structures of each Tsuga canadensis forest stand. These environmental and structural data showed that there were indeed differences between forest stands with and without successful Tsuga canadensis regeneration. The two forest stands exhibiting successful Tsuga canadensis regeneration were located above 1000 m in elevation on well-drained, moderately steep slopes, and had the greatest canopy openness. Structural data from these two forest stands indicated a history of more continuous Tsuga canadensis regeneration. I also constructed disturbance chronologies detailing the history of canopy disturbance events and related these to Tsuga canadensis regeneration within each forest stand. T-tests adjusted for unequal variances indicated significant differences in the number of release events per tree between forest stands with and without successful Tsuga canadensis regeneration. While forest stands with successful Tsuga canadensis regeneration were more frequently

disturbed by minor to major canopy disturbances, events of moderate intensity were found to be most significant in terms of regeneration. These data will be of value to land managers maintaining stands of Tsuga canadensis where treatment for hemlock woolly adelgid infestation has been successful. In areas where treatment is impractical or unsuccessful, these data may prove useful for Tsuga canadensis forest restoration after the wave of hemlock woolly adelgid induced mortality has passed.

Keywords: eastern hemlock dynamics, forest structure, tree regeneration, old-growth forests

Garnet Kindervater, University of Minnesota - Minneapolis. Email: kind0080@tc.umn.edu; **Arresting intelligibility: digital law enforcement and the political force of the non-human**

This essay expands upon literatures of critical and social theory that seek to illuminate the role of the non-human in terms of the 'political'. The theoretical positions of its argument are situated around current law enforcement technologies in Chicago, Illinois. Chicago's advanced digital surveillance and archival technologies represent a burgeoning era of technological actors participating in urban politics. This paper thus maps three primary, intertwined conversations. First, it establishes Chicago's surveillance and archival technologies as actors in the larger project of law enforcement by examining the ways that the system intervenes on the normative human-human interaction. Second, following Michel Foucault, the essay expounds on the ways in which abnormality, as a discernable quality, is always already bound up with discursive formations of health and sickness of the populace. Genealogical currents of institutionalized threats to public health have been linked to juridical order, further connecting the security of public health to criminal adjudication. Furthermore, the public health-juridical formula links abnormality to individual bodies, making behavior a category of physical intelligibility for the state. Finally, this paper looks to Gilles Deleuze in an attempt to grapple with various ways that heterogeneous elements may constitute an immanent political assemblage. In elaborating questions of political heterogeneity, this paper will conclude with a discussion of such a theory's implications to understanding a dynamic, nonexclusive politics of the biological and the technological.

Keywords: Non-Human Foucault Deleuze Urban Political Cultural Surveillance Chicago

Brian King, University of Texas at Austin. Email: brian.king@mail.utexas.edu; **"No One Dies of AIDS": Political Ecologies of Health in Rural South Africa**

The fields of medical geography and public health have increasingly engaged with an expanded set of concerns about human disease in the developing world. While these studies have shed light upon the distribution of health services, gender and disease, and the places of health, there has been less attention directed to the political economy of disease in the developing world. This gap has coincided with a growing interest to understand the reciprocal relationships between disease and environmental change. This paper addresses HIV/AIDS in South Africa to examine the discursive representations of disease by national and provincial governments. It works to build a theoretical framework that examines the political economy of disease and the politicization of health care and treatment. Additionally, it analyzes the relationships between household health and environments in Mpumalanga Province to understand how HIV/AIDS is reshaping social and ecological landscapes in rural South Africa.

Keywords: HIV, AIDS, health, disease, South Africa, political ecology

Dewitt Larselles King, University of Kentucky. Email: magneto110@aol.com; **Does the Man Maketh the Space or Does the Space Maketh the Man? Interrogating Masculinities in the African American Barber-shop**

Hypermasculine, Hypersexual, and Hyperaggressive are all synonymous with the hegemonic imaginary of black masculinity. In this paper, I will examine the construction and performances of black masculinities via the space of the African American Barbershop. The barbershop is a cultural nexus in the African American community. In addition to its function as a space of grooming, it provides a place for black men to commune with each other, reaffirm their identity, and reassert power. I argue that the hegemonic black masculinity is performed and socially reproduced in this space via the conversations that cover a range of topics: local news, sex, politics, sports, and popular culture. In addition, I argue that subordinate masculinities such as the "black male intellectual" and the "gay black male" are either barely tolerated, or divorced altogether from the performances and discourses that take place within this space. By analyzing this unique cultural space, I hope to shatter the monolithic idea of what a black man should or has to be, which is internalized, produced and consumed by African and Non-African Americans alike.

Keywords: Race, Masculinity, Identity

Guy Q. King, PhD., California State University, Chico. Email: gking@csuchico.edu; Analysis of the Daily Hottest and Coldest Places in the Lower 48 States 1995-2005

National Weather Service data published in the newspaper "USA Today" are used to analyze daily hottest and coldest places in the lower 48 states over a ten-year period. The ordinal dataset is restricted by population and elevation. Exceptions are made for places with extreme cold or hot temperatures. Between 1995 and 2005, 264 places in the lower 48 states got the daily hottest record, while 364 places got the coldest record. Death Valley, CA had the highest number of hottest days (803) while Lake Havasu City, AZ was second with 276 days. Stanley, ID had the highest number of coldest days (398) with West Yellowstone, MT second at 337 days. Eight places in the lower 48 had the distinction of being both the hottest and coldest places in the lower 48 states. Places with over 50 days of record (21 hottest and 18 coldest) were climatically compared. The results of this study indicate, not surprisingly, that the climate controls of latitude, continentality, and elevation are very important in determining why places get national daily hottest/coldest records. Another major climate control are local effects, such as cold air drainage in mountain basins. Finally, the results show the importance of daily changes in air pressure and winds as a control of temperatures in the lower 48 states.

Keywords: climatology, cultural geography, United States

Karen M King, PhD., McMaster University. Email: kingk2@mcmaster.ca; K. Bruce Newbold, PhD., McMaster University. Email: newbold@mcmaster.ca; Transitions into Retirement: Differences between the Canadian- and Foreign-Born

Canada is an aging society, with projections suggesting that the population aged 65 and over will double from nearly 4 million in 2000 to almost 8 million by 2026, accounting for 21 percent of the total population. While there is much research on the retirement decision of the older population, there is less known about the retirement transition. That is, how does the older population make a transition from working to retirement? Is this process a gradual movement with a change in work status and income sources into retirement? Does the transition differ between the native-born and immigrants? Utilizing the 1993, 1996, and 1999 six-year panels of the Survey of Labour and Income Dynamics (SLID) Master files, the retirement transition of both Canadian- and foreign-born are examined. The SLID Master files have longitudinal information for six years which will be used to examine the transition from the labour force to retirement. Specifically detailed economic data such as income sources, employment, and labour force status, in addition to demographic data are used to examine the transition from work to retirement. Descriptive and multivariate techniques are applied to examine the differences in retirement migration paths, and determinants of retirement.

Keywords: Canada, Immigrant, Retirement

Paul T Kingsbury, Simon Fraser University. Email: kingsbury@sfu.ca; The Extimacy of Research

Jacques Lacan coined the neologism 'extimacy' (extimité) in order to theorize two interrelated modes of psychical apprehension: first, how our most intimate feelings can be extremely strange and Other to us. Second, how our feelings can be radically externalized onto objects without losing their sincerity and intensity. This paper argues that the notion of extimacy, alongside Freud-Lacanian understandings of desire, sublimation, and the drive, can help guide discussions about the viability and vitality of psychoanalytic methods in geography for three reasons: first, extimacy allows insight into the socio-topological dimensions of participant observation. Here, I elaborate the estimate contours of conducting research in a Jamaican all-inclusive hotel. Second, taking inspiration from the work of Joan Copjec and Slavoj Žižek, as well as the immersive practices of pool volleyball, extimacy can help us illuminate the importance of de-contextualization in our discourse analyses of spatial practices. Third, drawing on the proto-psychoanalytic writings of Petrarch, extimacy can illuminate one of the most overlooked yet crucial pressure points of textual transcriptions: love. The paper concludes with the assertion that the value of Felicity Callard's recent and justified critique of how geographers have 'tamed' psychoanalysis, that is, shied away from working through psychoanalysis's unseemly conceptualizations of politics and subjectivity, can be fully realized via the suggestion that we have also tamed some of psychoanalysis's most valuable theorizations about space itself.

Keywords: Extimacy, Psychoanalysis, Methods, Lacan, Love

Paul Kingsbury, Simon Fraser University. Email: kingsbury@sfu.ca; John Paul Jones, University of Arizona. Email: jpjones@email.arizona.edu; Beyond Apollo and Adorno: Dionysus and Walter Benjamin on Google Earth

This paper argues, following Friedrich Nietzsche, that recent evaluations of Google Earth uncritically privilege the product's Apollonian determinations at the expense of its Dionysian capacities. In other words, Google Earth is routinely understood as a virtual globe composed of surveyed panoramas, sober rationalization, dystopic control, and transparent order rather than an uncertain orb spangled with vertiginous paranoia, frenzied navigation, jubilatory dissolution, and intoxicating giddiness. We argue that these interpretations not only risk foreclosing our theorizations about how Google Earth is actually used in various ways and different contexts, they also reproduce a one-dimensional and conservative reading of technology that can be traced back (at least) to the writings of Theodor Adorno. By drawing on the work of Walter Benjamin (Adorno's critic and pen pal for more than a decade) we aim to 'go beyond Apollo and Adorno' by illustrating the extent to which Dionysian love makes Google Earth go round. To do this, we examine Google Earth's "Spot the Black Helicopter" competitions; the websites "Play Google Earth" and "Ogle Earth"; and the stories about how Google Earth revealed two topless sunbathers in the Dutch city of The Hague, as well as a parked stealth bomber in the deserts of California. We conclude the paper by asserting that the allure of Google Earth, much like Nietzsche's reading of Greek tragedy, involves a topological rather than oppositional enlacement of the God tricks that are Apollo and Dionysus.

Keywords: critical cartography, Google Earth, Theodor Adorno, Walter Benjamin, Apollo, Dionysus

Edward Kinman, Ph.D., Longwood University. Email: kinmanel@longwood.edu; Map Art: Contesting Space and Preserving Place

Landscape is transient, always changing. What we see today differs from the past and will evolve into something new tomorrow. Over time people interact with a landscape, and place—a set of associations and characteristics attached to a geographical spot—develops. As places evolve, they become unique and distinct from other locales. But whose place is it? Most areas have numerous parties who interact with the same landscape. They may also bear diverse meanings. This paper discusses Domain, the collaborative artwork of a geographer and artist. Constructed of stoneware, glazes, and steel, the piece consists of panels depicting the contentious relationship between an ethnic neighborhood and a state-supported university in south central Virginia. Collectively, the work presents multiple temporal and spatial perspectives depicting property acquisition adjacent to the university. The fight by the community to preserve place is further nested in the race relations struggle of Prince Edward County, Virginia, where massive resistance to desegregation resulted in the closing of public schools from 1959 to 1964. Since its installation in 2006, Domain has created diverse responses. A number of community residents thanked us for speaking loudly about the eradication of place; others have expressed appreciation for opening their eyes to what already existed, but hidden from view. As the university continues to expand, a number of area residents have sought us to tell of their experiences related to place. These new revelations are being incorporated into a new artwork that will examine diverse community perspectives on race relations.

Keywords: cartography, art

Kealohanuiopuna Mark Kinney, Keaholoa STEM intern, University of Hawai'i at Hilo. Email: kmkinney@hawaii.edu; Dr. Michael Steinberg, University of Hawai'i at Hilo. Email: msteinbe@hawaii.edu; Investigations of Land Use Change and Development Trends in the District of Puna, Hawai'i

The Puna district of Hawai'i (the Big Island) accommodates unique lowland forests dominated by ohia (Metrosideros polymorpha) of varying ages due to the frequent volcanic eruptions during the past several centuries. While some of the area's forests are young and structurally simple, within this area are representative fragments of old growth ohia forests and associated endemic species. During the 1950's and 60's, prior to any strict zoning laws, large tracts of this lowland forest in the Puna district were divided into a series of colossal subdivisions comprised of relatively small parcels. These unrestrained planning developments amounted to some of the largest unimproved and until recently relatively uninhabited subdivisions in the United States. Between the years of 1980 to 2000 the population of Puna expanded from approximately 10,000 to more than 30,000 people. The pressure exerted by this increase in population has translated into an acceleration of forest fragmentation and an array of associated ecological problems. Given the current zoning laws in east Hawai'i, little protection exists for these forests. This poster aims to demonstrate the extent of landscape change and forest fragmentation in the Puna district using change detection technique, and related remote sensing applications with aerial photography and Quickbird satellite imagery. Preliminary results suggest Puna lowland old growth forests are being increasingly degraded, fragmented, and clear cut due to the

recent expansion of residential and agricultural development. The implications of this data outline a need to evaluate protected area design considerations, land use policy, and Hawai'i environmental law.

Keywords: Hawaii, deforestation, fragmentation, ohia forests, development

Mary Njeri Kinyanjui, PhD, Nairobi University-IDS. Email: marykinyanjui@yahoo.com; Emerging production systems in non-developing states: experiences of the jua kali economy in Kenya

The failure of development is a common phenomenon in Sub Saharan Africa. The non-developing state in Sub Saharan is seen both as a product of local and external crisis. At the local level there are no drivers to move state development. The state in particular characterised by inefficiency, corruption and lack of will power has failed to act as a driver of change. External factors contributing to the failure of the development state is the collapse of international capitalism. Capitalism has failed to regenerate and spur development in Sub-Saharan Africa. Internationalism capitalism supported production activities such as cash crop farming, mining, import substitution failed to survive the economic crisis of the 1970s. Countries heavily dependent on these products experienced poverty and unemployment. Efforts by structural adjustments to revive productive activities have also failed to a large extent. In spite of the capital injected in the projects and the subsequent reforms that accompanied the change. It is illustrated by the case of flower farming and export processing zones. The failure of development occurs within emerging production systems such as jua kali economy in Kenya. The philosophy and institutions supporting these emergent production systems are somewhat different from those upon which the non-developing states are hinged upon. The purpose of this paper is to show how the jua kali economy has evolved from a non-developing state where local and external factors have failed to generate change. The institutions supporting it and the struggles in its survival against those of a non-developing state

Keywords: Development, Subsaharan Africa

Stefan A Kipfer, Assistant Professor, York University. Email: kipfer@yorku.ca; Jayson Petrunia, Planning Alliance. Email: jpetrunia@architectsalliance.com; 'Colonization' and Public Housing in the Competitive City: A Toronto Case Study

Strategies to redevelop public housing districts in advanced capitalist zones have now a long history. This paper focuses on the first large-scale redevelopment of public housing in Canada: Toronto's Regent Park. The redevelopment of Regent Park, which is likely to have major ramifications for similar such projects in Canada, is best understood not only as a form of state rescaling and municipally managed gentrification. One can interpret it as a three-pronged, economic, social and cultural, strategy to re-colonize, in the name of diversity, a long-pathologized, racialized and segregated but potentially valuable central city social space. This project is facilitated by the socio-political consolidation of competitive city politics. Conceptually, the study connects urban forms of regulation theory with Henri Lefebvre's concept of 'colonization' and Frantz Fanon's understanding of racism as modality of colonial spatial relations. From this perspective, the redevelopment of public housing represents one entry point for comparative research on the formation of new territorial relations of centre and periphery. Accordingly, vulgar modernist perspectives of large-scale, hierarchical spatial concentration and separation are supplanted with territorial strategies of spatial control centred on paternalistic social mixing, physical dispersal and decentralized re-segregation. This has major implications for radical political organizing today.

Keywords: Public Housing, Colonization, Racialization, Territorial Relations, Competitive City Politics, Toronto, Gentrification, Urban Politics

Kurt F. Kipfmüller, University of Minnesota. Email: kurt@umn.edu; Matthew W. Salzer, Ph.D., Laboratory of Tree-Ring Research, University of Arizona. Email: msalzer@ltrr.arizona.edu; Assessing and interpreting twentieth-century growth patterns in five-needle pines in the western United States

Recent research has questioned the reliability of the most recent three decades of history for calibrating climate reconstructions derived from tree rings collected at high latitudes or high elevations. In some chronologies there is a temporal weakening of the growing season temperature signal as one approaches and enters the most recent period. The cause of this weakening has been variously attributed to ultra-violet radiation, changes in snowmelt timing, a CO₂ fertilization effect, or increases in summer temperature to a point that they are no longer the most limiting factor to tree-growth processes. Moreover, many of these chronologies also exhibit considerable positive trends over the most recent period. Identifying the probable cause of this weakening and the mechanism leading to positive growth trends is critical for developing robust estimates of past climate from tree-rings. We used a network of ~50 five-needle pine chronologies across the western USA to examine trends in tree growth and growth-climate relationships. Chronologies were developed from raw ring-widths

after adjusting them to reduce bias associated with tree age and size. Linear trend in each of the chronologies was assessed using correlation and regression analyses. Each chronology was compared with the nearest climate station to assess the temporal stability of the climate-growth relationships. Principal components analysis (PCA) was used to reduce the dimensionality of the data set and the loadings for each chronology were mapped to identify potential spatial patterns in the growth patterns of the chronologies.

Keywords: dendrochronology, climate change, subalpine, tree rings

Matthew E. Kirby, Ph.D., California State University, Fullerton. Email: mkirby@fullerton.edu; Steve P. Lund, Ph.D., University of Southern California. Email: slund@usc.edu; Michael A. Anderson, Ph.D., University of California, Riverside. Email: michael.anderson@ucr.edu; Broxton W. Bird, M.Sc., University of Pittsburgh. Email: broxton.bird@gmail.com; Insolation Forcing of Holocene Climate Change in Southern California.

Lake Elsinore is the largest natural lake in Southern California. As a result, the lake represents a unique opportunity to investigate terrestrial climate on timescales otherwise underrepresented in the region's terrestrial archives. This abstract focuses on two adjacent, decoupled cores, which have been correlated to develop a single composite core. 22 AMS 14C dates on bulk organic matter and one cross-correlated exotic pollen age constitute the composite core's age control. Several methods of analysis, including mass magnetic susceptibility, % total organic matter, % total carbonate, % HCl-extractable Al, and total inorganic P are used to infer climate for the past 9,500 calendar years. Together, these data indicate a wet early Holocene followed by a long-term drying trend. A combination of local (Dry Lake; San Bernardino Mtn. glaciation; San Joaquin Marsh) and regional (Tulare Lake; Owens Lake; Mojave lakes) terrestrial archives support our interpretation. We suggest that over the duration of the Holocene changing summer/winter insolation modulates atmospheric circulation and its associated storm tracks, which alters the region's long-term hydrologic balance. Minimum early Holocene winter insolation and maximum summer insolation act together to increase the region's total annual precipitation by increasing the frequency of winter storms as well as enhancing the magnitude and spatial extent of the North American monsoon, the frequency of land-falling tropical cyclones in Southern California, and regional convective storms, respectively. Gradual decreases in summer insolation and increases in winter insolation produce the opposite effect with maximum drying in the late Holocene.

Keywords: Lake Elsinore, Holocene, insolation, sediments, Southern California

John A Kirchner, California State University, Los Angeles. Email: jkirchn@earthlink.net; Wenling Li, 2. School of Geographical Science, Guangzhou University, Guangzhou, China. Email: wenling-li@hotmail.com; A Study of Urban Transportation based on the Temporal Map

The problem of traffic congestion, with its potential for urban chaos, has increased dramatically with a growing number of vehicles and the continuing aerial expansion of Guangzhou. Both transit riders and drivers find great difficulty trying to acquire the information necessary for urban spatial movements. Valuable time is lost due to the absence of good transportation information. This paper proposes the design of a new map that better reflects the status of urban communication, and attempts to change the relationship of point to point travel, reducing the amount of time allocated to such, often complex, movements. This essay also points out the obstacles associated with Guangzhou's existing traffic congestion, and puts forward a strategy aimed at better defining the need for linking the temporal map and spatial map of Guangzhou.

Keywords: spatial map, temporal map, urban transportation

Ryan W Kirk, University of Minnesota. Email: kirk0073@umn.edu; Land-use change and natural disturbance effects on carbon budgets in the Southern Appalachian Mountains

This paper summarizes primary results of dissertation research on the combined effects of land-use change, natural disturbance, and forest age structure on carbon pools in the Southern Appalachian Mountains. The study area is Macon County, NC, a 1300 sq km county located in the Blue Ridge physiographic province, which is characterized by steep topographic relief, abundant precipitation, and high primary productivity. The steep terrain combined with the relatively early European settlement has resulted in a unique land-use history, with agriculture expansion, forest harvesting, and development occurring at different periods and pacing than in other North American regions. Between 1900 and 2000, forest area increased from 74% to 90%, and agriculture acreage declined by 90%. Land use data were collected from historic maps, aerial photographs, satellite images, and forest and agriculture censuses. Land use patterns and forecasts for periods without spatial data was estimated using a

spatio-temporal interpolation model, resulting in a logically consistent, decadal land use sequence from 1885-2035. Forest age structure was reconstructed from Forest Service stand maps where available, and estimated for other areas from satellite imagery using spectral classification tools combined with spectral mixture analysis. Accrual curves for key carbon pools for separate land use types and landscape positions were estimated from a search of the literature and analysis of the Forest Service FIA database. Several scenarios were run within a bookkeeping style carbon model to evaluate changes in carbon sequestration over the 150-year period and assess key uncertainties in carbon cycling in temperate forest ecosystems.

Keywords: land use, GIS, carbon cycle, Southern Appalachian Mountains

W. Stuart Kirkham, Ph.D., California State University Stanislaus. Email: SKirkham@csustan.edu; *Some Prospects for Managing Theoretical Complexity*

This paper examines theoretical aspects of linking landscape and ecosystem level processes with social processes. Complexity theory, especially as it pertains to dissipative systems, provides the central organizing framework. A dissipative system increases its internal order and organization at the expense of exporting an equivalent amount of entropy to externally connected systems. In order for dissipation to occur, there must be sufficient connection with other networks to export the cost of organization, while simultaneously erecting barriers to define the internal system. Structure, whether referring to social structure, hierarchy, landscape mosaics, ecosystems, etc, emerges as a property of dissipative relationships. This approach emphasizes the individual agent or actor as the primary mover and creator of interconnected networks. The Unified Neutral Theory of Biogeography and Biodiversity offers an appropriate framework for handling nonhuman agents, in that its emphasis on abstracting at the level of the individual (rather than the species), and its analysis of the interaction of disturbance and other mortality driving factors with the reproductive and dispersal habits of these individuals reflects dissipative complexity. Additionally, the Unified Neutral theory offers a means of connecting landscape-scale phenomenon (such as disturbance) to the agency and processes at the level of the individual. Similarly, dissipative social systems provide a means of linking individual human agency on the landscape (the environment being the ultimate recipient of social dissipation) to broader social networks and events across multiple scales.

Keywords: complexity, dissipation, Unified Neutral Theory, landscape ecology, cultural and political ecology

Scott Kirsch, University of North Carolina. Email: kirsch@email.unc.edu; Joseph Palis, University of North Carolina. Email: palis@email.unc.edu; *The Worcester Kodak: Ethnology, visual culture, and American colonial state-building in the Philippines*

During the first decade of American administration in the Philippines, the Philippine Commissioner, Secretary of the Interior, and former University of Michigan zoologist Dean C. Worcester produced a collection of 8,000 photographs depicting the archipelago's "wild races." Worcester's portraits?bringing together the exotic, the titillating, and the clinical?contributed, on one hand, to an applied government ethnology, while on the other they provided popular US audiences with a distorted vision of Filipinos and Philippine culture. Our paper explores the production, circulation, and consumption of Worcester's primitives, tracing their emergence amid overlapping and contested discourses of empire, democracy, science, nation and race. Worcester, we argue, hoped to engender a "geopolitics of sympathy" that matched well with goals, among some colonials, for division of the archipelago and annexation of the so-called special provinces. The label of the "Worcester Kodak," however, was invented as an object of critique by anti-imperialists in the US, coinciding with challenges to Worcester's governance among nationalists in Manila, thus pointing us towards a more open politics of visual culture than the God's eye perspective of geopolitical mapping might allow.

Keywords: geopolitics, photography, Philippines, science, imperialism

Joshua D. Kirshner, M.A., PhD candidate, Cornell University. Email: jdk52@cornell.edu; *Migrant Incorporation and Regional Politics in Santa Cruz de la Sierra, Bolivia*

This paper will examine the incorporation of highland migrants in Bolivia's rapidly growing lowland city of Santa Cruz de la Sierra. Although it began as an isolated frontier town, Santa Cruz now holds a central position in national dynamics. Since the 1950s, Santa Cruz grew with state investment, foreign loans, oil and gas royalties, agrarian booms, and cocaine dollars. This growth, along with state-sponsored resettlement plans, has spurred indigenous Quechua and Aymara migration from relatively poorer Andean regions to Santa Cruz during the past four decades. In the context of the recent intensification of elite-led regional political sentiment calling for departmental autonomy, migrant reception has not always been favorable. This paper will explore forms of integration and social

exclusion that migrants experience in labor and housing markets, in access to public services, political and civic participation, and access to public space.

Keywords: Latin America, Bolivia, regional geography, migration

Eva Kiss, Hungarian Academy of Sciences. Email: kisse@helka.iif.hu; *FDI, relocation and Hungarian industry*

At the end of the 20th century international capital flows have been accelerated, however until 1989 postsocialist countries did not or could not take part in them. But after 1989 radical social and economic reforms have begun in the Eastern part of Europe. In the economic renewal, especially in industrial transformation FDI has played a very important role. Of the East Central European countries Hungary was the most important target for foreign investors, mainly in the beginning of the 1990s, but later other East Central European countries have come to the front. The considerable part of foreign capital have always been invested in Hungary. The main purpose of the presentation is to demonstrate the role of FDI and relocation in the Hungarian industry with particular regard to their impacts on the industrial space. The presentation is based on the research carried out by the support of OTKA (project number is T046014.).

Keywords: FDI, relocation, industry, Hungary

Robert Kitchin, National University Of Ireland, Maynooth. Email: rob.kitchin@nuim.ie; Martin Dodge, University of Manchester. Email: m.dodge@manchester.ac.uk; *Software, blogjects and automagical spaces*

In this paper we examine objects that blog - that is, objects that can interact across distributed networks and which record their histories with respect to other blogjects and databases and thus are searchable and trackable - and their work in the world (Bleecker 2006). In particular we examine how the technicity of blogjects enables them to 'automagically' transduce space - that is, brings particular kinds of coded space into being through their practices in such way that the technical processes are fully hidden from people effected and will increasingly appear to be magic. We illustrate our ideas through several examples relating to RFIDs (radio frequency identification) and other touch-less technologies.

Keywords: software, space, blogjects

Paula Kiviranta, Clark University. Email: pkiviranta@clarku.edu; Alina Taus, Clark University. Email: ataus@clarku.edu; Ryan Frazier, Clark University. Email: rfrazier@clarku.edu; Joseph Fortier, Clark University. Email: jofortier@clarku.edu; John Rogan, Clark University. Email: jrogan@clarku.edu; Trevor Jones, Clark University. Email: ; Steve McCauley, Clark University. Email: ; *Integrating remotely sensed data and environmental variables to map forest cover and forest type in Massachusetts*

The purpose of the poster is to present the results of a pilot study conducted for the Massachusetts Forest Monitoring Program (MAFoMP). The long-term research goals of MAFoMP are to assess changes in forest cover and type in the state of Massachusetts from 1972 to present. However, the goal of the pilot study was to test the impact and influence of multi-seasonal Landsat TM data combined with ancillary variables in mapping forest, agricultural and urban land cover. Landsat data from July 1999, September 2000 and October 1999 were combined with environmental variables such as slope, elevation, and surficial geology in a classification tree analysis to produce a series of land cover maps (17 land cover categories). Classification tree analysis (CTA) is a machine learning technique which has been shown to produce more favorable results, when mapping complex landscapes, than conventional classifiers such as maximum likelihood. In addition, CTA reveals the relative importance of each independent input variable used in an analysis. The accuracy of each land cover map was assessed using various statistics, including kappa, overall accuracy, and K_{no}. The most accurate map was produced using a combination of the July and September images and ancillary data (kappa 0.7426), followed by the combination of all spectral and ancillary data (kappa 0.7355) and by the combination of the September and October images and ancillary data (kappa 0.7304). These results are promising in terms of large-area mapping using multi-seasonal data and will be extended to the entire state of Massachusetts.

Keywords: Remote sensing, forest monitoring, multi-seasonal spectral data, ancillary data

Marianne Kjellén, Department of Human Geography, Stockholm University. Email: marianne.kjellen@humangeo.su.se; *The Water Divide: Fragmented but Flexible Water Services in Dar es Salaam, Tanzania*

In Dar es Salaam, Tanzania, only about a third of the households have direct access to piped water. Nonetheless, the majority depends indirectly on piped water, accessed by way of water resellers and distributing vendors. Users are divided along the overlapping features of water access modes, socio-economic status and ecological zones. This produces diverging interests and reproduces the individualized ways of addressing problems of water scarcity, variability and infrastructural barriers to access. Hence, the present socio-technical set-up stems

from many lost opportunities of pooling resources and efforts into a water system that serves the collectivity of users. The present paper argues that the skewed nature of water investments, and the resulting lack of local distribution systems in the city, is the major reason for abstracted water not to reach intended users. The operations of informal resellers and distributors, in turn, develop in response to the inaccessibility and fragmented nature of piped water services. Further, the sensitivity to disruption in the public system, for ecological and technical reasons, is partly compensated for by the flexibility of vending systems, as well as individual investments in water storage among households and final users. This way, Dar es Salaam's greatly fragmented but flexible hydrosocial system manages to function in the face of deteriorating piped water services.

Keywords: access, informality, institutions, privatization, socio-technical systems, urban water management, vending-water

Rachel A Kjos, Student, University of Wisconsin - Eau Claire. Email: kjosra@uwec.edu; Obesity Trends in the US: A State to State Comparison

Concerns with obesity have plagued America for the past decade. Obesity is often seen as a national problem, which it is, however tools to overcome obesity are mostly played out at the state level. In order to better understand obesity and how to mitigate its affects we must first understand what state programs are working to overcome obesity and what environmental factors play a role in contributing to an obese nation. This study will look at Obesity: by Body Mass Index for the United States and DC. Data was collected from the Center for Disease Control and Prevention: Behavioral Risk Factor Surveillance System for the years 1990-2002; both Nationwide and individual state data were used for comparison. Individual states were weighed against national values to analyze which states fell above and below national trends. Focus was given to anomalies that fell high above or below national trends. A comparison was made between different age brackets, allowing us to better see the spatial differences for each age range throughout the United States. Again, particular attention was paid to states that highly differed from national trends, to see how certain age ranges impacted the deviation from the national trend.

Keywords: obesity, United States, body mass index, Center for Disease Control

Suzanna Klaf, The Ohio State University, Department of Geography. Email: klaf.1@osu.edu; Public education in the United States and the neoliberal straightjacket: Problematizing ascribed labels to Schools and Children Left Behind.

The No Child Left Behind Act is the most recent educational reform to be implemented in the United States. The stated goal of this policy is to address the deficiencies and inequalities present in the U.S. public school system. Despite the underlying discourse of social justice, contemporary education reform policy is blanketed over various contexts regardless of local specificity thus placing schools and children in a one-size-fits-all straightjacket. Neoliberal education reform is advanced as working for all students irrespective of access to opportunity and geographic context. Despite the persistence of inequities across education space, schools are held accountable for the performance of their students regardless of their location, the socioeconomic background of the students served, and the availability of resources. Under the current accountability system, schools are identified, defined and labeled. This process leaves schools in the inner city which serve disadvantaged students to be identified as 'failing'. This research attempts to problematize inner city school performance labels by contextualizing schools. The intention is to shed light on the heterogeneity of schools and their respective contexts across the urban landscape. This work unveils the spaces and people identified and defined according to education reform discourse. The research objective is achieved by analyzing official reform documents and mapping out education accountability data, both of which encapsulate the contemporary neoliberal discourse of education reform.

Keywords: school geography, education policy, neoliberalism, inner city, United States

Philip M. Klasky. Email: pklasky@igc.org; The Salt Song Trail: bringing creation back together

I will be presenting the award-winning documentary ("Best Documentary Short" American Indian Film Festival) "The Salt Song Trail: bringing creation back together" about the sacred Salt Songs of the Southern Paiute people who live in thirteen bands in California, Nevada, Arizona and Utah. I will also talk about efforts to document sacred sites in the cultural and spiritual geography of the Southern Paiutes. The film contains interviews of Southern Paiute "culture bearers" as they speak about the relationship between indigenous people, language, song and lands, and a healing ceremony at the Sherman Indian Boarding School where native children were taken by force from their homes and denied their culture, language, families and communities. The Salt Song Trail Project is a "living documentary" as we work with native communities and train native

filmmakers conduct ethnographic field recordings of their sacred sites.

Keywords: cultural geography, indigenous cultural revitalization

Paul Rye Kledal, Institute of Food & Resource Economics. Email: paul@foi.dk; Lucie Sirieix, Agro Montpellier, France. Email: sirieix@ensam.inra.fr; Factors influencing organic urban consumers in developing countries

The main objective of our project is to study the urban economic factors influencing consumer preferences respectively for short versus long procurement systems supplying organic food in three developing countries : Brazil, China and Egypt. It will consist of three tasks : (1) To document the urban socio-economic development of the chosen areas (2) to document the various organic food procurement networks and (3) to study consumers motivations and barriers to buy, and meaning of, organic food. Our presentation will focus on the third task, for which focus groups will be used to : - study consumer conflicts: organic vs convenience and price, organic vs local, organic vs freshness ? - assess under which conditions consumers are ready to buy organic products : grown / produced locally, specific mode of distribution or length of the distribution chain - relate consumers' concern and conflicts with (1) their values, (2) their knowledge about organic products, health, risk, (3) the distribution chains they use (long versus short commodity chains) - assess within developed and developing countries common and specific consumers concerns, attitudes and behaviours related to organic food and its distribution Two Focus groups will be conducted in each case study, with products selected to cover examples of different choice situations such as imported organic products that compete with comparable products of local origin, or organic local products in supermarkets that compete with similar products from other distribution outlets. Our presentation will focus on the Brazilian case.

Keywords: urban socio-economy, organic food procurement network, organic consumer behaviour

Andrew G Klein, Texas A&M University. Email: klein@geog.tamu.edu; Joni L Kincaid, Texas A&M University. Email: jkincaid@geog.tamu.edu; Kevin E Merritt, Youngstown State University. Email: kemerritt@student.ysu.edu; Jennifer N Morris, Texas A&M University. Email: jenmorris@tamu.edu; Alan J Poole, GeoEye. Email: Poole.Alan@geoeye.com; Mapping shange in small tropical glaciers: How well can we do it and what do we see?

Acquisition of Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) and Landsat Enhanced Thematic Mapper (ETM+) images over the small remaining glaciers on Mt. Jaya, Irian Jaya, Indonesia on May, 29 2003 afforded a unique opportunity to assess the comparability of tropical glacier extents mapped from these two common satellite image types. Glacier extents were mapped through visual analysis of color composites and by supervised and unsupervised image classification techniques, spectral mixture analysis and the Normalized Difference Snow Index (NDSI). All approaches were found to be in good agreement, with overall accuracies, as compared to visual mapping of the glaciers on an ASTER color composite, typically exceeding 90%. The tested techniques, along historical glacier extents, have also been used to map glacier changes at several locations in the Tropical Andes since the 1950s. In all areas, tropical glaciers have been found to be in a state of retreat. Time series of glacier retreat developed from Columbia, Venezuela and southwestern Peru are used to illustrate both the potential and pitfalls in measuring glacier retreat from conventional satellite sources.

Keywords: glaciers, remote sensing

Margo Kleinfeld, University of Wisconsin - Whitewater. Email: kleinfem@uww.edu; Institutionalizing Caringscapes in the City: Identifying Victims of Human Trafficking in Milwaukee

This paper examines a new federal effort to address human trafficking on U.S. soil and the "caringscape" that is its goal. Since October 2004, the Campaign to Rescue and Restore Victims of Human Trafficking, administered by the U.S. Department of Health and Human Services through its Administration for Families and Children (AFC), has worked to teach a variety of care- and faith-based organizations, along with select municipal agencies, how to identify victims of trafficking in about nineteen U.S. cities. Using the case of the Campaign in the Greater Milwaukee area and its 60+ coalition members, interview data and policy analysis are presented to answer important questions raised by the Campaign and its efforts. For example, what sorts of contributions can Milwaukee make as a node within the existing transnational network of advocacy and care designed to fight human trafficking? What are the advantages and drawbacks of using a victim-centred approach to human trafficking as opposed to programs involving the prosecution of traffickers or crackdown on local businesses benefiting from the coerced employment of victims? How, specifically, does the Campaign differ from projects administered by the four other federal agencies involved in human trafficking (i.e. Departments of State,

Justice, Labor, and Homeland Security)? Answers to these questions and preliminary conclusions drawn will contribute to the burgeoning literature on moral geographies and their effects at municipal, national and transnational scales.

Keywords: human trafficking, advocacy networks, caringscape, U.S. government, Milwaukee

A. E. Klene, Department of Geography, University of Montana. Email: anna.klene@umontana.edu; D. J. Morton, Department of Computer Science, University of Montana. Email: ; J. Zhang, Geophysical Institute, University of Alaska - Fairbanks. Email: ; X. Fan, Geophysical Institute, University of Alaska - Fairbanks. Email: ; J. R. Krieger, Geophysical Institute, University of Alaska - Fairbanks. Email: ; M. D. Shulski, Geophysical Institute, University of Alaska - Fairbanks. Email: ; Initial Evaluation of Real-time Weather Forecasts for the Beaufort Sea Region, Alaska

Northern Alaska will see increased resource extraction in the near future, including the possibility of offshore oil production. Improved understanding of surface weather conditions, particularly wind fields, was identified as one necessary condition before potential impacts of offshore development could be assessed. In September 2006, a study was funded to explore the capacity of several current mesoscale forecast models to effectively predict and capture weather along the northern Alaskan coast. Three models were either in the process of being modified for use in the region or already implemented. While the final project will involve a number of test case runs of the same scenario in all models against a dataset of observations utilizing all available data on the North Slope, initial model evaluation can begin while the larger dataset is being compiled. Several Automated Surface Observing System (ASOS) sites have been established at airports along the coast, and are providing real-time data. The main focus of this initial project will be the evaluation of daily forecasts generated by the Weather Research and Forecasting (WRF) model against METAR data from Deadhorse and Barrow. Primary interest is on the temperature and wind predictions. Although this study was funded to improve understanding of near-shore winds and their potential impacts on resource development, there are a number of additional benefits. Accurate forecasting would improve the safety and quality of life of North Slope residents, and aid our understanding of land-sea breezes, the Arctic front, and air-sea-ice-ocean interactions.

Keywords: Alaska, Arctic, meteorology, forecasting, winds, temperature

Peter Klepeis, Colgate University. Email: pklepeis@mail.colgate.edu; Twentieth-Century Land Reform and Ranching in Southern Chile

A prominent theme in environmental histories of Latin America is the impact of land tenure on land use. Research on both colonial and post-colonial periods explores the environmental implications of latifundios (large land monopolies) and minifundios (small landholdings usually in peasant control), although this dichotomy oversimplifies the diversity of land tenure types and is primarily centered on the agrarian sector. Two issues require more attention. First, the 20th-century subdivision of rangelands is a worldwide phenomenon that has important implications for social conditions, economic productivity, and ecosystem structure and function. Second, one outcome of rangeland subdivision is the advent of absentee landholders, often characterized as 'hobby farmers'. In the case of Tierra del Fuego, Chile, the subdivision of economically successful sheep ranches was implemented to encourage colonization to the remote region, promote a larger and more even distribution of the population, and make the region less dependent on large land monopolies, which were dominated by foreign capital and personnel. The subdivision, combined with the effects of an international decline in demand for wool, led to a preponderance of small properties, absentee owners with significant off-farm income, poor land management practices, and the inadvertent introduction of invasive species, the impact of which persists today. The case underscores the importance of shifts in markets, the changing cultural and demographic make up of rural Patagonia, and the political ecology of resource access on land use decision making.

Keywords: Chile, environmental history, ranching, hobby farming

Travis Klingberg, University of Colorado. Email: tklingberg@colorado.edu; Journey to the west: tourist traps, Tibet and the independent tourist in contemporary China

China's post-reform economic growth has changed the practice of tourism on the mainland. With rising incomes and increased leisure time, more Chinese are traveling domestically than ever before. Many of these domestic tourists are choosing to travel independently, avoiding guided group trips to the usual scenic spots, and seeking unique travel experiences on their own. Much existing research has focused on the structural aspects of Chinese tourism, the localized impact of tourism, or some combination of the two. This paper argues that the qualitative study of the attitudes and practices of China's independent tourists is important

for understanding the social and cultural significance of this new form of domestic tourism. This paper explores three social factors closely related to the emergence of independent tourism: the consumer and leisure habits of the emergent Chinese middle class, the continued state management of tourist destinations and cultural resources, and changing geographies of tourism that have reimagined Tibet as a destination for tourism.

Keywords: China, tourism, middle class, Tibet

Ralph E. Klinger, Bureau of Reclamation. Email: rklinger@do.usbr.gov; John F. England, Jr., Bureau of Reclamation. Email: jengland@do.usbr.gov; Late Holocene Paleoflood History of the American River Basin, Central California

Paleoflood data were developed from geomorphic, stratigraphic, and geochronologic evidence preserved in four study reaches of the American River basin: 1) Lower American River near Fair Oaks, 2) North Fork of the American River at Ponderosa Bridge, 3) South Fork American River near Lotus, and 4) South Fork American River near Kyburz. Fourteen stratigraphic sites, 38 radiocarbon ages and archaeological age correlations in these four reaches provide evidence for late Holocene paleofloods that are preserved at or above the peak stage of the largest historical floods. Age comparisons between the four sites established the regional nature of flooding and placed tighter constraints on the timing of individual paleofloods. Based on data at three of the sites, the American River basin experienced a paleoflood sometime between 1400-1600 years ago that had a magnitude significantly larger than any historical flood. Flood stratigraphy also records at least three additional paleofloods between about 150 and 650 years ago that were larger than historical floods, but smaller than the flood 1400-1600 years ago. At the Kyburz site, there is evidence for an additional paleoflood between about 650 and 1125 years ago that may have been equivalent in magnitude to the paleoflood 1400-1600 years ago. In the past 1600 years there have been at least four paleofloods with magnitudes about 1.3 times larger than the largest historical floods in the American River basin.

Keywords: paleofloods, geomorphology, Quaternary stratigraphy

Sonja Klinsky, B.Sc (hon), MA, University of British Columbia. Email: klinskys@interchange.ubc.ca; Mapping Emergence: An Examination of Global Climate Change Discourse Networks

Investigation of the emergence and diffusion of ideas has a long tradition within the discipline of geography. Recent research has suggested that attention to network structure can help us understand the rate and pattern of diffusion. For instance, in networks characterised by few large hubs and many small ones, those few larger hubs play significantly more important roles than the many small ones. It is suggested that insights about network structure can assist in understanding the emergence of particular environmental discourses and provide clues for future efforts to promote sustainability. This work attempts to map the network structure of climate change online and print media discourse in an effort to understand how discussions of climate change have emerged and where critical hubs might be located. Particular attention is paid to differentiation of distinct lines of discourse within the larger concept of climate change.

Keywords: emergence, networks, sustainability, climate change, diffusion, media

Geoffrey T. Klise, Sandia National Laboratories. Email: gklise@sandia.gov; Carlos A. Aragon, M.S. Hydrology (student), New Mexico Institute of Mining and Technology. Email: carloco@nmt.edu; Using GIS and System Dynamics Software to Model how Changes in Land Use and Cover will affect Discharge in Ungauged Tributaries in the Gila and San Francisco Basins.

As part of the 2004 Arizona Water Settlements Act, southwestern New Mexico has an opportunity to utilize up to 14,000 acre-feet of water annually from the Gila and San Francisco Rivers, with the constraints that stream flows must meet requirements of the Consumptive Use and Forbearance Agreement (CUFA) and comply with the federal Endangered Species Act. To evaluate potential impacts on stream flow from alternative water resource development scenarios, a collaborative team of stakeholders from the region is working with Sandia National Laboratories and the New Mexico Interstate Stream Commission to develop a basin-wide surface and ground water model. Integral to the model is discharge from tributary watersheds, a majority of which are ungauged. Using both geographic information system (GIS) and system dynamics software, we are able to recreate past rainfall-runoff events based on a modified Variable Infiltration Capacity model. Stakeholders on the modeling team would like to see the differences in river discharge as a result of changes in land use and/or land cover. The watershed model will allow users to change the spatial and temporal aspects of land use and cover and see if the projected or altered hydrograph passes or fails the required CUFA tests. The output from this effort will be one of many tools that can then be used by stakeholders to determine how the New Mexico Unit

should proceed with the available water.

Keywords: watershed modeling, GIS, system dynamics, land use, Variable Infiltration Capacity, New Mexico, Arizona

Fran Klodawsky, Carleton University. Email: klodawsk@ccs.carleton.ca; *Homes First or Rights to the City for Chronically Homeless Women? Reflections from Ottawa, Canada*

In policy debates that address chronically homeless women's needs, 'the right to housing' is often invoked but not so 'rights to the city'. In this paper, I explore emerging policy innovations that implicitly question the significance of linking these concepts. The women under consideration are typically survivors of violence and are not likely to be found on the streets. Rather, they circulate among various emergency shelters and drop-in facilities, often finding themselves barred from one or more of them while other spaces (such as motel rooms) are temporarily made available. In the context of pressures to 'do more', Ottawa's local government initiated an effort at more effective dialogue and co-ordination among organisations that work with chronically homeless women. A critical examination of the content of these discussions, in relation to rights to housing and rights to the city, is the primary focus of this paper. The idea of first providing these women with permanent housing together with appropriate individualized services was raised as an alternative to rigid 'continuum of care' models. Civil society actors acknowledged that they had contributed to existing service gaps, but their response was not one that directly supported or rejected a homes first approach. Instead, they emphasized the value of myriad efforts that worked towards women's autonomy and their 'rights to the city'. In this paper I reflect on lessons learned from these discussions.

Keywords: gender, violence, supportive housing, policies

Daniel Klooster, Florida State University. Email: dklooste@garnet.acns.fsu.edu; *Debating Standards, Defining Labels, Constructing Forests*

Standards are central to certified environmental governance, but the way they evolve, and the tensions between rigor, legitimacy, and acceptability remain poorly understood. This presentation contrasts two ways of interpreting recent debates about Forest Stewardship (FSC) standards for certifying tree plantations. First, deliberations may indicate the social inclusiveness and global spatiality of the process. Activists from around the globe directed attention to specific allegations of plantation mis-management in South Africa, Ecuador, Uruguay, Indonesia, and Spain. They used those cases in an attempt to modify a governance structure centered in Germany. Second, the debate might be evidence of environmentalists' token resistance to the rent-seeking behavior of industrial timber producers, wood retailers, and for-profit auditing firms eager to profit by increasing volumes of (certified) commodity-grade wood. From both perspectives, the debate provides a window into the contested construction of hegemony. It brings into focus core issues of forest governance, including the tensions between environmental, social and economic goals, the differential power of specific sets of actors, and the even the definition of a forest. Much is at stake. Criticism could undermine the legitimacy of the FSC system -some Spanish environmental groups have already withdrawn their support to protest certified plantations. On the other hand, high standards could drive forest managers away from the FSC, toward less rigorous certification systems that leverage fewer social and environmental improvements to management. As I write this abstract, the public comment has closed, but the FSC has not yet announced revisions.

Keywords: certification, environmental governance, Political Ecology, agrofood

Robert C. Kloosterman, University of Amsterdam. Email: r.c.kloosterman@uva.nl; Bart Lambregts, University of Amsterdam. Email: b.lambregts@uva.nl; *Exploring Different Roads towards Global City Region Formation. A Comparative Analysis of the Evolution of Eight Urban Systems in Western Europe*

The emerging space of flows seems to generate a new round of agglomeration economies that strengthen the already large, well-connected (mostly capital) cities, the so-called global cities. These cities are not only the crucial nodes in global networks, but also the dynamic cores of larger urban regions, the "global-city regions". These more general trends in post-industrial urbanisation are, however, articulated in different ways. First, these general trends are played out in already existing (national) urban systems with their own specific histories. Cities and urban systems have proven to be rather stubborn socio-spatial phenomena?due to infrastructural, socio-economic, institutional and symbolic path-dependencies. Second, the extent to which the core city of a global-city region is able to benefit from the new round of agglomeration economies is contingent on its role in the global urban system. In this paper, we will compare the trajectories of urban systems in several European countries from 1500 to the present and investigate how and why they differ.

Keywords: global city-regions, comparative urbanism, urban systems, polycentricity

Gregory W. Knapp, University Of Texas - Austin. Email: gwk@mail.utexas.edu; *Greenhouse Floriculture: Aspects of an Agricultural Revolution in the Equatorial Andes*

Agricultural practices in the Andes have long been highly dynamic, with a diverse range of crops and cultivation techniques allowing for flexible adjustments to a variety of environmental, economic, and demographic conditions. Agriculture has also often been remarkably productive, especially where irrigation water has been available. Only recently, however, have conditions become favorable for massive exports. American and Andean trade liberalization have been important, but many unpredictable, historically contingent factors have also played a decisive role at a variety of scales. Greenhouse floriculture in Ecuador provides an excellent case example for delineating the cultural, economic and environmental conditions and impacts of this agricultural revolution.

Keywords: cultural ecology, political ecology, agriculture, irrigation, Andes, Ecuador

Jonathan P Knapp, University of Arkansas and Central Michigan University. Email: Knapp1jp@gmail.com; John J Riggind, University of Arkansas. Email: ; Jason Defibaugh, University of Arkansas. Email: ; Jason A Tullis, PhD, University of Arkansas. Email: ; Fred M Stephen, PhD, University of Arkansas. Email: ; *Examination of spectral leaf signature collection methods in a complex upland oak ecosystem*

Remote sensing-targeted fieldwork in a complex forest environment can provide unique logistical challenges. We evaluated several methods for collecting hand held spectroradiometer leaf signatures in an upland oak-hickory ecosystem in the Ozark National Forest. A 55' aerial work platform enabled direct spectroradiometer access to the tree canopy and to cut branches for on-ground analysis. From the ground, a shotgun was also used to excise canopy branches for analysis. A mobile field laboratory employed an artificial light source and a white reference panel to obtain percent reflectance. Also, immediate scanning of samples was imperative to minimize water loss-related alteration of the signatures. Spectral data were evaluated to determine the most acceptable method for collection. The use of on-tree spectral collection eliminated alteration of the sample, and thus provided a base for comparison of other spectra. The boom was only capable of accessing limited parts of the canopy. Cutting was less destructive to the physical integrity of the leaf sample than shotgun excision, but required extensive work to achieve a spatially aggregate sample. The shotgun proved most portable and the quickest collection method. However, the pellets had the potential to damage the sample during collection. The damage, however, was not substantial and was not detectable in the spectra. Examination of spectra collected using all three methods showed less variation among the methods than the standard deviation within any single collection method. Shotgun-collected leaves yielded a viable spectral signature with the best spatial aggregation and the fewest logistical challenges.

Keywords: Remote Sensing, Leaf Collection, Upland Oak, Spectroradiometer, Ozark National Forest, Arkansas, Sample Methods

Andrew Knee. Email: kneea37@students.rowan.edu; *How Effective is New Jersey's Pinelands Management Plan?*

This presentation reports on the changes in land use in the National Pinelands Reserve in New Jersey. The Pinelands is a 1.1 million acre pine forest in Southern New Jersey internationally recognized for its ecological and cultural significance. Land development in the region has been controlled by the Pinelands Comprehensive Management Plan since 1981. Utilizing Geographic Information Systems, New Jersey land use data from 1986, 1995, and 2002 is analyzed and compared to the Pinelands Management Area data. The analysis tracks the changes in land use in the reserve during the study period to determine if development is occurring in the growth zones and minimized in the protected zones. The results show how effective the Pinelands Commission has been at implementing the Pinelands Comprehensive Management Plan over the last twenty years. The analysis can also be used to identify where efforts need to be made to preserve the New Jersey Pinelands.

Keywords: pinelands, gis, environment, development, growth

LaDonna G. Knigge, PhD, California State University, Chico. Email: lkknigge@csuchico.edu; *Cultivating Community: A Political Economy of Community Gardens in Buffalo, NY*

Processes of uneven development and creative destruction under neoliberalism, while creating economic prosperity in some places, both generate and leave behind marginalized landscapes as capital moves in search of higher returns and new markets. However, while capital is mobile, people are rooted in place, particularly those who are older, poorer, or who have no incentive to

move. Aging, abandoned infrastructure, derelict vacant lots, environmental degradation, and idle workers can be found in numerous post-industrial cities in the United States, such as Buffalo, as a result of processes of deindustrialization, globalization, and neoliberalism. However, even in marginalized landscapes, people's social attachment to place remains as they struggle to maintain their local sets of relationships, interactions, everyday spatial practices and institutions (Brenner & Theodore, 2002). This paper explores complex relations between community members, organizations, activists and local government in relation to socially and geographically uneven processes of globalization and urban restructuring through a study of urban community gardens in Buffalo, NY and seeks to develop an 'organic' theory of political economy that takes into account the volunteerism, sweat equity, civic engagement, community building, and community and social services that are afforded by the cultivation of community gardens on redundant, vacant parcels of land by urban community gardeners.

Keywords: uneven development, neoliberalism, urban gardening

Troy A Knight, University of Arizona. Email: tak@email.arizona.edu; Long term perspectives on drought induced tree mortality in southwestern pinyon-juniper woodlands.

Recent extensive vegetation changes and die-offs in semi-arid woodlands of the American southwest, such as the extensive mortality of pinyon pine (*Pinus edulis*) on the Colorado Plateau during the severe drought of the late 1990s and early 2000s, have underscored the rapidity with which even long lived and relatively drought tolerant conifers can perish under extreme and prolonged drought conditions. Such sudden shifts in vegetation not only concern modern land users and managers, but also must have impacted subsistence patterns of prehistoric peoples. Unfortunately, mass rapid mortality episodes do not lend themselves to easy detection by historical and paleoecological methods, and thus have few analogs in the past. In order to provide a historical context for recent changes, I am investigating the relationship between past moisture availability and variability with woodland tree dynamics in east central Utah using dendro-chronological techniques. Towards this end I intend to (1) develop a robust annually resolved tree ring based climatic reconstruction, (2) extract patterns of mortality and regeneration in pinyon-juniper (*Juniperus* spp.) woodlands using dendroecological methods, and (3) use GIS to characterize spatial patterns of pinyon-juniper population dynamics through time. Initial collection efforts have concentrated on Douglas fir (*Pseudotsuga menziesii*) for use in the climate reconstruction. Thus far, the resulting chronology has been extended back 2000+ years. Initial collections of pinyon pine are currently being dated.

Keywords: drought, pinyon-juniper woodlands, tree mortality, Utah

Duncan John Knowler, Simon Fraser University. Email: djkn@sfu.ca; Jesse Wood, Canadian International Development Agency (CIDA). Email: Jesse.Wood@international.gc.ca; Assessing the Prospects for Community Natural Resource Management: Are Social Capital and Leadership Influences Conflated?

Conventional wisdom suggests that more social capital leads to greater cooperation and increased participation in community natural resource management schemes. In this paper, we inquire whether this argument is too simplistic, perhaps ignoring various complexities. For example, social capital's effects on participation in community natural resource management may be conflated with other household characteristics that influence participation. Gaining the support of local leaders is cited as a critical element in spurring community action and, coincidentally, leaders also are likely to exhibit high levels of social capital. However, leaders' support for community natural resource management may be unpredictable; rather than correlate with a high level of social capital, it may rest on a shrewd assessment of self-interest. Indeed, higher household social capital might actually correlate with lowered willingness to participate in community natural resource management, if participation is not sufficiently rewarding or its opportunity costs are too high. To examine this hypothesis, we surveyed households in Khumbu, Nepal and asked about their social capital characteristics. We also asked if households would participate in a hypothetical community natural resource management scheme involving the endangered Himalayan musk deer, given a randomly drawn payoff. We estimate a logit model of participation in the hypothetical scheme and show that leader types are less likely to support the scheme than others, despite demonstrating higher levels of social capital. These results suggest that assessing the prospects for community natural resource management requires careful consideration of the complex interactions between social capital and other community characteristics.

Keywords: cooperation, wildlife management, Sherpas, economic geography, South Asia

Anne Kelly Knowles, Middlebury College. Email: aknowles@middlebury.edu; What Value an Historical GIS of Transportation?

This paper briefly summarizes a study of regional industrial development in early nineteenth-century Pennsylvania and raises a series of methodological questions inspired by that study. The substantive question is why the iron industry east and west of the Allegheny Mountains developed at different rates and with markedly different degrees of success during the antebellum period. In addition to dissimilar resource endowments, labor, and distance to markets, the paper will show that each region's characteristic terrain and transport infrastructure facilitated or impeded the development of heavy industry. The GIS methods used to answer the research question included digitizing and georectifying historical maps, improving their accuracy in reference to digital ortho quarter quads, and preparing animated maps to display the spatial sequence of construction from 1800 to 1860. Although these methods made it possible to study the spatio-temporal patterns and shifting relationships between transportation and heavy industry, they yielded less information than one would hope given the labor required to build the GIS and produce results. The second half of the paper considers the shortcomings of map animation, the need for better methods of change detection in historical GIS, and the question of whether the time is ripe for a national project to create detailed historical layers of transport infrastructure for use in research and teaching.

Keywords: Historical GIS, transportation, iron industry

Richard D. Knowles, University Of Salford. Email: r.d.knowles@salford.ac.uk; Effects of international borders on fixed link traffic generation: Oeresundsbron

International borders still create a transport barrier even within the European Union's Single Market. This paper assesses the impedance effect of a major international fixed link on traffic generation - Oeresundsbron between Copenhagen in Denmark and Malmoe in Sweden - using Denmark's Great Belt Fixed Link as a control. Expert analysis is used to explain and quantify the continuing barrier effect of international borders.

Keywords: borders, transport barriers, fixed link, Oeresundsbron

Janelle Knox-Hayes, University of Oxford. Email: janelle.knox@ouce.ox.ac.uk; Gordon L Clark, Halford Mackinder Professor of Geography, Head of the Oxford University Centre for the Environment. Email: ; Mapping UK pension benefits and the intended purchase of annuities in the aftermath of the stock market bubble

Many people rely upon personal and employer-sponsored pensions to supplement the basic state pension. As such, the soon-to-retire baby-boom generation will depend on the nature and number of their pension entitlements as well as the performance of global stock markets? a fact of life ignored when market prospects appear on an upwards trajectory but of considerable concern when markets decline. There are increasing concerns about the social and geographical stratification of pension entitlements. Just as importantly, it appears that individual risk attitudes and financial decision-making are associated with the social identity of respondents including their age, gender, marital status, and income. Here, we test whether access to supplementary pension benefits is related to socio-demographic status or region of residence or both. Having determined that social status is the crucial determinant of the number of pension entitlements held by respondents, we test whether the intended purchase of an annuity can be correlated with socio-demographic status or region of residence or both. Based upon a unique and large data base of 50 to 64 year-olds? people with an immediate and tangible interest in their pension prospects? it is shown that respondents' region of residence is significant in explaining the variance in individual's pension-related risk management strategies. Implications are drawn for the map of UK pension benefits and for the existence of regional subcultures of financial decision-making.

Keywords: Annuities, pensions, market volatility, region, socio-demographic status

Anders J. Knudby, PhD Candidate, University of Waterloo. Email: knudby@gmail.com; Ellsworth F. LeDrew, Professor of Geography, University of Waterloo. Email: ells@uwaterloo.ca; John C. Brock, Oceanographer, US Geological Survey, Florida Integrated Science Center. Email: jbrock@usgs.gov; Amar Nayegandhi, Computer Scientist, ETI Professionals, Inc. Contracted with US Geological Survey, Florida Integrated Science Center. Email: anayegandhi@usgs.gov; Remote Sensing of Coral Reef Structural Complexity for Biodiversity Studies

In coral reef environments, the structural complexity provided by large coral colonies is an important part of habitat complexity, which influences the diversity and abundance of many reef-dwelling species. The spatial scale of the structure is of importance because many reef organisms seek refuge from predation in the corals, particularly in large branching coral colonies. Scale is

therefore intimately linked to the body sizes of both predator and potential prey. Using remote sensing to map structural complexity can provide insight into its variability in space and time. Lidar remote sensing has been used to map coral reef structural complexity, and waveform analysis of low beam-divergence lidar data has the potential to do so at the scale of large branching coral colonies. Recent work using waveform data from the Experimental Advanced Airborne Research Lidar (EAARL) suggests that variability of reef structural complexity can be mapped at this scale, with potential use in spatial biodiversity studies.

Keywords: coral reefs, habitat, biodiversity, structural complexity, mapping, remote sensing, lidar, waveform analysis

Daniel C. Knudsen, Indiana University. Email: knudsen@indiana.edu; Charles E. Greer, Indiana University. Email: greerc@indiana.edu; *The Vernacular Becomes Symbolic, the Symbolic Becomes Nationscape: Hverring Estate, Viby Village and the Garden of Denmark*

This paper explores the ties between vernacular landscapes, symbolic landscapes and the creation of “nationscapes” - landscapes that enter the national consciousness as prototypical of national identity. We argue that ordinary places must necessarily be transformed into highly symbolic landscapes prior to their investiture as nationscapes. We specifically examine the area that once comprised a medieval estate on the island of Fyn in Denmark, an island known to the Danes as “the garden of Denmark.” We suggest that the symbolic notion of “garden” and “historic preservation” ignores the very real vernacular landscape of agricultural production and exurbanization of the present and the equally real vernacular landscape of feudal oppression of the past. We also examine the way in which this landscape, as a romanticization of a bucolic rural past, has come to symbolize Denmark by the role it plays in 19th century nationalist literature and art. We conclude that it is the symbolism conjured up by the landscape and not the vernacular landscape that led to the area’s consideration as a critical piece of the Danish nationscape.

Keywords: nationscape, vernacular landscape, symbolic landscape, Denmark

Michelle Knappe, United States Geological Survey. Email: knappe@usgs.gov; Birgit Peterson, US Forest Service. Email: bpeterson@usgs.gov; *National Vegetation Mapping Using Ecological Classification System: Lessons Learned*

LANDFIRE is a vegetation, fire, and fuel characteristics mapping project in cooperation with the Department of Interior, the USDA Forest Service, and The Nature Conservancy. LANDFIRE is producing maps and spatial data layers describing vegetation, wildland fuel, and fire regimes across the United States. NatureServe has produced a working classification of terrestrial ecological systems in the United States.

Keywords: ecological systems, mapping, spatial modeling, vegetation classification

Sarah E. Knuth, UC - Berkeley. Email: sknuth@berkeley.edu; *Partnerships for Climate Change Mitigation: Connecting County Government and Stakeholders in Montgomery County, Pennsylvania*

Local climate change mitigation initiatives increasingly play a vital role in advancing global warming policy in the United States, achieving local greenhouse gas emissions reductions and building public support for broader regulation. Local governments are critical to this movement but must partner with other local and regional stakeholders to achieve their full potential. This study explores methods and prospects for developing climate change mitigation partnerships between county governments and community stakeholders by conducting a collaborative mitigation planning process for Montgomery County, Pennsylvania. The investigator worked with Montgomery County stakeholders to compile a greenhouse gas (GHG) emissions inventory and develop mitigation program elements including alternate emissions reduction targets, ways of framing the mitigation program, and sector-specific emissions reduction strategies. Results from this process laid necessary groundwork for further climate change mitigation action in Montgomery County and produced important insights on county-level GHG inventorying and mitigation planning. Stakeholder partnerships may significantly expand county government power to reduce emissions, and existing programs like smart growth may provide a useful base for participatory climate change mitigation efforts. To work effectively with community stakeholders, however, county governments must overcome problems created by incomplete local emissions data and navigate a complex and time-consuming partnership-building process. By developing innovative mitigation planning tools and protocols, best-practice partnership models, and service-learning approaches, universities may help local governments accomplish these tasks.

Keywords: Climate Change, Governance, Cities, Participatory Research, Stakeholders

Shin Kobara, Texas A&M University. Email: shinichi@geog.tamu.edu; William D. Heyman, Texas A&M University. Email: wheyman@geog.tamu.edu; *Geospatial analysis of Reef fish Spawning Aggregation Sites*

Commercially important reef fish species form transient spawning aggregations at specific times and locations. The multiple spawning aggregation sites previously reported in Belize seem to be located to near shelf edge. Although spawning aggregation sites from many areas in the wider Caribbean have been described and mapped, there is no comparative geospatial analysis of the similarities and differences among them. This paper attempts to provide the geophysical characteristics of the locations of known spawning aggregation sites in relation to shelf break using remote sensing and field-collected position data. Generally satellite-derived images of coral reef environments can receive the bottom reflectance because of clear water. To test our assumption that location of shelf edges could be delineated using satellite images, the positions of shelf edges from field-collected data and shelf edges derived from satellite images are compared. The results show that 11 out of 12 known spawning aggregation sites around Lighthouse reef atoll, Turneffe atoll and Glover’s reef atoll in Belize are located at or near the remote sensing based shelf break. The combination of remote sensing and bathymetry data describes that spawning aggregation in Halfmoon Caye occurred at very close to drop-off.

Keywords: spawning aggregation, shelf break, geospatial analysis, remote sensing

Tetsuo Kobayashi, University of Utah. Email: tetsuo.kobayashi@geog.utah.edu; Richard Medina, University of Utah. Email: richard.medina@geog.utah.edu; Thomas J. Cova, University of Utah. Email: cova@geog.utah.edu; *Visualizing Diurnal Population Change: A Case Study in Salt Lake County, Utah*

There is an increasing need for a simple methodology to represent diurnal population change for metropolitan areas. Understanding diurnal population change is necessary for effective emergency management and risk analysis, as well as for the modeling of contagious diseases and business geographics. Many studies use data that assume a constant population through time and space. Static Census population data are used repeatedly for scientific research because of their availability but have significant limitations. Census data are based on household location, which ignores the dynamic nature of populations within urban ecological environments. Although the U.S. Census now offers daytime population estimates at the city level based on work flow, intra-urban population flow cannot be modeled completely with these data. This paper presents a methodology to generate a diurnal population flow surface for metropolitan areas based on readily available hourly work flow data. Spatial interpolation methods within a GIS are used to create twenty-four (1 per hour) multiple surfaces of population within and between Transportation Analysis Zone (TAZ) boundaries in the larger metropolitan area of Salt Lake County, Utah. The surfaces are representative of diurnal population change for an average work day.

Keywords: population, visualization, GIS, urban dynamics

David Koch, Kansas State University. Email: dkoch@ksu.edu; Doug Goodin, Kansas State University. Email: dgoodin@ksu.edu; Shawn Hutchinson, Kansas State University. Email: shutch@ksu.edu; *Hantavirus ecology: analysis with individual-based models.*

Rodents in the order Muridae and Sigmodontinae are the endemic hosts of hantavirus. Humans exposed to hantavirus can get Hantavirus Pulmonary Syndrome, a relatively rare but often fatal cardiopulmonary disease. Hantavirus distributions within rodent communities were modeled using individual based models. Model rodents were given behaviors based on non-spatial models currently used to describe host rodent behavior as well as hantavirus transmission in rodents. Parts of the models were described spatially and the behavior of model rodents and hantavirus transmission were analyzed. These models were developed to further the understanding of which ecological factors may affect hantavirus distributions and will help to more accurately direct studies on hantavirus toward the most important ecological factors that determine its spatial distribution. The models also help demonstrate the importance of incorporating aspatial epidemiological models into spatial models. Understanding how changes to rodent habitat affects the rodent’s populations and distribution of hantavirus within their population should be a key to predicting potential outbreaks of Hantavirus Pulmonary Syndrome among human populations.

Keywords: Hantavirus, individual-based model, landscape epidemiology

John Kochendorfer, PhD Student, University of California - Davis. Email: jkoch@ucdavis.edu; **Kyaw Tha Paw U, Prof., Univ of California, Davis.** Email: ; **Young-San Park, PhD, Univ. of California, Davis.** Email: ; *The Turbulent Exchange of Water Vapor and Temperature Across the Edge of a Crop Canopy*

Eddy covariance is widely used as the primary method to estimate the net exchange of a scalar between a land surface and the atmosphere. The mass conservation and the continuity equations reveal that when the surface near eddy covariance instrumentation is not homogeneous corrections for horizontal and vertical advection must also be included. Restraining the use of eddy covariance campaigns to ideal or even near-ideal locations is neither practical nor possible, but modeled and experimental research on the potential magnitudes of advection within canopies is scarce. In an intensive field experiment a suite of instruments designed to measure advection and vertical fluxes of heat and water vapor was placed at varying distances from the edge of an agricultural canopy (Sorghum bicolor). The magnitude of measured horizontal advection of latent energy and sensible heat is large near the edge of the canopy, often greatly exceeding the magnitude of vertical fluxes. Comparison between observed results and a higher-order closure model of advection across a canopy edge is made.

Keywords: eddy covariance, land-surface exchange, advection, turbulence

Whitney L Kocis, University of Tennessee, Department of Earth and Planetary Sciences. Email: wnelson@utk.edu; **Henri D Grissino-Mayer, University of Tennessee, Department of Geography.** Email: grissino@utk.edu; **Claudia I Mora, University of Tennessee, Department of Earth and Planetary Sciences.** Email: cmora@utk.edu; *Tropical Cyclone Activity Captured by Oxygen Isotopes in Tree-Ring Cellulose from South Carolina and Florida, USA*

With record hurricane seasons occurring over the past decade, the question of “why” has yet to be answered. Hurricane frequency and intensity appear to be on the rise and the debate about the cause (“natural cycles” and “global-warming”) continues. Since long-term trends and variability in hurricane occurrence are poorly understood, it is important that proxies are developed to examine past tropical cyclone activity. Multiple proxies in current use include modern instrumental, historical records, as well as natural proxies. Tree-ring proxies are unique because they are exactly dateable and have seasonal resolution. Here, we present three tree-ring (*Pinus palustris* Mill.) isotope time series where hurricane occurrence and precipitation are verified with the modern instrumental record. Trees collected and analyzed are from South Carolina (Francis Marion National Forest, Sandy Island) and Pensacola, Florida. The tropical cyclone events recorded are not limited to direct hits, but include storms within ~200km radius. The only tropical cyclone events not recorded are those in which no rain was reported in the precipitation data. One “false positive” is recorded at Pensacola (1983) and Sandy Island (1982) the cause of which is yet to be determined (El Nino?). An inter-site comparison reveals remarkably similar decadal-trends in both the earlywood and latewood. These sites present a unique opportunity to verify the isotope proxy beyond the instrumental record by working with ongoing historical research in both South Carolina and Florida to extend the record of tropical cyclone activity back into the 18th century.

Keywords: tropical cyclones, isotopes, tree-rings

Gina Koczberski, Curtin University of tech. Email: g.koczberski@curtin.edu.au; **George N. Curry, Curtin University of Tech.** Email: g.curry@curtin.edu.au; *Finding Common Ground: Securing Land in the Oil Palm Frontier of Papua New Guinea*

The oil palm-growing regions of Papua New Guinea attract large numbers of ethnically diverse migrants from poor rural areas. Between 1980 and 2000, West New Britain Province (WNB), the subject of this paper, had an annual population growth rate of 3.7%. At the 2000 census migrants made up nearly one-third of the WNB population. To pursue livelihoods, land-poor migrants are entering into a broad range of informal arrangements with customary landowners to gain short and long-term access to land. These arrangements provide migrants with specific types of access rights to the customary land of their hosts. While these arrangements can provide migrants with continuing and secure access to land, there are many instances of migrants being left vulnerable to eviction and the loss of their access rights. In exploring these issues the paper has three aims: 1) to document the range of land tenure arrangements emerging in these oil palm frontier areas and compare these ‘modern’ forms of tenure with traditional mechanisms of incorporating outsiders into land-holding groups; 2) to assess the degree of livelihood vulnerability and opportunity for migrants arising from land tenure arrangements that regulate the temporal, social and economic dimensions of land rights; and 3) to report on the ways migrants and customary landowners arrive at a common understanding of their respective ongoing rights in these land parcels.

Keywords: migration, rural development, land tenure, cash crops,

Alexandra Koelle, UC Santa Cruz. Email: akoelle@ucsc.edu; *Crossing the Land, Making the Country: The 25th Infantry Bicycle Corps*

Western American History, including the New Western History, is usually presented as regional history, and focuses on the frontier era as both geographically and causally separate from national events. I argue that the thirty year post-Reconstruction stationing of all four segregated black regiments of the US army at Northern Rockies garrisons played a significant part in how these US territories became states. This historical moment is relevant for understanding how places become racialized and race is read through place, in both the currently hegemonic Lewis and Clark origin narratives of the Northern Rockies and in the contemporary United States as a whole. This paper focuses on transportation corridors and technologies to explore how zones of movement such as railroads and wagon routes function as place-making technologies. Rather than simply connecting preexisting places, I argue that the construction and use of transportation corridors actually create places materially, politically, and conceptually. This paper examines newspaper articles, official army reports, and twenty-first century retellings of a cross-country bicycle trip carried out by the 25th Infantry Bicycle Corps, an all-black group of soldiers, at the close of the nineteenth century. I examine how race and place are discursively constructed through the performance of bicycling over rough roads and through mud. Through the effort of black soldiers testing the bicycle for military use by cycling through Indian reservations, national parks, and small towns, the territories of the Northern Rockies are made into a liminal space that exists both inside and outside the nation.

Keywords: Montana, US Army, African-Americans, soldiers, bicycles, transportation, territories, place-making, New Western History, Rocky Mountains, railroads, forts

Natalie Koeplinger, UNC-Greensboro. Email: natalie@prisage.com; *Telecommuting Survey Results From a Fortune 100 Firm*

Much research has been conducted on telecommuting; from productivity, job satisfaction, organizational behavior, and frequency, to its affect on urban sprawl and travel. Telecommuting is variably defined as using technology to work at a home, telecenter or remote location, foregoing a commute to and from the office. Many telecommuters experience endogenous and exogenous effects of telecommuting, such as, feelings of alienation, lack of career connections, and conversely, higher job efficacy, flexibility and greater job satisfaction than traditional employees. Telecommuting has changed the way some people work, and it is further buttressed by advancing information and communications technologies (ICT). This presentation will examine a survey that was conducted for a master's thesis on telecommuting. This research is based on a survey administered to a group of telecommuters and traditional employees of a Fortune 100 firm. The survey will yield strong results on job satisfaction and technical delay of both groups. It will also examine traditional employees with a propensity to telecommute and will look closely at location factors this group. The last part of the survey supports the notion that telecommuting is as much of a lifestyle choice as it is a mode of work.

Keywords: Telecommuting, Telework, Productivity, Job Satisfaction

Matthew T. Koeppe, Association of American Geographers. Email: mkoeppe@aag.org; *Choosing and Evaluating Courses and Internships for a Career in Academics, Government, or Business and Industry*

The EDGE project has collected the views of recent graduates and employers working in academia, government, and for profit and non-profit private businesses on what types of knowledge, skills, and abilities are most important for geographers in each sector. These insights can help graduate students plan a course of study and training that will best prepare them for entering the job market. This information is summarized and interpreted in an online resource that can be used by students as they choose and evaluate courses and internships in preparation for careers in a variety of industries.

Keywords: careers, internships, education

Dieter Franz Kogler, University of Toronto. Email: dieter.kogler@utoronto.ca; *The Geography of Inventors*

The geography of inventors has multiple dimensions. New ideas are primarily created through collaboration, especially with regards to complex technologies. Furthermore, innovation depends on knowledge inputs and prior developments; either from closely related or distant technologies. Although the geographic and relational proximity of these innovation inputs remain vital, a recent theoretical framework has also introduced the importance of the “local buzz”, and “global pipelines” dynamics, which could essentially increase our understanding of the innovation process. In order to investigate these concepts further, and to subsequently validate them through empirical evidence, the present study utilizes patent data combined with advanced spatial and network analysis tools. The scope of the investigation encompasses the optical sector in Canada over the past twenty years. In addition to quantitative measures,

qualitative research was also incorporated. The findings of the study have increased our understanding and comprehension of the geographic scale as it relates to inventors, and consequently has introduced an avenue for further research into the complexity of the innovation process.

Keywords: Economic Geography, Knowledge Spillovers, Geography of Innovation

Benjamin Kohl, Temple University. Email: bkohl@temple.edu; Juan Arbona, Bryn Mawr College. Email: jarbona@brynmawr.edu; *The Urban Form of Neoliberalism: The case of the La Paz-El Alto Metropolitan Area*

Neoliberal globalization, the increasing reliance on markets to drive economic development, has resulted in a particular set of urban forms in poor countries? a minority of economically successful residents inhabiting increasingly privileged spaces? while the poor are ever more marginalized both economically and socially. At the same time, global trends toward democratization and increased political participation have exacerbated tensions in these cities where the majority faces limited economic options. As Lefebvre reminds us these urban struggles and conflict are about how space is configured and for whom, in a way that simultaneously manifests the negative implications and challenges to the neo-liberal political order. The paper examines the metropolitan area of La Paz-El Alto, Bolivia, which provides an exemplary illustration of how globalization shapes cities and how these particular urban forms, in turn, threaten the political sustainability of neoliberal globalization.

Keywords: Neoliberalism, Urban, Cities, Latin America, social movements, urban form

Nicholas P. Kohler, PhD, University of Oregon. Email: nicholas@darkwing.uoregon.edu; James E. Meacham, University of Oregon. Email: jmeacham@uoregon.edu; *Landform Classification and Environmental Seasonality in Mountain Grassland Environments: Case Studies in Oregon, USA and Bayan Ölgii Aimag, Mongolia*

The increasing availability of terrain models and remotely-sensed data on environmental characteristics has made possible studies linking landform and vegetation dynamics over extensive areas. This paper examines methods of semi-automated landform classification using digital elevation models (DEM's) and tests the resulting landform classifications by examining vegetation dynamics within each landform type. Case studies in the Zumwalt Prairie of northeastern Oregon and in the high valleys of the Altai Mountains of western Mongolia are used to demonstrate the methodology. 10-meter and 30-meter resolution DEM's created by the United States Geological Survey are employed in the Oregon case study, and 90-meter resolution DEM's from the Shuttle Radar Topography Mission (SRTM) are used in the Mongolia case study. Data on environmental seasonality in both cases is drawn from the MODIS sensor, using vegetation greenness indices (NDVI and EVI) collected over 16 day periods and land surface temperature indices collected over eight day periods. Conclusions address the scale-dependent nature of landform classification and the relationship between landform and vegetation seasonality. Results will be used to aid biodiversity conservation efforts in the Zumwalt Prairie, Oregon and cultural site conservation in western Mongolia.

Keywords: Remote Sensing, Grasslands, Vegetation Dynamics, Terrain Analysis

Michal Kohout, California State University, San Bernardino. Email: mkohout@csusb.edu; *US immigration reforms and the contradictions of a neoliberal state*

Gramsci's hegemony rests on the sometimes contradictory boundaries between consensus and coercion within the state. Consensus is shaped by elites who seek legitimacy from those they govern, and who also produce laws and deploy the state's coercive apparatus to enforce them. But, what happens when state coercion undermines the legitimizing consensus? This seems to be the case with recent US immigration reforms exemplified by HR 4437 passed in 2005, which stresses border enforcement and harsh punishment for illegal immigrants and those who employ or assist them. At the same time a Senate bill (S 1033) introduced in 2005 agrees in principle with border enforcement but also insists on a steady supply of labor to critical sectors like agriculture. This paper explores the current debate over immigration reform by analyzing the federal debate on enforcement vs. labor supply. I also look at two cases in Southern California that made national headlines: San Bernardino's proposed ordinance to use local resources to enforce immigration laws, and Coachella's ordinance to make the city an immigrant sanctuary. The key observation is that those groups pushing for strict enforcement without a guest worker program are threatening the US neoliberal consensus, which is based on a constant supply of low-cost labor that maintains a material lifestyle for specific groups of people who legitimize the consensus. Local politics, like those of San Bernardino, are focused on the middle class, which is whipped into enforcement frenzy but continues to demand low-

cost goods that are not possible without low-cost labor.

Keywords: immigration reform, labor, local politics, United States

Herman Kok, . Email: hkok@multi-development.com; *Taking the backseat: the position of retail at waterfront developments*

Waterfronts are among the most attractive and most value adding features in urban development. Being situated on a waterfront often guarantees a stronger market competition, higher returns, and a longer sustainable development product. Waterfronts are often used for multi-functional developments, a mixture of residential, offices and services, combined with leisure. The waterbody itself functions as an important landscape element, providing identity and value to the development product. Retail is often considered in these projects as well. However, the physical positioning of retail within waterfront projects is often subject of debate. Among the problem with waterbodies is the sensitivity to wind and weather. Wind in combination with rain can make waterside environments inhospitable. This paper discusses the integration of retail functions with waterfront projects in The Netherlands. A concept of how to integrate retail functions with waterfront developments based on functional and physical structures of coastal and lakeside resorts will be presented, and several cases will be used to elaborate on conceptual differences.

Keywords: retail, waterfronts

Crystal Kolden, Clark University. Email: ckolden@gmail.com; Peter J Weisberg, PhD, University of Nevada, Reno. Email: ; *Incorporating topography into GIS analysis: A case study of wildfire mapping accuracy in Nevada*

There is little doubt that advances in GIS have been enormously beneficial for land management. One area that still lags, however, is the understanding and integration of how topography affects GIS database creation and analysis. In wildfire management, for example, topography has two very specific influences on Fire GIS. First, the area burned by fires is mapped using helicopters that are often flying in steep terrain with poor visibility, lowering the accuracy of mapping. Second, only the planar area burned is calculated using vector polygons, instead of a surface area calculation utilizing elevation data. Since wildfire managers must have accurate perimeter maps and area burned totals to order firefighting resources, determine fire suppression strategies, and request appropriate funds for post-fire rehabilitation, GIS analysts should strive for more accurate methods of mapping wildfires. In this case study, we examined 50 wildfires in Nevada to determine the influence of topographic variability on mapping accuracy and area calculations at varying spatial scales. We found that topographic roughness was not correlated to perimeter mapping accuracy, suggesting that human error and environmental variables may play a larger role in mapping accuracy. We also found that the correlation between topographic roughness and surface area correction is dependent upon the scale of the fire.

Keywords: wildfire, topography, GIS, surface, planar, roughness, Nevada

Korine Kolivras, Virginia Tech. Email: korine@vt.edu; *Changes in Dengue Risk Potential in Hawaii based on Climate Variability and Change*

Climate variability brought about by the El Niño-Southern Oscillation has been linked to outbreaks of infectious diseases such as hantavirus pulmonary syndrome, cholera, rift valley fever, and malaria. Additionally, it is expected that climate change will also affect the distribution of diseases, with some regions becoming more or less favorable for the transmission of certain disease agents. Mosquitoes in particular will likely be sensitive to climate change, and mosquito-borne diseases may become more common at higher latitudes and higher elevations. This study examines the potential changes in dengue risk areas in Hawaii in response to climate variability and change using an overlay analysis within a GIS. Dengue is considered to be an emerging disease, and is also the most important mosquito-borne viral disease globally, with almost half the world's population at risk of infection. Previous research has identified mosquito habitat and dengue risk potential areas in Hawaii based on average climate conditions, and this study will incorporate notions of climate variability and change. Dengue risk areas generally contract during El Niño-induced droughts, and expand as a result of increased precipitation received during La Niña events. Future climate scenarios predict warmer temperatures and wetter summers in Hawaii over the next 100 years, which will result in an expansion of mosquito habitat and potential dengue risk areas. The results of this study will aid public health officials in efforts to determine where to concentrate mosquito surveillance efforts, given certain current or predicted climate conditions.

Keywords: dengue, climate and health, Hawaii, El Niño-Southern Oscillation, medical geography

Cary Komoto, University of Wisconsin - Barron County. Email: cary.komoto@uwec.edu; *The Scholarship of Teaching and Learning*

The Scholarship of Teaching and Learning (SoTL) is based on the idea that teaching and learning questions are worthy of scholarly activities. A key characteristic is that SoTL starts with questions or problems about student learning, including those of a particular academic discipline, some of which may be unique to that discipline. SoTL also requires systematic research or investigation into the student learning question. This can mean that the research or investigation uses methods common or familiar to a particular academic discipline. One final major characteristic is that SoTL results in a product that is disseminated and used by others.

Keywords: geographic education

Maction Komwa, George Mason University. Email: mkomwa@gmu.edu; Dawn Parker, George Mason University. Email: dparker3@gmu.edu; Todd Benson, International Food Policy Research Institute. Email: t.benson@cgiar.org; Thomas Berger, University of Hohenheim. Email: thomas.berger@uni-hohenheim.de; Pepjin Schreinemachers, University of Hohenheim. Email: P.Schreinemachers@uni-hohenheim.de; Kathryn Jacobsen, George Mason University. Email: kjacobse@gmu.edu; *The effects of mortality and morbidity from HIV/AIDS on household nutrition and agricultural land productivity in south-eastern Uganda*

There is considerable interest in the effects of mortality from HIV/AIDS on agricultural production in sub-Saharan Africa where HIV infection levels are high. Despite the increasing availability and potent use of therapy drugs, infection with HIV remains an immense shock to the well being of the household of which the infected person is a part. However, net effects of HIV on agricultural production in these contexts remain uncertain. This paper seeks to advance our understanding of the changes in labor availability, work organization, land transactions and management, and health nutrition status due to HIV/AIDS and HIV-related mortality in the Mayuge district of south-eastern Uganda. We hypothesize that HIV-affected households will experience reductions in both labor and income, leading to a reduction in agricultural area cultivated. These effects may occur during disease progression, before the critical point of the disease, as well as following the death of a household member. Contextual information using qualitative methodologies was gathered through semi-structured interviews with groups and local experts at both district and local levels, conducted in two villages in summer 2006. Our field studies have provided narrative evidence showing declines in income and in agricultural production in most of the households affected by AIDS, widows being displaced from land and clan territory, decreases in skilled labor, and increases in the numbers of orphans and in the level of drop outs from schools. Our findings are being used to develop a Multi-Agent simulation model of labor allocation and agricultural land management for the area.

Keywords: HIV/AIDS, local experts, sub-Saharan Africa, Uganda, agriculture, MAS, clan, households

George Mathias Kondolf, University of California. Email: kondolf@berkeley.edu; *River Restoration in North America: Meandering Channels for All?*

River restoration has become a big business in North America, with over 40,000 projects (costing over \$17 billion) in the US since 1990. Many of these projects involve new, essentially experimental treatments, but there has been remarkably little monitoring and objective post-project appraisal, limiting the advance of the science and practice of river restoration. Among the most imageable river restoration projects are those that involve creation of a new channel, often in a new alignment and generally with dimensions and form different from the pre-project channel. These channel reconstruction projects often have the objective of creating a stable, single-thread, meandering channel. This is commonly the case even on rivers that were not historically meandering and whose sediment load and flow regime are not consistent with such channel forms, and despite research showing that dynamically migrating channels (not stable channels) have the greatest ecological richness. These meandering channels are often specified by the Rosgen classification system, a popular restoration design approach. While most such projects have not been objectively evaluated, available data indicate a high failure rate. Nonetheless, this classification and form-based approach continues to be popular because of its ease of application, its accessibility to those without formal training in fluvial geomorphology, and probably because it satisfies a deep-seated (though unrecognized) cultural preference for single-thread meandering channels, consistent with 18th century English landscape theories that held the serpentine form to be ideal, and satisfying public preferences for tidy landscapes and the idealized trout stream.

Keywords: river restoration, fluvial geomorphology

Moussa Kone, Department of Geography, University Of Illinois, Urbana-Champaign. Email: kon@uiuc.edu; *Up In Smoke: Biomass Burning and Atmospheric Emissions in the Sudanian Savanna Ecosystems of Cote d'Ivoire*

This poster presents an outline of my PhD dissertation research, which investigates the West African biomass burning in the light of social, economic, political and biophysical processes at the local and regional scales in Cote d'Ivoire. Fire is an important management tool in the farming and pastoral systems of West Africa. The environmental science literature considers biomass burning as an important source of greenhouse gases and aerosols such as sulfur, nitrous oxide, methane and carbon dioxide. The effects of biomass burning on atmospheric composition leads to several concerns about climate change, air pollution, and human health. Environmental literature argues that biomass burning contributes up to 40 % of gross carbon dioxide each year. African savannas are viewed in this literature as the "burn center" of the planet. My research thesis is that the impact of biomass burning on the global climate change has been overestimated and that the land use policies based on climate change literature may be misconceived. I argue that contemporary perceptions and practices in West Africa generate early fires that lead in low fires intensity and bush encroachment. Less frequent and intense fires produce less gas and aerosol emissions into the atmosphere and more vegetation takes up more carbon dioxide than believed. My research takes a political ecological approach to further our understanding of fire periods, intensity, frequency, combustion efficiency in Ivorian savannas and their contribution to global climate change.

Keywords: biomass burning, atmospheric gases and aerosols, farming and pastoral systems, global warming, political ecology.

Victor A. Konrad, Carleton University. Email: vkonrad@hotmail.com; *The Boundary Between Canada and the United States in the Era of Security Mobilization*

United States replaced an evolving, transnational image of integration at the border. A security imperative has prevailed since then, and a fine balance of trade and security has emerged and has been institutionalized in structures for emergency preparedness in both the United States and in Canada. Moving goods remains the priority and massive investments in border infrastructure have insured that this priority is being achieved in an era of security mobilization. A major challenge remains to expedite passport compliance along the "World's longest undefended border." This paper examines how all of these forces have shaped a new borderlands culture where border image and reality are more aligned, and the juxtaposition of Canada and the United States is more apparent. The geography of the Canada-United States relationship, apparently simple on the map of North America, is a vastly complex set of national and subnational interfaces characterized by prodigious growth, rapid innovation, extreme sensitivity and enigmatic stances of nationalism and transnationalism at the border.

Keywords: Border, Borderland, Security, Transnationalism

Thomas M. Kontuly, University of Utah. Email: thomas.kontuly@geog.utah.edu; *The Relationship between Internal Migration and Employment Change in Germany*

This paper evaluates the degree to which internal migration in Germany can be related to employment change differences during the post-unification period. By doing so it tests the importance of the "regional restructuring" hypothesis of spatial demographic change. Regional restructuring refers to the spatial deconcentration of manufacturing and service employment, and can be thought of as a "people follow jobs" explanation. It views the de-industrialization of the 1970s as a short-term phenomenon, and forecasts new urbanization tendencies for large metropolitan areas that are able to function as advanced private service centers, the location of corporate headquarters, banks, and other financial institutions, and for metropolitan areas that become the location of knowledge-based industries. This hypothesis draws from a wide variety of theoretical traditions such as world systems theory, world city formation, the work on flexible production, and the writings on the informational and networked society. Regional restructuring appeared in the 1980s to explain American and European deindustrialization. It is occurring as the proportion of tertiary and quaternary employment increases relative to secondary employment. Also, the decline in primary employment has almost run its course, so there is a reduction in the stock of potential out-migrants living in rural areas. Older industrial countries have been going through a process of deindustrialization that has had a strong negative impact on larger cities, especially on their central areas, and the deconcentration of jobs was followed by population migration. This paper finds partial confirmation of the regional restructuring hypothesis in Germany.

Keywords: Germany, internal migration, employment change, regional restructuring

Sara Koopman, University of British Columbia. Email: skoopman@interchange.ubc.ca; *Growing a New Skin: Moving from activist to activist-researcher (Learning to Study In)*

I came back to academia as a long-time activist, frustrated by how often we struggle for liberation by oppressive means. I came looking for new insights and strategies for changing the world. In that search I engaged in a collaborative theorizing research project with sister activists in the movement to close the School of the Americas (a U.S. military training camp for Latin American military officers). This paper is a reflection on my process of role changing (and juggling), and on how best to dance new moves in, and with, your own social movement.

Keywords: activism, methods

Ludvik Kopacka, Charles University. Email: kopacka@natur.cuni.cz; *Geography of the multiple transformation turbulencies of the Czech economy and industry*

The main aim of the presentation is to show characteristic phases, features, tendencies and results of the post-socialist (post-1989) transformation of economy and industry in the Czech Republic. The paper will use quantitative and qualitative indicators to uncover transformation turbulences, structural changes and deformations, regional inequalities. The changes introduce themselves multilevel and -structural mixture, so that we have to use corresponding mixture of methods and indicators. Emphasis will be given on the long-termed (historical) consequences as well as on the changing priorities, hierarchy and importance of selected factors, processes, subjects. An attempt will be done to compare and locate hitherto realised post-socialist economic and industrial transformation, restructuring, and geographical redistribution in the Czech Republic with (into): long-term historical development and changes during multiply transformations; both geo-political and economic conditions and orientation; old and new member-countries of EU (developed and developing countries); the processes of globalization, explosion of technology, inflow of FDI etc. Economic, energetic, environmental, regional ("market" differentiation instead of socialist equalization) consequences as well as passive and active conditions and resources will be taken into account. The purpose is to prepare geographical synthesis of the post-socialist transformation of economy and industry in the Czech Republic and to uncover main trajectories, tendencies, periods and factors as well as problems face to face to permanently changing role and quality (of a small) Czech space in the frame of Europe (EU) and World.

Keywords: post-socialist transformation; development of economy and industry; Czech Republic

Jennifer Kopf, PhD, West Texas A & M. Email: jkopf@wtamu.edu; *Berlin Celebrations of Difference*

This paper analyzes two Berlin celebrations of difference, which are separated by one century. These are the Colonial Exhibition in the 1896 Berlin Trade Exhibition and the Carnival of World Cultures, celebrated each Pentecost since 1996 in Berlin. Approximately 7.5 million visitors attended the Berlin Trade Exhibit. Held just 12 years after the Berlin Conference announced united Germany's debut as a modern power ready to compete in colonization, the trade exhibit was "the coronation of Berlin as a metropolis" (Barchan 2004). The colonial exhibit at the trade show presented Germany's imperial might as the center of empire. Approximately 100 contract workers, from across the German colonies, performed at the exhibit. Colonial subjects were displayed beside natural products from their home region, along with information on the characteristics and utility of each. The second celebration, the Carnival of Cultures, developed as a response against a "biased and prejudiced view on immigration" in Berlin in the 1990s. "Its [The carnival's organizer, Werkstatt der Kulturen's] aim was, and still is, to provide a culturally and politically non-discriminating platform for artists, intellectuals and independent organizations" (<http://www.karneval-berlin.de/>). I find intriguing similarities between the two celebrations: Both highlight "difference". Both were initiated following German unification, at times when Germans struggled to find a national identity. In both events, differences in race, religion, and gender relations play an important role, as participants view and try on other types of relationships and identities playfully.

Keywords: transnationalism, nationalism, race

Benedikt Korf, University of Liverpool. Email: b.korf@liverpool.ac.uk; *Generosity and the other: Differential geographies and the gift of post-disaster aid*

The term "gift" in German means "poison." This may be a kind of truism if we look at the practices of generosity and charity after the South(east) Asian Tsunami. While the donors in the West were "consuming" generosity, the practising of aid in those places affected by the Tsunami has proven to be much more complicated and has created considerable frustration among people affected by the tsunami as well as aid workers, in particular in Sri Lanka, which experienced a second wave - the one of aid. This contribution will analyse the relational

morality of giving gifts to needy people after natural disasters and will analyse, building on Mauss' and Sahlin's writings on the gift, what this means for the relationship between donors and the other of their generosity, those who receive aid. The practices of giving will be linked with the practices of implementing Tsunami aid at Sri Lanka's east coast. In particular, we will look at the differential geographies of immediate responses, relief provision, housing reconstruction and aid distribution in selected localities. We will argue that those aid practices have transpired in their specific forms due to the practices of generosity celebrated in the donating countries of the West.

Keywords: disasters, generosity, aid, gift

Joseph Koroma, . Email: joekoroma@hotmail.com; Brian Ceh, Indiana State University. Email: sceh@indstate.edu; *Perceptions of Poverty: Perspectives from the Poor in Rural Sierra Leone*

This paper provides an empirical examination of rural people's perception on poverty in Sierra Leone in relation to popular theories on poverty reduction. Three such approaches come from the neo-classical school, structuralist viewpoint and, more recently, multidimensional analysis. Neo-classicalists argue for limited government control of the economy to enhance economic development and reduce poverty. This is the position of the World Bank and International Monetary Fund. Adherents of the structuralist view suggest that government should have considerable influence and should provide welfare for the poor. This view is popular among many international, non-governmental organizations, such as Oxfam. The multidimensional approach, favored by the United Nations Development Program, posits that poverty is rooted in a multitude of factors and that an appropriate combination of neo-classical and structuralist solutions would be beneficial. Many poverty reduction programs in developing countries, however, lack theoretical justification. Sierra Leone adopted the World Bank and International Monetary Fund development model 1977. Meanwhile, the number of people living below the poverty line has increased from 48% in 1981 to 65.8% in 2001. The main purpose of this study is to understand the population's perception on poverty and whether their views are compatible with the policies adopted by government. My hypothesis is that the neo-classical model of development and poverty reduction, adopted by the Sierra Leone government is in disconnect with the population

Keywords: poverty reduction, economic development, Sierra Leone, World Bank

Axel Kortevoss, . Email: axel.kortevoss@uni-koeln.de; *Access to hospital care under conditions of DRGs*

Since the year 2000 there is a major change in financing hospital care in Germany from day-based fees to a Diagnosis-Related-Groups-System (DRG). The implementation of the DRG-system caused a considerable strain to change the methodology of the hospital planning which is in the responsibility of the 16 federal states. The aspired dynamic sampling of the competition between hospitals can only be achieved by abandoning the usual capacity planning (beds in hospitals). In this context, spatial access to health care becomes more and more important as a planning category. A picture of access to hospital care can be achieved by linking the spatial references of the patterns of supply and demand in a current monitoring system on the basis of offer profiles. These profiles describe for each hospital the dedicated catchment areas on the base of the shortest travel distance from centroids which represent the real population distribution. Within this monitoring system, regional varieties of health care structures can be better described and transferred into planning options.

Keywords: medical geography, access, germany

Hille Koskela, Dr. Email: hille.koskela@helsinki.fi; *Emotional space*

My aim in this presentation is to develop the concept of emotional space. The concept was originally postulated within my research on public urban space under surveillance. Emotional space seems to be internally contradictory, but still possible to comprehend. Being committed to the feminist understanding, I see that there is no such thing as isolated individual: experiences are constructed through power relations. Urban experience and social relations contain various feelings: fear, excitement, love, desire, repulsion, aggression, curiosity, guilt etc. These all contribute in the production of space. Emotional space stands in the constantly changing triangle of (social) power, (individual) experience and (material) space. It is produced in the everyday encounters. While emotions and feelings themselves are personal, emotional space is a social construct. In relation to material space it is so 'social' that materiality almost disappears, but not quite. My purpose is to consider what is left of space at this point; how does this differ from non-spatialised social practices. I argue that emotions 'just there' are different from emotions in general because they become more concrete and more experiential. There are at least three qualities which describe emotional space. Firstly, it is impossible to draw borders around it or measure it. Secondly, emotional space is like a liquid: moving, flowing, resilient, elastic. And thirdly, it is 'weak'; difficult to grasp because it cannot be described in static terms. It

evades definitions and remains 'untouchable'. Nevertheless, there is a need to conceptualise and discuss this kind of space.

Keywords: public urban space, emotions, feminist geography, space concepts

Katariina Kosonen, University of Helsinki. Email: katariina.kosonen@helsinki.fi; *Sweet dreams and daily services: the persuasive imagery of Finnish advertising maps*

Advertising maps are popular. They rarely have the regular functions of maps, such as helping navigation or depicting accurate thematic information based on data. Instead, they are set for selling places, consumer goods and services. In this paper, my interest is in the pictorial imagery of maps in Finnish newspaper and magazine advertisements, published mainly during the 21st century. The imagery of these "everyday maps" is colourful. Families and single consumers are persuaded to buy products, food and drink, holidays and other services by creating mental images, wrapped in geography. Certain geographical features, i.e. nature or landscape may be mixed with well-known buildings, symbols and people with stereotyped identities. Services are also marketed by telling how extensive they are, or, how easily accessible. In the world of ad-map, everything is close by and anyplace. A comparison to the advertising maps of the early 20th century proves that both the means and the imagery have remained surprisingly similar, even though the improvements in printing and computer technology have given a total brush up to the quality of images.

Keywords: popular maps, advertisements, imagery

John C. Kostelnick, Haskell Indian Nations University. Email: jkostelnick@haskell.edu; *Tracing the History of Thematic Mapping of Religion in the United States*

Maps and atlases have been a valuable means of depicting the geographic distributions of religious groups in the United States over the past century. In many cases, cartographers and geographers have devised rather inventive and unique methods to capture the diverse and unique religious composition of the nation on maps. This presentation will provide an overview and assessment of thematic mapping of religion in the United States over the last century, with an emphasis on important benchmark events in the collection of religion data as well as methods of cartographic representation. The presentation will encompass examples of the earliest thematic maps of religion in the United States, such as the Statistical Atlases published by the U. S. Census Bureau in the late 19th and early 20th centuries, and will progress chronologically to recent examples of geographic visualization and electronic atlases in thematic mapping of religion.

Keywords: geography of religion, cartography, cultural geography, United States

Hagar Kotef, Tel Aviv University. Email: hagarko@gmail.com; Merav Amir, Tel Aviv university. Email: amirmayr@post.tau.ac.il; *On Imaginary Lines; Biopolitics, Disciplinary Apparati and Sovereign Violence at the Checkpoints*

The Palestinian Occupied Territories are paved with hundreds of blockages and dozens of checkpoints. Creating a dense grid of limitations upon the movement of Palestinians, fragmentizing both the space and its population, they have become one of the most predominant technologies of the Israeli occupation. Backed by a perplexing bureaucratic mechanism, the regime of movement may be regarded, in Foucauldian terms, as a bio-political system gone astray. Yet, in this paper we would like to go beyond Foucault (while remaining within his framework) to suggest that in these sites bio-power, disciplinary power, and sovereign power are entangled in vexing ways. To understand these relations we examine one mechanism operating within the checkpoints: "The imaginary line". The imaginary line is a technology that seemingly operates within the disciplinary logic: it is a line drawn (metaphorically, in thin air) by soldiers at the checkpoint, delineating the permitted movement of Palestinians. However, while its transgression summons the soldiers' eruptions of violent, it is never visibly marked in the physical space. Thus, a structural failure is embedded into the operation of the disciplinary mechanism, facilitating the appearance of violence, which in itself serves to manifest Israel's sovereignty over these sites and over the bodies within them. This paper outlines this technology of hidden demarcation to demonstrate the convergence, within a bio-political site, of power/knowledge with violent sovereign power.

Keywords: bio-politics, power, Foucault, checkpoints

Francis Koti, University of North Alabama. Email: ftkoti@una.edu; *Putting the Urban Poor on the Map Using Participatory GIS*

There is notable progress in the practice of geo-spatial information technologies for urban practices in Kenya. Most recent literature has identified a concern for mapping land use and land cover change, infrastructure inventory, environmental management and other location-based uses. In these practices, the creation of urban geo-spatial databases has tended to reside in mainstream planning and is mainly characterized by formal data. Consequently, experiences

of marginalized groups have remained invisible on city maps. This paper employs a participatory GIS conceptual framework to demonstrate how local knowledge can contribute to a more robust and inclusive urban geo-spatial database. The study involves building a GIS for Athi River town, Kenya. The Athi River GIS is augmented with community local knowledge in the context of group mental mapping, focus group discussions, GPS-based transect walks, social histories of exclusion, and oral narratives of land use. The research concludes that the creation of urban datasets by city governments in Kenya is increasingly employing geo-spatial technologies. These datasets are however, problematic, as they focus mainly on the built environment and also reify traditional urbanism approaches and standards which disregard informal settlements. From the study, participatory GIS are found to offer an alternative methodology that integrates local knowledge into a GIS as an information layer. The study reveals low-income dwelling spaces not often found in formal planning data for Athi River town.

Keywords: Participatory GIS, Urban Planning, Kenya

Molly Kotlen, Fehr & Peers Transportation Consultants. Email: mrkdance@aol.com; *Congestion Pricing: Transportation Pricing Schemes' Effect on Sprawl*

The purpose of this paper is to examine the interrelationship between congestion pricing and economic development with a specific focus on the connection of congestion pricing to location choice. Analysis of two existing location theories, the bid-rent model developed by William Alonso (1964) and the spatial competition model developed by Harold Hotelling (1929), leads to the theoretical constructs of a new location theory that combines the main ideas of the bid-rent model and the spatial competition model into one that might better demonstrate how transportation costs, and more specifically congestion pricing, would affect urban form in a polycentric setting. Congestion pricing's impact on the urban form can be seen through its relationship to land use, travel behavior, mode choice, mobility and accessibility, equity issues, and revenue distribution and policy; a literature review, based on these factors, was used to identify situations in which congestion pricing schemes can have a sprawling effect during development or can spur growth back into urbanized areas, which ties back into the discussion of location choice. The paper concludes with three case studies of congestion pricing schemes.

Keywords: congestion pricing, location theory, economic development, transportation

Boian Koulov, St Andrew's Episcopal School. Email: bkoulov@yahoo.com; *The New Eastern Border of the EU: Barrier and Bridge*

The paper explores the role of the new eastern border of the European Union, created by the accession of Bulgaria and Romania on Jan. 1 2007. It attempts to identify the political, economic, and environmental stakeholders in the Black Sea region and examine how they conceptualize its geographic boundaries. Field studies and interviews, taken over a period of more than five years, will illuminate the rapidly changing landscape of opportunities and limitations, perceived at the global, regional, and local scale.

Keywords: European Union, Black Sea, geopolitics, borders

Jean P. Kowal, University of Wisconsin - Whitewater. Email: kowal@uwv.edu; *Prospects for a successful prairie reconstruction*

In Lake County Illinois an ongoing study examines prairie restorations and reconstructions for signs of short term success in fulfilling their stated design goals and for their prospects for long-term success at establishing sustainable prairie ecosystems. In 1996 a small public park, Arbortheater, opened at the margins of a new business park in the suburban community of Vernon Hills, in Lake County. A part of the park was dedicated as a prairie reconstruction designed to educate the public on the natural history of the region as well as to contribute to the vision of the park as an arboretum. Initial landscaping and planting quickly resulted in a colorful display of native species which were broadly identified by appropriate signage for public education. The changing of management within the overseeing governmental unit resulted in a decline in attention to and understanding of the restoration process. By 2000 the prairie reconstruction area was giving way to weedy species along its periphery, a dirt path through the middle of the restoration had been allowed to grow over with weeds which began to spread into the heart of the prairie and the educational signs had been removed. Management had allowed and encouraged the planting of many oak trees in the center of the incipient prairie by various civic organizations and individuals as part of Arbor Day festivities. The future of this landscape as a successful prairie reconstruction is in serious doubt.

Keywords: prairie, Illinois, prairie restoration

Ranae Kowalczyk, B.A., MSc Candidate, Simon Fraser University, Department of Geography. Email: ranae@sfu.ca; Nick Hedley, M.A., Ph.D., Simon Fraser University, Department of Geography. Email: hedley@sfu.ca; John Clague, A.B., M.A., Ph.D., Simon Fraser University, Department of Earth Sciences. Email: jclague@sfu.ca; Multimodal Geospatial Interfaces for Avalanche Hazard Education

This project explores the potential for using highly interactive geovisualization technologies such as 3D web-based and augmented reality environments in avalanche hazard education. This project seeks to improve computer-based avalanche education tools by exploring how different combinations of geovisualization, interface technologies, education design principles, and interaction design affect user comprehension and risk perception. Avalanche education materials have traditionally relied on static 2D diagrams and images. New web-based tools continue to use them; however such representations may be limited in their ability to convey abstract and spatially dynamic phenomena and processes. It is possible that traditional use of 2D representations in avalanche education may impede understanding of three-dimensional route-finding concepts. This research uses, as its case study, a 2D online route finding exercise from the Canadian Avalanche Association (CAA). This project explores how increased manipulation and different representations affect user comprehension between the current CAA 2D exercises and new alternative 2D, 3D desktop, and 3D augmented reality exercises. In the current 2D exercise users plot a route on a static 2D photograph. The new 2D exercise uses Flash programming that allows users to zoom in and out of the image. The new 3D exercise uses QTVR object models permitting users to explore by zooming in and out and rotating the terrain. The augmented reality prototype permits physical manipulation using their hands. Differences in conceptual understanding and spatial orientation among users are evaluated online using repeated-measure tests.

Keywords: Geovisualization, Virtual Environments, Avalanche hazards, Education

Thomas Krafft, University of Cologne. Email: t.krafft@uni-koeln.de; German Health Care Reforms: Who Is Left Behind?

The restructuring of the German health care system as a consequence of the manifold and still ongoing health policy reforms has led to spatial inequalities in the access to health care. The accelerating trend of privatizing and merging community hospitals and other health care facilities is expected to result in further spatial inequalities. At the same time unfavorable demographic and economic developments especially in some of the Eastern German states have resulted in a shortage of general practitioners and other health care professionals in some regions. Based on comprehensive data from the statutory public health insurances and other sources the paper will present the recent trends in access to primary and hospital health care in Germany and discuss some of the consequences for future health care reforms also including a European perspective.

Keywords: health care, health care reform, inequalities

Shaul Krakover, Professor, Ben-Gurion University of the Negev. Email: shaul@bgu.ac.il; Eyal Adler, Mr., Ben Gurion University of the Negev. Email: adlerey@bgu.ac.il; From Unicentric to Polycentric City Region and Beyond: The Case of Tel Aviv, Israel

Urban studies published during the 1980s and 1990s ventured to proving the transformation of the unicentric city structure into a polycentric one. The latter decade has seen studies reporting a move to a dispersed city structure, wherein a more homogeneous dispersion of population and economic activities are observed. During the 1970s Tel Aviv metropolitan area was observed as a city region portraying decline in its unicentric structure. This study examines polycentricism in the city region of Tel Aviv both in terms of population and employment concentrations from 1972 to 2000. The results indicate that Tel Aviv metropolitan area reached a peak in its polycentric structure around 1983. During the last two decades, however, the dominance of the metropolitan employment centers has declined. A trend toward the development of a dispersed metropolis is evident. The trend towards deconcentration of population is faster than the equivalent trend found to exist for employment.

Keywords: urban form, unicentric, polycentric, dispersed city, Tel Aviv, Israel

Ellen Percy Kraly, Colgate University. Email: ekraly@mail.colgate.edu; Geographies of Vulnerability and Resilience: The Daily Geographies of the Child Artists of the Carrolup Native Settlement, Western Australia

The goal of this project is to reveal the geographic and environmental influences on the child artists of the Carrolup Native Settlement located in the southwest region of Western Australia. Policies of child removal were implemented in many regions of Australia well into the first half of the 20th century resulting in the "Stolen Generations" of Aboriginal peoples. The Carrolup Native Settlement was one of two government institutions in Western Australia to which part-Aboriginal children were removed from their families. In this particular place during the 1940s, however, a curriculum of art and drawing was imple-

mented. The artistic talents of the boys gained regional, national and international recognition through exhibits and also patronage. Land and landscape were prominent themes of the drawings of the Carrolup child artists as were external influences on Noongar culture such as dispossession from the land, child removal, and institutionalization. Using written records for the school and the legacy of art provided by the children themselves, the following questions will be addressed: (a) What were the daily geographies of the children resident on the settlement and how was space and environment structured for them? (b) What were the relationships between the spatial dynamics of the daily and weekly routines of the school and settlement and connections with land, landscape and environment among the children? (c) How did the geography of the settlement and school shape the artistic expression of the child artists?

Keywords: population vulnerability, indigenous populations, daily geographies

Olivier Thomas Kramsch, Dr., Radboud Universiteit. Email: O.Kramsch@fm.ru.nl; Thirthing Europe's Borderlands

European borders are much more than dichotomous spaces of confrontation between a putative Us and Them. A critical Third inhabits these borderlands, recalling complex geometries of imperial power past and present. Drawing on Ed Soja's richly evocative spatial imagination, and training attention on the interplay between Europe's inner and outer borderlands, this intervention argues that "Il y a toujours l'Autre" at the crossroads of contemporary European borderspace.

Keywords: Europe, borders, critical thirding

Kevin Krasnow, University of Colorado, Boulder. Email: kevin.krasnow@colorado.edu; Fuel Mapping and Determination of SPLATS in Lefthand Canyon Watershed, Colorado

Due to almost a century of fire suppression, the social and environmental costs of wildfire have increased dramatically over the last decade including government expenditures for fire response and mitigation, property loss to individuals, and loss of natural resources and human lives. In recent years, forest managers in Colorado have increased the acres treated for wildfire mitigation and ecological restoration. Accurate mapping of fuel load and composition is critical for improving fire prevention and in determining where strategically placed area treatments (SPLATS) should be located on the landscape. This study maps fuel in Lefthand Canyon Watershed, Boulder County with robust field data and high resolution remotely sensed images. The resulting fuel maps were then used in the fire simulator FlamMap to determine the optimal areas for fuel treatments in the watershed. Data from 300 random stratified field plots were used to map both surface and canopy fuel loads. Classification and regression trees were utilized to create a continuous landscape of fuel characteristics required for fire behavior modeling. Catastrophic wildfire (similar to those observed in Colorado in 2001 and 2002) was then simulated in FlamMap to determine the location and extent of the most efficient fuel treatments using the Treatment Optimization Module (TOM).

Keywords: fuel mapping, fire mitigation, fire modeling, SPLATS, fire ecology, GIS

Jeffrey Krecic, University of Kansas. Email: jeffkrecic@yahoo.com; Competition for Water Resources as a Factor in Pinion Pine Mortality due to Ips Beetle Infestation

Ips beetles are a species of bark beetles that infest pine and spruce trees. This research focuses on Ips confusus a species that predominately attacks piñon pines. Ips beetles preferably attack trees which have been weakened, by such factors as wounding, root disease, drought or other stresses. Due to forest fire control, reduced grazing, and restrictions on chaining, the piñon-juniper woodlands of southern Colorado are much denser than historical records indicate, increasing competition for water resources. This research was done in the Garden Park valley of Colorado, approximately five miles north of Canon City. The subject population was visually assessed and infected trees were compared to healthy trees in close proximity. The study identifies and investigates tree density, tree maturity, soil type, aspect and slope as factors affecting tree stress due to competition for moisture.

Keywords: Ips Confusus, Beetle, Pinion Pine, Colorado

Debra Kreitzer, Western Kentucky University. Email: debbie.kreitzer@wku.edu; William P Blackburn, Western Kentucky University. Email: will.blackburn@wku.edu; Internationalizing Higher Education in Kentucky: Western Kentucky University's Efforts to Promote Study Abroad Programs

Some of the many trends that are running through the higher education community include an increased focus on student engagement and internationalization. Study abroad programs bring together both of these educational goals. Therefore several universities are allocating more resources to encouraging their

students to participate in a study abroad program. Western Kentucky University (WKU) has introduced new policies that give students tuition breaks and scholarships for study abroad. This study seeks to find out: 1) if the new policies help the university to meet internationalization and engagement goals; 2) if the new policy has increased both faculty and student participation in study abroad programs; and 3) how the new policies compare to other Kentucky universities.

Keywords: internationalization, study abroad, geographic education

Gary W Krizanich, United States Geological Survey. Email: gkrizanich@usgs.gov; David J Wronkiewicz, Ph.D., University of Missouri-Rolla. Email: wronk@umr.edu; Jeffrey D Spooner, Ph.D., U.S. Geological Survey. Email: jsponer@usgs.gov; Conor M Watkins, University of Missouri-Rolla. Email: cwatkin@umr.edu; Catastrophism Revisited in Missouri: Mapping Exposed Flood Features in the Taum Sauk Reservoir Outwash Zone

In the early morning hours of December 14, 2005, a portion of the northwest wall of the Upper Taum Sauk Reservoir failed, releasing approximately 1.5 billion gallons of water down the western slope of Proffit Mountain (Reynolds County, Missouri). The resulting flood waters had devastating effects on down valley systems. A 2.6 km (1.6 mile) long side canyon draining the western slope of Proffit Mountain was eroded locally of soil, colluvium, alluvium, and bedrock following the breach of the upper reservoir. Initial assessment of these post-failure erosional and depositional features was conducted by a team of scientists from the U.S. Geological Survey and the University of Missouri-Rolla. Field data was collected by traversing the channel and making detailed field notes and sketches using topographic maps and aerial photographs. Waypoints were collected along facies contacts using a handheld Global Positioning System unit. Post-field analysis used waypoint data combined with light detection and ranging (LiDAR) elevation data, and high resolution (15 cm) digital aerial images to compile a draft geologic map. Preliminary results of the investigation suggest that highly variable flow regimes have affected different segments of the valley in different ways. New bedrock exposures include Precambrian felsic porphyries, granitic sequences, a highly weathered mafic unit, a paleoweathered boulder field, and Cambrian-aged basal dolomite and sandstone sediments in unconformable contact with the Precambrian rocks. Other portions of the valley were partially filled with sediment debris derived from the erosion of the previously mentioned units plus debris from the failed dam structure.

Keywords: hazards, LiDAR, Mapping

Barry Joel Kronenfeld, Ph.D., George Mason University. Email: bkronenf@gmu.edu; Raster-to-TIN conversion for soft classified maps.

This paper examines the feasibility of using triangulated irregular networks (TINs) to model classification uncertainty in soft-classified maps of natural features such as soils, climate and ecoregions. Soft classification has traditional been implemented using raster grids, by assigning membership values to every pixel to indicate affinity to a set of ecological classes. The classes can represent anything, but the technique is often applied to natural regions due to the difficulty of establishing precise boundaries between regions. The primary weakness of the raster data model is extremely large storage requirements due to invariant resolution. This problem is amplified in soft-classified maps, because multiple values must be associated with each pixel. TINs have long been used as an alternative to raster grids to represent elevation and other univariate surfaces, and have been shown to drastically reduce storage requirements especially in mixed homogeneous/heterogeneous landscapes. Here they are extended to depict a constrained multivariate surface that depicts classification uncertainty in ecological regions. To evaluate the efficacy of soft-classified TINs, several soft-classified raster grids of ecological regions are produced from climate and vegetation data for portions of the United States. These grids are selected to span a range of characteristics in terms of spatial homogeneity and heterogeneity. Raster-to-TIN conversion is then performed using a thresholding algorithm based on Euclidean, Manhattan, and other distance metrics with a range of error thresholds. The results are compared in terms of the algorithm's performance time, size of the resulting TIN, and visual quality.

Keywords: uncertainty, TINs, soft classification, fuzzy classification

Sergei Kropotov, Ural CASE. Email: sergei.kropotov@usu.ru; Urban Frontiers and Accumulation of Capital: The Case of Ekaterinburg

My presentation attempts to analyze the particular case of urban governance, in which the escalating conflict between the city's business elites and the citizenry is being resolved by the municipal administration through a quite unorthodox gesture: the investment in a museum complex and accumulation of the city's symbolic capital. Like many other industrial cities, Ekaterinburg is trying today to find its place in the new post-industrial world through active re-codification of its public image. Today's strategies for restructuring the city's imaginary space develop around two major themes. One theme is the city's historic past, specifically the life and death of the last Russian tsar Nicholas

Romanov and his family, all of whom were assassinated in Ekaterinburg in 1918. The second strategy lies in turning the city's downtown into a space for leisure and consumer activities. However, the expansion of merchant and entertainment sectors is not always welcomed by the citizens. In this situation of conflicting interests between the local trade capital and the public, the city's government undertakes a highly controversial gesture: it invests in the reconstruction of the city's museum complex. Among historical myths being enlisted in today's debates the most popular is the myth about the city as a "civilization frontier," which is based on the fact that the city is indeed located on the geographical border (Ural Mountains) between Europe and Asia. The "internal frontier" drawn on the imaginary urban space acquires new economic and cultural dimensions, which needs to be publicly addressed.

Keywords: internal frontier, symbolic capital, imaginary space

Fred W. Krueger, Prof Dr, University of Erlangen-Nuremberg, Germany. Email: fkrueger@geographie.uni-erlangen.de; Linking Poverty, Environmental Stress and Conservation - The Need for New Approaches?

Environmental stress is often caused by social stress. But can conservation measures serve to alleviate social stress, and thereby reduce pressures on social and natural environments? Poor, or vulnerable, people with only limited capabilities to mobilize sufficient assets in order to secure their livelihoods, are often forced to exploit natural environments beyond all levels of sustainability. Inapt conservation schemes may increase, rather than mitigate, social vulnerability and thus render conservation concepts ineffective or even useless in the long run. Models and theoretical actor-oriented approaches such as the Political Ecology concept, vulnerability, livelihoods or resilience frameworks, or conceptions of hazards and risks, describe critical linkages between poverty/vulnerability, degradation, and conservation, but it might be argued that their explanation values are not sufficient to identify adequate entry points for intervention. Do we need new approaches? Rather than providing final answers, this paper is designed as an icebreaker to stimulate discussion on "which (appropriate) ways ahead?"

Keywords: vulnerability, development geography, livelihoods, risk, environment

Stephen Krug, CSUN. Email: slk10130@csun.edu; Using GIS to Map El Nino Southern Oscillation (ENSO) Anomalies along the West Coast

The western coast of North America, as the area of the continent that is first to receive the weather systems from the Pacific Ocean, experiences wild anomalies as a result of the El Nino Southern Oscillation, or ENSO. These anomalies vary mostly by latitude, but elevation, shoreline orientation, and topography play major factors in the intensity and duration of extreme weather associated with this phenomenon. An attempt is made using GIS to locate and map these anomalies and the climatic variables which signal them.

Keywords: El Nino, ENSO, La Nina, Climate, GIS, climatology

Shiloh R. Krupar, University of California, Berkeley. Email: shiloh@berkeley.edu; The Specter of Nuclear: wasting labor, militarizing ecology, litigating the future

For over 40 years, the Department of Energy's Rocky Flats facility near Denver, Colorado produced the plutonium 'trigger' of nearly every nuclear weapon in the US's arsenal and amassed an incomprehensible amount of waste. Purportedly, the site is now cleaned up and will open to the public as a wildlife refuge. Once distinguished for hosting the 'world's most contaminated building' and for instigating the first FBI raid on a federal agency in US history (for environmental violations), Rocky Flats' former protected area superficially appears to be a giant heap of dirt overrun with tumbleweed and prairie dogs. Wiped clean of all former buildings and signs of industrial human labor, the site now serves as a DOE model of environmental remediation applicable to other decommissioned nuclear facilities across the US's former nationally-distributed bomb factory. This paper examines how Rocky Flats' cleanup has dis-membered former workers?their labor power, bodies, environmental knowledge?by violently staging an 'alien still life.' The paper tracks three spectral geographies that haunt the nature spectacle, each guided by a current/on-going bill or court case involving the health and economic security of Rocky Flats neighbors and former Rocky Flats workers. These cases invoke important dialectic conceptualizations of waste/value, militarism/health and body/environment that emerge in environmental justice struggles surrounding the nuclear weapons complex. The paper follows these spectral geographies in/through the landscape, bodies and litigation in the hope that such conjurings might materially-conceptually haunt the dystopic futures of the 'second nuclear age' and Bush's 'Clean Nuclear.'

Keywords: waste, militarism, health, labor, clean nuclear

Bodo Kubartz, University of Oklahoma. Email: kubartz@ou.edu;
Scenting the city. Producing and consuming fragrances in New York and Paris

Fragrances delineate amazing economic geographies. Well-known examples and geographic sites on the productive side are 'laboratories' where new scents are invented by creative perfumers. However, far more complex than that, the development of fragrances is a business of many actors collaborating in concert. In this buyer-driven industry, consumers are seen as critical mirrors for the success or failure of a new perfume. Beyond the microscopic sites, urban centers such as New York and Paris are not only sites of production and/or consumption, but social laboratories of inspiration and representation. They are arenas for the production and consumption of style. Subsequently, different styles spread and reverberate in other areas. The styles are, amongst others, consumed through fragrances. This paper presents outcomes of research on practices of knowing and geographies of knowledge in the international fragrance industry. It will focus on the connections between the productive and the consumptive side and how consumers are conceptualized, recognized, and addressed by the producers. This conceptualization and understanding is a part of the producer's knowledge base and a vehicle for learning episodes. The paper will add value to the discourses on knowledge, creativity, and consumption in urban/economic geography.

Keywords: consumption, urban economies, fragrance industry, perfume

Dennis Kubly, Bureau of Reclamation. Email: dkubly@uc.usbr.gov;
Resolving Conflict on the Colorado River: Adaptive Management as an Inroad to Legitimacy, Fairness and Wisdom

The Colorado River is one of the more developed and regulated rivers in the world. As it winds its way through the mountains and canyonlands of western United States, the river is used in numerous ways to satisfy the needs of a growing human population. Glen Canyon is one of a series of major dams that impounds the river to deliver water to satisfy an interstate compact, to produce hydroelectric energy, and to provide recreational opportunities. Glen Canyon Dam lies within the Glen Canyon National Recreation Area and just above Grand Canyon National Park. Geography and history thus combine to set up conflict over the way the dam is operated and, for some, the dam's very existence. A 1996 Record of Decision on dam operation identified the use of adaptive management as a means of bringing together stakeholders and government agencies to advise the Secretary of the Interior on means to reduce the impact of the dam on downstream resources. The adaptive management program provides a federal advisory committee (legitimacy), a wide diversity of stakeholders having different values and interests (fairness), and an independent science institution to conduct research and monitoring (wisdom). These program elements provide the three factors considered by many practitioners as essential for successful collaboration.

Keywords: Colorado River, adaptive management, collaboration

Michael Kuby, Dr., Arizona State University. Email: mikekuby@asu.edu;
Zhixiao Xie, Dr., Florida Atlantic University. Email: xie@fau.edu;
Seow Lim, Arizona State University. Email: seow.lim@asu.edu;
Jong-Geun Kim, Arizona State University. Email: Jong-Geun.Kim@asu.edu;
Ronald Schultz, Dr., Florida Atlantic University. Email: schultzr@fau.edu;
Lee Lines, Dr., Rollins College. Email: Lee.Lines@rollins.edu;
Location Strategies for the Initial Hydrogen Refueling Infrastructure in Florida and Orlando

We investigated refueling infrastructure strategies for the early stages of the transition to hydrogen in Florida. Given the high cost of the initial refueling stations, locating a limited number of stations as efficiently as possible will be a key to early success of the industry. The foundation of the model is a GIS with the road network, traffic analysis zones, and the least-travel-time paths between zones. Then, given a matrix of trip volumes and the driving range of hydrogen vehicles, the model uses operations-research techniques to solve for optimal locations and quantify the tradeoff between the number of stations and how much potential demand can be served. The GIS and operations research models are integrated in a spatial decision support system that decision-makers can use to develop and check data, enter assumptions, analyze different scenarios, evaluate tradeoffs, and map results. We then used the model to explore strategies for the Florida Hydrogen Initiative. We analyzed urban and statewide networks of hydrogen stations and an optimal system of stations for serving a hypothetical hydrogen rental car fleet based at the Orlando International Airport.

Keywords: optimal location model, hydrogen refueling; renewable energy; GIS, SDSS

Lisa M Kuchy, Department of Geography, University of North Dakota, Grand Forks, ND 58202. Email: kuchyln@hotmail.com;
Bradley C Rundquist, Department of Geography, University of North Dakota, Grand Forks, ND 58202. Email: bradley.rundquist@und.edu;
Santhosh K Seelan, Department of Space Studies, University of North Dakota, Grand Forks, ND, 58202. Email: seelan@aero.und.edu;
Rajiv Nigam, National Institute of Oceanography, Dona Paula, Goa, India. Email: nigam@nio.org;
Remote Sensing-based Study of Land-Cover Changes Related to Mining and its Impacts on Marine Fauna: A Case Study in Goa, India

Mining is an important part of the economies of many developing countries. One of the costs associated with mining is the potential for environmental degradation. In India, several provinces are home to major open-pit mining operations. In Goa, the two main estuaries, Mandovi and Zuari, have experienced water quality degradation from increases in suspended sediment load over the past 30 years, which has affected the micro-fauna and overall health of the estuary. Time-series satellite data can be used to assess change in mining activities over time and their impacts on waterways. In this study, a temporal analysis using change detection methods was performed from multiple Landsat and Indian Remote Sensing satellite images acquired over Goa between 1973 and 2000. Field data collection drove supervised land-cover classifications, which were used to determine changes in forested land area and to assess other environmental impacts of mining processes. In addition, object-based classifications were developed and compared to the supervised classifications. Results show that there was an overall shift in mining activities from south Goa to north Goa. This shift is associated with changes in the amount of suspended sediment in the estuaries during the study period. The object-based classification was more accurate than the traditional pixel-based supervised classification. Our study demonstrates the usefulness of remote sensing to monitor the impacts of mining and other practices that alter the environment in developing countries.

Keywords: environmental impacts of mining, digital image processing, remote sensing

Irina Kudenko, University of Leeds. Email: i.kudenko03@leeds.ac.uk;
Multiculturalism and minority group cohesion: pluralisation of identity narratives and their strategic use in the Jewish community of Leeds, UK

In the last few years, multicultural citizenship, once hailed as a solution to national cohesion has faced increasing political and academic accusations of inciting segregation and group divisions. However, multiculturalism has always had multiple meanings, was associated with diverse socio-political arrangements and had different impact on individuals and groups in society. Therefore, an evaluation of past experience calls for thorough academic research into how multicultural practices have impacted on different segments of the population. Using a case study of the Jewish community in Leeds in the UK, this paper argues that national policies of multiculturalism were crucial in validating multiple 'readings' of national and minority identity. They enabled pluralisation of minority identity prompting debates about its private-public expressions. The research draws on a multi-methods approach to reveal how multicultural citizenship has challenged the historically successful model of 'private Jewishness and public Englishness', legitimating alternative visions of Jewish identity and supporting calls for the democratisation of community institutions. The study demonstrates selective and contextualised usages of the multicultural discourse on citizenship in defining 'self', 'us' and 'others', exploring the role of social and geographical positioning within the minority group and the mainstream population in the choice of appropriate narratives.

Keywords: multiculturalism, citizenship, minority identity, integration, assimilation

Jenny Lena Kuenkel, FU Berlin. Email: jenny.kuenkel@metropolitanstudies.de;
'Pretty girls' in 'hip neighborhoods': the rehierarchization of sex work in neoliberal cities

While it is widely understood that neoliberal urban policies often strive to reduce the visibility of 'deviant' behavior such as street sex work, little attention has been devoted to the selective tolerance of prostitution as soft location factor. This paper captures the parallelism of both processes, exploring how the treatment of sex work differs according to the form of prostitution and the neighborhood in which it occurs. It presents results from case studies on the re-regulation of street sex work since German unification in two contrasting sites of a major city: a tourist night life center and a marginalized neighborhood. Drawing on semi-structured interviews with key policy actors, residents and sex workers it shows that the spatially selective approaches enforce existing hierarchies in sex work. The framing of higher class street prostitution as urban chic and of lower class street prostitution as barrier to 'development' within the logic of entrepreneurial urban politics is based on the appearance of the workers and not their working conditions. It results in an unintended preference of pimp organized prostitution compared to independent sex work.

Keywords: sex work, entrepreneurial city, soft location factor

Olaf Kuhlke, University Of Minnesota - Duluth. Email: okuhlke@d.umn.edu; *Mapping Narrative Violence: Fascist Aesthetics and White Skin in the (Re)Construction of German National Identity*

In this paper, I explore several aspects of the discursive construction of German national identity, as it has been literally and figuratively put into public place since the reunification in 1990. In many public events and youth culture festivals throughout the 1990s and into the new millennium, bodily metaphors, as textual tropes, have played an important role as genealogical modes of thought in the continuous reinscription of national myths. Here, I demonstrate with the help of several case studies (such as public parades, rock concerts, and modern German film) that bodily metaphors are still used in public discourse to create a distinct form of narrative violence and aesthetics of whiteness that conceptualize the German nation body as a distinctly racialized entity seeking to maintain its line of descent. Ultimately I am arguing here that the socio-cultural construction of German national identity never experienced the "break of 1945" that Habermas identified as the key historical juncture in the formation of collective identity. Despite the establishment of parliamentary democracy after 1945 and the celebration of "constitutional patriotism", culturally and aesthetically the legacy of the Third Reich continues to largely inform German public representations of national unity.

Keywords: nationalism, body, whiteness

Robert Kuhlken, Central Washington University. Email: kuhlkenr@cwu.edu; Ian Gray, Central Washington University. Email: grayi@cwu.edu; *The Last Straw: Residential Conversion of Irrigated Farmland in the Pacific Northwest*

The Kittitas Valley is a broad basin in the center of Washington state, where a federal reclamation district delivers water to more than 80,000 acres of irrigated farmland. After a century of experimentation, local growers now successfully market forage crops for export, primarily raising timothy hay (*Phleum pratense*), a European bunchgrass that is well-adapted to the valley's high-elevation, cool weather conditions. Overall yields respond favorably to irrigation, and the dry and often breezy summer weather provides optimum curing conditions. But a recent real estate boom caused by new arrivals looking for a place in the country indicates a significant transformation is underway. Irrigated acreage is currently being subdivided and parceled out as residential homesites, resulting in a fragmentation of the rural landscape, and an irretrievable loss of cropland and commercial pasture needed to sustain a local economy that has traditionally been based on agriculture. This poster looks at fifty years of change within a 36 square mile township, where data for 1954 and 2004 were obtained from the county assessor's office and entered into a GIS to create comparative maps of parcel configuration. Aerial photography from these same two years provides an indisputable record of land use change over the past half-century. Comparison of these data sets reveals a threefold increase in the number of parcels, a corresponding decrease in size of parcels, and a marked displacement from agricultural to residential land use. This study calls into question the effectiveness of current zoning regulations aimed at conserving agricultural lands.

Keywords: Land use planning, Subdivisions, Agricultural lands conservation, Pacific Northwest

Werner Kuhn, University of Muenster. Email: kuhn@uni-muenster.de; *Prime Space and Time*

Ontologists in geographic domains have not yet found a convincing answer to the question what primitives to adopt. In practice, many geo-ontologies use geometric primitives like points, lines, and regions, imposing an unsatisfactory representational bias. In theory, upper or top level ontologies like DOLCE and SUMO provide strong foundations, but only weak notions of location and of spatial relations. Do the so-called semantic primes that linguist Anna Wierzbicka has proposed provide a better starting point? The presentation will explore the suitability of the spatial and temporal primes proposed so far as ontological primitives.

Keywords: ontology, semantic primes for space, upper level ontologies, spatial primitives

Michael A. Kukral, Rose-Hulman Institute Of Technology. Email: Kukral@rose-hulman.edu; *The Player Piano in American Ethnic Culture 1912-1930*

The player piano was an extremely popular form of home entertainment in America during the 1910s and 1920s, the peak year of production being 1923 with over 170,000 instruments manufactured. These self-playing musical instruments coincided with a time period when first and second generation Americans from the early Ellis Island era were attaining home ownership and prosperity unknown in the 19th century. Automobiles, radios, phonographs, telephones, and player pianos were in reach of most American households and took off with suburbanization in the 1920s. The player piano was operated with paper music rolls and millions were produced of every conceivable musical form,

including ethnic or national songs. These piano rolls had lyrics printed on them for singing along and demand was high among Germans, Italians, Czechs, and Poles for lyrics to be in their native languages. From Arabic to Armenian, thousands of songs with lyrics were produced by dozens of companies on piano rolls. The quantity of titles in respective languages is an indicator of upward mobility among America's immigrant community at that time. Indeed, the player piano was the most expensive object found in most people's homes prior to the 1940s. In this paper I will discuss the player piano and its music in relation to ethnicity in America.

Keywords: music, ethnicity, America, Czech, piano, culture

Dominik Kulakowski, University of Colorado. Email: dominik.kulakowski@colorado.edu; Christian Rixen, WSL Swiss Federal Institute of Snow and Avalanche Research (SLF). Email: ; Peter Bebi, WSL Swiss Federal Institute of Snow and Avalanche Research (SLF). Email: ; *The effects of anthropogenic suppression of avalanches on the subalpine vegetation of the Swiss Alps*

Avalanche disturbances are one of the most important processes in subalpine ecosystems. Although avalanche tracks occupy a relatively small area of the landscape, they exert an important influence on the biodiversity and dynamics of subalpine forests. Over the past decades the natural avalanche regime in the European Alps has been altered by snow-supporting structures and other measures intended to prevent the occurrence of avalanches. We studied the effects of avalanche suppression on biodiversity, forest structure, and landscape patterns in the Swiss Alps. The number of herbaceous species was higher in both active and inactive avalanche tracks compared with undisturbed subalpine forest. There was no difference in the number of species in active versus inactive tracks, but the vegetation composition differed. Inactive tracks were characterized by a narrower range of ecological niches and a shift towards species that are better competitors and those adapted to lower temperatures and lower nitrogen availability. In inactive tracks, tree diameter, tree height, annual tree-ring widths, correlation of ring widths between trees, and correlation of ring-width indices with growing-season temperature were all greater than in active tracks. Suppression of avalanches also changed landscape structure. Between 1950 and 2000 patch density, edge density, and Shannon's Diversity Index of patch types all decreased. Among the major effects of anthropogenic suppression of avalanches are changes in herbaceous composition, which are likely to eventually lead to a decrease in biodiversity as avalanche tracks develop into forests, and a reduction in the natural fragmentation and complexity of landscape patterns.

Keywords: disturbance, biodiversity, landscape, Alps, subalpine forests

Ranjith Prasan Kulatilake, PhD Candidate, Faculty of Environmental Studies, York University, Canada. Email: ranjithk@yorku.ca; *'Motherland' vs. 'Homeland' - Territorializations of Space in the Neoliberal Sri Lanka*

How does the experience of globalization and modernity reframe nationalist ideologies in the production of space? How can the recent upsurge of ethno-nationalisms and the civil war in Sri Lanka be understood as a reaction to and as an accomplice of globalization, fuelled by the neoliberal economic policies introduced in 1977? This paper argues that nationalism is a social, cultural and historical phenomenon as well as a powerful means of imagining and capturing the environment as territorialized space. The projection of Sri Lanka as 'motherland' within a Sinhalese Buddhist ideology continues to alienate the non-Sinhalese, non-Buddhists, in a kind of fantasy of the mother-son relationship. The counter-ideology of the 'traditional Tamil homeland' in the North and the East of the country denotes separation from the majority ethnic group as well as marginalizing the minority Sinhalese and Muslims living in these regions. These nationalist ideologies very effectively cause communities to disintegrate both internally and between each other, allowing the bourgeoisie to re-group in a globalized world where, as Marx famously said, 'all that is solid melts into air'. Taking Sri Lanka as a case study this paper explores the unison between neoliberalism and identity politics that captures space in transforming the environment as a commodity for consumption.

Keywords: globalization, neoliberalism, ideology, identity politics, space

Christian A. Kull, Monash University. Email: christian.kull@arts.monash.edu; Haripriya Rangan, Monash University. Email: haripriya.rangan@arts.monash.edu.au; *Plant movements and ecological imperialism: the case of acacias*

Using cases from the *Acacia* genus of shrubs and trees, this paper investigates an alternative to Alfred Crosby's "ecological imperialism" thesis of the environmental history of plant movements. Crosby's narrative focused on the process of settler colonialism and the accompanying one-way onslaught of plants, animals, and organisms from Europe. The history of *acacia* transfers between Australia and other parts of the world, instead, highlight the diversity of plant flow networks - before, during, and after colonialism? and their multi-directionality. They show how the metaphor of imperialism, implying a narrative

of conquest, disruption, and domination, is inappropriate in capturing the diverse experiences surrounding the transfer of these plants and their ready incorporation into new regional economies and identities. The paper shows how different ideologies of the environment over the centuries have influenced the movements of plants and our views of this process.

Keywords: Acacia, environmental history, plant movements, Australia, Africa

Mark Kulp, Ph.D., University of New Orleans. Email: mkulp@uno.edu; Mike Miner, University of New Orleans Department of Earth and Environmental Sciences. Email: mminer@uno.edu; Luis Martinez, University of New Orleans Pontchartrain Institute for Environmental Sciences. Email: lmartinez@uno.edu; Shea Penland, Ph.D., University of New Orleans Department of Earth and Environmental Sciences. Email: spenland@uno.edu; A Lesson in Rapid Geomorphologic Change: The Impact of the 2005 Hurricane Season on Louisiana Barrier Island Systems

Three hurricanes made landfall along southern Louisiana in 2005. Category 1 Cindy made landfall in July, followed by category 3 Katrina in late August and category 3 Rita in late September. These storms caused unprecedented change along Louisiana barrier islands, clearly indicating the susceptibility of the region to tropical cyclones. Maintaining the Louisiana barrier systems is critical to preserving existing salinity gradients of the regional estuaries and providing protection to interior wetlands and communities by diminishing storm surges. In an effort to document the hurricane-induced changes and processes of change, post-storm high-resolution bathymetric surveys of several tidal inlets were compared to surveys acquired in June 2005 before the hurricanes made landfall. Within Little Pass Timbalier inlet widening of more than 1 km occurred with a redistribution of a sediment volume that was two orders of magnitude greater than the suggested annual longshore transport volume at this location. The magnitude and type of geomorphologic changes in barrier islands were additionally documented through a comparison of post-storm imagery with historical imagery. Image analyses indicates that between 1855 and 2005 the averaged rate of shoreline erosion along the Chandeleur Islands was 7 m/yr. Between 2004 and 2005 however, the average shoreline change was 200 m, within a range of 100 and 400 m. These results need to be carefully considered for management of this coastal zone, which is already subject to high rates of annual land loss that stem from limited sediment supply, land surface subsidence, and absolute sea level rise.

Keywords: hurricanes, geomorphology, louisiana, change analysis, bathymetric change

Frederik Kulpi, Free University of Berlin. Email: fkulpi@zedat.fu-berlin.de; A Summary of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change - Climate Change 2007: The Physical Science Basis

The Intergovernmental Panel on Climate Change (IPCC) has marshaled international scientific talent to define a perspective on global warming that is as close to a global consensus among scientists as is possible. This paper delivers a summary of the fourth assessment report of the IPCC in which more than a dozen modeling centers and scientists from more than 130 countries conducted long-term simulations for the twentieth century's climate and climate change scenarios in the twenty-first century. Their simulations are using output from a range of different scenarios, representing various assumptions about population increase, energy use and economic development up to 2100. The modeling centers applied an overhaul of the physical schema's to incorporate state of the art research results. The warming, however, is expected to continue. Over the last 15 years, it has been 0.2°C. The foreseeable future will be marked by rapid changes globally. One probable result in the continental climates is an increase from forests to grasslands to the present deserts extend poleward from tropical forests to extreme deserts. In the mid-latitudes, gradients toward aridity at any given latitude are, in general, across longitudes toward the middle of the continent. In the lower latitudes an increase in drought frequency and desertification is very likely.

Keywords: climate change, IPCC

Mika Kumagai, Osaka City University. Email: kumaga02@lit.osaka-cu.ac.jp; Spatial Changes in Residential Segregation, 1995-2000: A Comparative Analysis of the Metropolitan Areas of Tokyo and Osaka, Japan

This study aims to examine the structure of residential segregation in the metropolitan areas of Tokyo and Osaka. The last decade has seen a growing interest in the relationships between global economic restructuring and the social and spatial division of labor. In particular, attention has been focused on the global cities that play a key role in the control and coordination of international capitalism. Most studies on U.S. metropolitan areas have shown how globalization is affecting segregation by class within racial/ethnic groups. In Japan, especially after the period known as the economic bubble (from the late 1980s to the beginning of 1990s), global affairs have exerted direct and tangible effect on

cities via socioeconomic, cultural, and/or political means. Consequently, residential segregation has become a complex and multidimensional phenomenon. In order to examine changes from 1995 to 2000, I employed principal components analysis and k-means cluster analysis as techniques for the empirical classification of neighborhoods, using 75 variables related to occupation, age, marital relation, housing quality, labour force, and other categories collected by census data. These modes of analysis have the distinct advantage of treating proportional change as continuous. Data reduction, and thus descriptive power, is achieved by an empirical classification derived from the patterns found in the dynamics of change. An example is provided using small-area census level from 1995 to 2000. I investigate whether Sassen's social polarization thesis, in both its social and spatial aspects, also manifests in Japanese cities.

Keywords: residential segregation, geodemographics, metropolitan area, Japan

Naresh Kumar, PhD, University of Iowa. Email: naresh-kumar@uiowa.edu; Adina K Batnitzky, PhD, University of Oxford. Email: adina.batnitzky@ouce.ox.ac.uk; Urban Sprawl, Land-Use Type and Obesity/Overweight in Delhi, India

While developing countries continue to cope with the problem of malnutrition, overweight/obesity is emerging as a new burden of disease, particularly in large urban areas. Few studies have addressed the increasing influence of land-use/cover and urban sprawl on overweight/obesity. This article examines the effects of certain aspects of land-use type and urban sprawl on body mass index (BMI) in the Delhi Metropolitan area, which has reported the highest prevalence of overweight/obesity among adult women in the country in recent years. A survey was administered between January and April 2004 to collect data on BMI, SES, and demographic indicators. Data on land-use were estimated using remote sensing satellite imagery, and distance from the city center was used as a proxy of urban sprawl. The analysis of the data indicates that the average BMI is slightly over the normal range, and per capita household expenditure, male specific access land use type and urban sprawl all show a statistically significant relationship with BMI. While a positive association of BMI with SES is contrary to that observed in developed countries, its positive relationship with access to green spaces and urban sprawl is similar to what is being reported in developed countries. This finding suggests that the process of urbanization and scarcity of open spaces coupled with longer commuting times are likely to contribute to the rise in overweight/obesity in the rapidly growing megacities in developing countries unless public health measures are adopted to check this growing epidemic.

Keywords: Land-Use Type, Obesity, Urban Sprawl, India

Naresh Kumar, University of Iowa. Email: n_kumar17@yahoo.com; Allen Chu, NASA. Email: achu@climate.gsfc.nasa.gov; Andrew D Foster, Prof., Brown University. Email: Andrew_Foster@Brown.edu; Air Quality Estimate in Delhi from Satellite Remote Sensing: Retrieval and Validation

Advances in atmospheric remote sensing offer a unique opportunity to compute indirect estimate of air quality. The present research examines the relationship between aerosol optical depth (AOD) using MODIS data at 5 and 10km spatial resolutions and the mass concentration of fine particulate matter (PM) of the size less than 2.5µm and 10µm in aerodynamic diameter (PM2.5 and PM10, respectively) recorded on the surface during October-November 2003 in Delhi, India, where a series of environmental laws has been instituted in recent years. PM2.5 and PM10 data were collected from July-December 2003 using passive samplers (Met One Inc.) at 113 sites in Delhi and its surroundings. Using radiative transfer model, AOD at 5km spatial resolution were computed from MODIS data and 10km AOD were acquired from NASA. AOD values were then collocated with PM2.5 and PM10 data within ± 150 minute window of the overpass time of EOS Terra at an interval of 15 minutes. Our analysis indicates a strong positive relationship between AOD and PM2.5 after accounting for the effect of relative humidity and sea level pressure; one percent change in AOD explains 0.52±0.202 and 0.39±0.15 percent change in PM2.5 within 45 and 150 minutes intervals of overpass time of EOS Terra, respectively. This relationship will be used to compute air pollution surfaces for back years, which will pave the way to study the time-space dynamics of air pollution in Delhi triggered in response to recent air quality regulations, and its effect on respiratory health.

Keywords: AOD, Air Quality, Air Pollution, Delhi

Sanjeev Kumar, Department of Geography, University of Georgia, Athens. Email: skumar@uga.edu; Constructing Transnationalism: A case of the Indian Immigrants in the United States

The concept of transnationalism suggests that today's immigrants simultaneously occupy the social/ political/ cultural or the economic space of both their host and the source nations, thereby creating a web of linkages through which an individual produces and sustain his/her dual livelihood. While there has been considerable theoretical research in conceptualizing and defining

transnationalism, there is a growing need to document practices and activities associated with the everyday lives of immigrants that provides empirical evidence of transnationalism. We also need to examine the ways in which immigrants “become” transnationals in terms of negotiating their identities as inhabitants of more than one state, and how this process has changed over time. The present paper examines the case of the Asian Indian immigrants to the US. It uses oral narratives to explore the lives of the five Indians who immigrated to Athens, Georgia at different points in time, and demonstrates how the practice of transnationalism has changed over time. It also traces the various factors which have facilitated/inhibited transnational identity formation in different generations

Keywords: Transnationalism, Immigrants, Indian, narratives

Mark Kumler, University of Redlands. Email: mark_kumler@redlands.edu; Nathan McCall, University of Redlands. Email: ; A New World Map Projection onto an Irregular Polyhedron

Using polyhedral approximations of the globe for the purpose of creating map projections is not a new concept. The implementation of regular and semi-regular polyhedra has been a popular method for reducing distortion. However, regular and semi-regular polyhedra provide limited control over the occurrences of the interruptions in the “unfolded”, flat maps that are produced from this process. This paper presents a method for using irregular polyhedra to gain more control over the placement of the interruptions while maintaining the reduced distortion quality found in polyhedra projections. The method presented here uses irregular polyhedra based on gnomonically projected Voronoi partitions of the sphere.

Keywords: cartography, map projection, world map,

Daniel M Kunches, Hunter College. Email: dkunches@hunter.cuny.edu; A Slippery Slope up the Mountain: The Role of Neoliberalism in a Highway Bypass Project around Sonora, California

In the early 1980's a highway bypass was approved and constructed around the foothill town of Sonora, California, expediting the commute between the San Joaquin Valley and the Sierra Nevada Mountain Range. This expository study examines the spatio-temporal context in which the bypass came to fruition. Originally proposed by a lumber magnate in the early 1960's, the bypass project remained controversial for twenty years amongst the townspeople. Concerns addressed adverse effects they anticipated on the landscape, and on centrally located businesses which had traffic funneled to them by the existing Highway 120 through Sonora. Following construction of the bypass, development uphill from Sonora has exploded, which can be seen by a simple visit. What is examined in this study is the emerging neoliberal condition of the early 1980's that fostered approval of the bypass after twenty years of stagnation, subsequently realizing many of the concerns people had. The method being used is to look at the intersection of the contextual framework of landscape morphology in the Sierra Nevada, with the theoretical framework of neoliberalism as it was proliferating in the early 1980's. The necessity of neoliberalism to compress space and time in order for capital to flow more fluidly, along with its disregard for environmental time, created a soft spot in opposition to the bypass. This soft spot, buttressed by the inherent natural aesthetics of the High Sierra, contributed to the compression space and time through a highway bypass.

Keywords: mountain geography, neoliberalism, Sierra Nevada

Chijeng Kuo, Tunghai University, Taiwan. Email: Kuo.chijeng@fulbrightweb.org; Emergence, Diminishing and Reemergence-A Case Study of Spatial Representation of Shanghai's Middle Class, 1920s-1990s

From feudalism, capitalism, socialism and then to post-socialism, Shanghai has experienced a distinctive path in urban development. In terms of social structure, the distinctive path also manifests itself by the emergence, diminishing and re-emergence of the urban middle class. The article proposed to focus on the correspondence between the production/ transformation of housing and the changing social relationship and to visualize the dialectical relations within them. The article propose to transcend the usual analysis of urban built forms in two ways: by showing that specific choices matter less than some esthetic outlook in general, and by showing, moreover, that the acquisition of an esthetic outlook not only manifest specific class prestige but help to keep the lower orders in line. Therefore, varieties in housing form and the diversified usages of them were presumed to be the aesthetical representation for social distinction. A specific district within Shanghai's French Concession which could feature the emerging middle class with so-called the 'middle landscapes' of the 1920-30s would be chose for case study first. Due to spatial practice of Building By-laws, zoning regulations, and the revitalization/renovation permissions are appealed to a powerful state invariably, in this article housing and the aura of specific district were regarded to be the cultural forms of space which were the outcomes not only of social distinction and cultural competition, but also of state's intervention. Through analyzing different spatial forms of different governance, the transfor-

mation of housing assumed to be the representations of changing social relationship within state's capacity.

Keywords: post-socialism, social distinction, middle class, gentrification, state intervention

Hilda E Kurtz, University of Georgia. Email: hkurtz@uga.edu; Critical race theory in action? Looking ahead at environmental justice research

This paper explores the contribution that critical race theory (CRT) can make to environmental justice research in geography. Critical race theorists challenge racial hierarchies by exposing the social constructedness of race in law and other social arenas. CRT analyses of differential racialization and the intersection of overlapping identities and allegiances offer environmental justice researchers powerful means to conceptualize superficially distinct forms of environmental injustice. At the same time, geographers can contribute to CRT with close attention to the role of a socio-spatial dialectic in the social construction of race.

Keywords: environmental justice, critical race theory

Matthew Kurtz, Open University. Email: m.a.kurtz@open.ac.uk; Subjects of a Visual Economy: A home-economics teacher, her photos, and a friendship in the postwar Arctic

Deborah Poole and Christopher Pinney have introduced the phrase “visual economy” to histories of photography. Eschewing the concept of a visual culture, they suggest that analyses of “visual economies” can better help us understand the circuits and flows of visual materials which enroll people in dispersed relations of meaning, power, and inequality. This paper fleshes out this concept through a study of the unpublished journals and photos of Gladys Knight Harris. Upon her retirement from teaching home economics in California after World War II, Harris headed north as a newly trained photographer. In April 1949 on the northwest coast of Alaska, she began a five-month community documentation project, taking thousands of stunning photographs of the work of Inupiaq Eskimo women. While these images were never published, they challenge traditional visual practices through which select activities are brought into accounts of “the economy”: business receipts, ledgers, statistics, etc. By making the domestic work of women in the Arctic visible, Harris offered a feminist challenge to mainstream economic institutions. But her journals also trace a growing friendship with a young Inupiaq woman named Clara who, for several months, declined to be photographed. I suggest that Clara's reticence may mark a difficult postcolonial tension. That is, in making her work visible, Harris, the camera, and its film also made her subject to the terms of an American visual economy, enlisting Clara in an unequal - and potentially imperious ? process of colonial subject formation through such institutions and relationships between things and people.

Keywords: photography, economy, arctic, postcolonialism

Merje Kuus, University Of British Columbia. Email: kuus@geog.ubc.ca; Discreet militarism: intellectuals and war in Estonia

This paper investigates how militarization — the process by which militarism gains popular and elite acceptance — functions in the making of geopolitical subjects with particular interests and identities. It focuses on how intellectuals participate in this bundling up of militarism and subjecthood. I highlight the discreet, banal, and mundane intellectual practices that legitimize and glorify military force. I argue that most militarization happens in what is labeled as peacetime. It happens not simply in the defence ministries but, more importantly, in schools, cultural organizations, and various other institutions of the civil society. We thus need to be attentive to how military violence is legitimized outside the formal state arena. The empirical examples focus on Estonia. In that country, asserting sovereign geopolitical subjecthood has been is a policy priority throughout the post-Cold War era, and the promotion of military force has been central to this project. We thus have the seeming paradox that Defence Education was instituted as an elective in high schools in 2000, the same year that the National Security Concept declared Estonia to be under no foreign threat. I will argue that the militarization of political life is a part and parcel of Estonian intellectuals of statecraft learning the practices of geopolitical subjecthood. The process operates not only through a top-down execution of state power, but also through diffuse and disparate practices throughout the civil society.

Keywords: state, militarism, subjectivity

Anna-Kaisa Kuusisto-Arponen, PhD, University of Tampere, Department of Regional Studies, Finland. Email: anna-kaisa.kuusisto@uta.fi; *Fractions in the sense of place: the experiences of Karelian evacuees and war children in Finland*

In my post-doctoral research I focus on identity politics, and sense of place in the context created by the Second World War in Finland (1939-1945). I focus on two particular groups of war-time Finland: Karelian evacuees and “war children”. In result of the Continuation War, Finland had to cede areas to the Soviet Union. Therefore, more than 430 000 evacuees, most of which from Karelian district, were forced to leave from their home region and settle within the boundaries of the newly defined Finnish territory. In the course of the war more than 80 000 Finnish “war children” were sent to foster families in Sweden, Denmark and Norway. Empirical material for this research is gathered through 60 in-depth interviews. The data collection was conducted in 2005-2006. Currently these “war time children” are approximately 70 years of age. For several years they had to be silent on their experiences. Interest on studying war-time experiences has grown among several academic disciplines. Moreover these war-time children are nowadays more willing to recall and speak about their childhood experiences than decades ago. Particularly, I analyse and compare the mechanisms of place bound identification processes of Karelian evacuees and “war children”, and assess the importance of age in the formation of spatial identity. Studying spatial identity politics can offer new insights and tools to understand and reflect the behaviour of human communities in the times socio-political crises. This research also contributes to the “discursive map of Finnish identity politics.”

Keywords: Political geography, Second World War, sense of place, Karelian evacuees, war children, Finland

Elena Kuznetsova, . Email: jennifer.giglio@wilsoncenter.org; *Problems And Perspectives Of Urals Region Transport Infrastructure Development In The Conditions Of Expansion Of The Business Links*

In the situation of expansion of the business links the role of infrastructure, especially transport infrastructure, increases. For the Urals Region, which is situated in the middle of Russia, just on the board of Europe and Asia, this fact is a possible signal for development its transport infrastructure for to be ready for increasing volumes of goods flows and quality services. Of course, there are the real and attracting perspectives of this tendency: the increasing of turn-over of trading, the amount of working peaces, etc. There are some problems, which ought to be solved at the nearest time on the level of the Yekaterinburg city, the government of the region (Sverdlovsk oblast), the Urals Federal district. The administrative bodies of those territories ought to be strategic thinking ones for to forecast

Keywords: transportation infrastructure, Urals, Russia

Min-Jung Kwak, University of British Columbia. Email: mjkwak@shaw.ca; *Immigrant Entrepreneurship and the Role of NGOs in the Era of Neo-liberal Governance*

Since the 1980s, the arrival of neo-liberal capitalism and the contraction of the welfare state have had notable impacts on immigration policy and urban governance in Canada. Canada's intake for those with human capital and/or business skills and financial assets has increased. By the late 1990s, the annual ratio of economic class immigrants and their dependants has surpassed those coming under family or humanitarian programs. At the local level, the shift towards more entrepreneurial and innovative modes of governance has influenced the ways in which immigrant service organizations operate. Drawing upon a case study of SUCCESS, particularly its Business Development and Training Centre, in Vancouver, this paper examines how the immigrant service agency has become more innovative in assisting immigrant clients and engaging itself with new opportunities in the market economy. I argue that a one-dimensional critique of neo-liberal governance and its impacts on the NGO sector, and immigrants more generally, needs to be reconsidered.

Keywords: Immigrant Entrepreneurship, NGOs, Neo-liberalism

Youngsang Kwon, SUNY - Buffalo. Email: ykwon2@buffalo.edu; *Spatial distribution map of rare species in NY State using spatial interpolation*

Plants are indicators of the quality of the environment. Especially, rare plants, their populations are often important reserves of genetic diversity of the species as a whole and should be protected. Although there is usually a lack of complete information about the complex interactions within specific ecosystems to predict which plants are expected, it is purpose of this study that to develop methods of distribution map of rare species using spatial interpolation. Forest Inventory and Analysis (FIA) data in 1993 were collected. And importance values (IV) of each species on the given plots are calculated to select rare species. The IV is calculated as the average of % abundance (number of species divided by total number of trees) and % dominance (species basal area/ total basal area). In advance of developing methods of creating distribution map, it is important to

explore spatial pattern of sampling sites which should cover the entire forested area. In classical sample-based inventories, it is assumed that individual samples are randomly selected from the population. In deducing the results for the sampled population, the spatial location of the samples is often ignored. Spatial distribution of the rare species in New York State is then expected to be modeled using technique called Sequential Gaussian Conditional Simulation (SGCS). SGCS is used to characterize spatial distributions and to produce estimates of variables at unsampled locations. This mathematical model is then used in a procedure known as kriging to help estimate values for variables at unknown locations.

Keywords: rare species, Sequential Gaussian Conditional Simulation, Kriging, Importance Value

Päivi Kymäläinen, University of Turku. Email: paivi.kymalainen@utu.fi; *Temporary Places of Urban Visuality*

Geography has been regarded as a visual discipline, whose task is to make present something that is absent for spatial or temporal reasons. However, recent conceptual discussions in human geography have posed many challenges to the ideas of visibility. In current interpretations, concepts such as place and space have often been regarded as processes or events instead of seeing them as fixed things or structures. This conceptual change has had only some influence on visual geographies. Despite some efforts to diversify the ways of understanding visibility, visual questions are still often marginalized as being too old-fashioned, masculine or objectifying. This paper asks how places of processes, events and rhythms have so far entered the discussions on urban visibility. My argument is that utilizing recent conceptual changes requires noticing that urban places are only contextually visual: that visibility is all the time re-invented through temporary uses and meanings. My reading of urban visibility is inspired by the Derridean interpretation of chora, in which chora refers to half-way-places that are marked by discontinuity and momentary meanings. Furthermore, in my paper I illustrate the ideas of visual re-inventions and temporary meanings with two examples from European cities.

Keywords: urban geography, visibility, place, chora

Alain L'Hostis, INRETS LVMT. Email: lhostis@inrets.fr; *Metropolisation, high speeds and global space: from time-space shrinking to time-space shriveling*

For a world city, the metropolisation process supposes the development of high speeds, with a priority on air transport but also including high-speed rail and motorways, to reach the other metropolises on a global scale. This is why high speed transport systems play a major role in the development of large urban agglomerations. Nevertheless, if high speed networks continue to develop, previous lower speed networks still exist. In order to represent time-space, geographers usually refer to the idea of a shrinking world, following the development of transport systems and the increase in speed. Nevertheless, if a shrinking movement can be observed in a historical perspective, the deformation of time-space by fast transport modes is not correctly rendered by this principle alone. Indeed, some links are fully concerned by this evolution while the rest of time space remains characterised by slowness. The cartographic representation of a crumpled time-space was introduced by Mathis and L'Hostis in 1997 to show the differentiation of space produced by the co-existence of fast and slow transport modes. Coming after a series of applications at regional and national scales on European cases with ground transportation modes only, the object of the present paper is to develop this method at the global scale with air mode as the fastest way of travel. We propose to build the metaphor of a ‘shrivelling’ time-space. The terrestrial globe would become a ‘passion fruit’ or a ‘chestnut’ with larger global cities gaining an upper visible position while all the remaining space would be rejected.

Keywords: metropolisation, high speeds, time-space representation, shrinking, shriveling

Mazen Labban, University of Miami. Email: mlabban@miami.edu; *The dialectics of imperialism: the struggle with Iran, the struggle for Iran*

The current standoff between Iran and the self-appointed trustees of the “international community” over Iran's nuclear energy program is an inter-imperialist rivalry for Iran as much as a collective imperialist confrontation with Iran. Despite the attempt to produce the conflict as one between the “international community”, and sometimes “the west”, and Iran, the conflict appears increasingly to focus on the inability of the five permanent members on the UN Security Council and Germany to reach a resolution regarding sanctions on Iran, betraying disagreements and squabbles within “the west” (between the US and its European “allies”) and within the “international community” (between the west on one side and Russia and China on the other). The disagreements in the west have increasingly revolved around how to secure China and Russia's agreement to the sanctions proposed by the US—indeed, Russia and China appear at times to be the object of some of the sanctions campaigned for by the US. The concern about Iran's nuclear energy goes farther than the imagined and exaggerated security threats. What is at stake is what US Secretary of State Rice recently

referred to as the credibility and the authority of the international community in the face of Iran's defiance—in other words, the coherence and effectiveness of the collective imperialism of the west in the face of inter-imperialist conflicts emanating from new rivals in Asia and of the challenges emanating from the South.

Keywords: collective imperialism, inter-imperialist rivalry, geopolitics, Iran

Martin Lacayo, BA, Department of Geography, San Diego State University. Email: lacayo@rohan.sdsu.edu; *Integrating Self-Organizing Maps and GIS*

Data are now produced and stored at unprecedented volumes. Converting the resulting abundance of data into useful information and relaying it in a manner that conveys meaning is a persistent problem for computational cartographers. One approach to this challenge takes advantage of the human vision system by spatializing inherently non-spatial information and representing it using a Geographic Information System (GIS). The self-organizing map (SOM), or Kohonen map, is one such spatialization technique that uses an artificial neural network to represent complex data in 2-dimensional space. The SOM begins development in a training stage where data, which has been tokenized into attributes and normalized for counts, scales the interconnectivity between neurons. Once the training stage has been finalized the SOM can "map" the training data or any data based on the original attributes on which it was trained. This paper presents an integration of SOMs and GIS. The main goal of integration is to leverage the tools that are present in a GIS so that data analysis and visualization are more robust. The paper discusses in detail the methodology and implementation of this integration using a module written in the Python language for the computation and visualization of SOMs. Methods for applying standard GIS tools to SOMs, as well as the use and significance of specific features of the module are explored.

Keywords: GIS, self-organizing map, Kohonen map, spatialization, visualization

Matthew C. Lacke, University of Georgia. Email: mlacke@uga.edu; John A. Knox, University of Georgia. Email: john_andrew_knox@yahoo.com; John D. Fyre, University of Georgia. Email: jdfyre@uga.edu; Alan E. Stewart, University of Georgia. Email: aeswx@uga.edu; Joshua D. Durkee, University of Georgia. Email: jdurkee@uga.edu; Christopher M. Fuhrmann, University of North Carolina. Email: fuhrman1@email.unc.edu; Sarah M. Dillingham, University of Georgia. Email: tuxy01@uga.edu; *A Climatology of Non-Convective Wind Storms Across the Great Lakes Region*

A first-ever regional climatology of cold-season non-convective wind events (NCWEs) for the Great Lakes region has been created. These events are of importance because NCWEs can cause more deaths and/or damage on a yearly basis than tornadoes, hurricanes, or convective storms. This climatology uses hourly wind data for 38 first-order weather stations throughout the Midwest and Great Lakes regions over the months of November–April for 1951–95. The data were analyzed in terms of the two National Weather Service (NWS) criteria for a high wind watch or warning: sustained winds of at least 18 m s⁻¹ for at least one hour and a wind gust of at least 26 m s⁻¹ for any duration. The results indicate a pronounced southwest quadrant directional preference for non-convective high winds in this region. Between 70% and 76% of all occurrences that satisfied the NWS criteria for NCWEs were associated with wind directions from 180° through 270°. Within the southwest quadrant, the west-southwest direction is preferred, with 14–35% of all NCWEs coming from this particular compass heading. This directional preference is borne out in five out of six stations with high occurrences of cold-season NCWEs (Buffalo, NY; Dayton, OH; Lansing, MI; Moline, IL; Springfield, IL). Given the geographic spread of these stations, a non-topographic cause for the directional preference of cold-season NCWEs is indicated. The connection between NCWEs and low pressure systems found in this climatology and in case studies suggests that mid-latitude cyclone dynamics may be a possible cause of the directional preference.

Keywords: climatology, non-convective wind, Great Lakes

Michael Lackner, University of Toronto - Mississauga. Email: mike.lackner@utoronto.ca; *Use of Ancillary Data in an Object-Oriented Classification of Urban Land-Cover*

A major challenge in classifying urban land cover is the high level of spatial heterogeneity that exists in urban areas. As a result, pixel-based classification approaches are often limited in their ability to accurately classify such complex landscapes. Object-oriented classification techniques, which take into account shape, textural, spectral and contextual information, may represent a better way to generate detailed urban land cover classifications. However, differentiating between roads, buildings and other impervious surfaces can still be challenging in an object-oriented approach. This study completed an object-oriented classification of urban land cover in a southern Ontario landscape, using Ikonos imagery.

The initial image-based classification was compared to two other classifications that included ancillary data representing building footprints and road-centerlines. In each of the three classifications, 17 land-cover classes, including five different building types, were extracted. A complete accuracy assessment was conducted and differences between the three classifications were explored using statistical and pattern metrics. The overall accuracy of the classifications ranged from 68% to 80%, with the classification that included the ancillary road-centerline data having the highest accuracy. A discussion of the benefits and limitation of ancillary data in an object-oriented classification will conclude the presentation.

Keywords: object oriented classification, remote sensing, urban, land cover, high resolution imagery, Ikonos, ancillary data

Steve LaDochy, California State University Los Angeles. Email: sladoch@calstatela.edu; William C Patzert, JPL, NASA. Email: wpatzert@pacific.jpl.nasa.gov; Josh Willis, JPL, NASA. Email: jwillis@pacific.jpl.nasa.gov; *Teni Mardirosian, Glendale City College. Email: ; *Impacts of Moving the Los Angeles Downtown Weather Station**

In August 1999, the National Weather Service (NWS) moved the official downtown Los Angeles weather station to the USC campus, almost 6 km to the southwest of its previous location near city center at the Department of Water & Power (DWP). This move resulted in a significant change in weather records which could influence climatic studies of the city. A comparative study of daily temperatures and precipitation recorded at USC and DWP since the move clearly shows a significant decrease in both temperatures and precipitation. For the 1999–2006 record, maximum temperatures averaged 1.00C (1.80F) higher at DWP, but nearly the same for minimum temperatures (mean values being 0.50C or 0.90F higher at DWP). Greatest temperature differences between the two stations occur in late summer and early fall, while the winter records showed the least differences. Precipitation at USC for the study period averages about 1" (25.4 mm) less than the DWP location. The wettest year on record was also eliminated by the move, while several recent temperature records occurred during a heat wave in July 2006, which were also impacted by the move. Not only was the move relatively far (moving nearly a third the distance to the coast), but it also was greatly altered in land use. The USC weather site is in a grassy, treed environment, while the original downtown location lacked vegetation. The move has produced a discontinuity in the station record and may not represent the downtown environment.

Keywords: climate, urban

Charles W. Lafon, Ph.D., Texas A & M University. Email: clafon@geog.tamu.edu; Jennifer A. Hoss, Texas A&M University. Email: jhoss@geog.tamu.edu; Henri D. Grissino-Mayer, Ph.D., University of Tennessee. Email: grissino@utk.edu; Georgina DeWeese, University of Tennessee. Email: gwright@utk.edu; *Fire History and Forest Stand Dynamics of the Narrows Preserve, Peters Mountain, Virginia*

Fire activity in the Appalachian Mountains declined following the initiation of effective fire prevention and suppression tactics during the mid-twentieth century. Much of the landscape is covered with vegetation, e.g., oak and pine forest, that is thought to have developed under a regime of frequent burning. Currently, the abundance of fire-associated vegetation is decreasing as fire-intolerant species encroach. For this research, we use dendroecological (tree-ring) analyses to reconstruct fire history and explore successional dynamics of oak-pine forests on Peters Mountain in The Nature Conservancy's (TNC's) Narrows Preserve, Giles County, Virginia. The preserve contains the only known population of Peters Mountain mallow, a fire-dependent herb that is endemic to Peters Mountain. The mallow population declined precipitously during the era of fire suppression, and TNC has initiated a regime of prescribed burning to attempt to restore the species and its habitat. Fire scars that we collected from pine trees growing on Peters Mountain indicate that 33 fires occurred between 1867 (the first year with fire recorded on = two trees) and 1972 (the year of the last fire). The shortest fire-free interval recorded was 1 year, and the longest was 13 years. Fitting a Weibull distribution to model the fire-free interval data resulted in a Weibull Median Interval of approximately three years. Age-structure data suggest that stand dynamics over the last 150 years have been influenced by changes in fire regime and land use. Our results suggest that in the past, frequent burning maintained chestnut oak-dominated forest with suitable mallow habitat.

Keywords: fire, fire history, Appalachian Mountains, Virginia, forest dynamics

Martin Lafrenz, Portland State University. Email: lafrenz@pdx.edu;
Working With Middle School Science Students to Conduct Stream Channel Assessment

This project tests the accuracy and repeatability of visual stream channel assessments conducted by community volunteers and middle school science students from the Reynolds School District in Troutdale, OR. In the fall of 2006, a stream reaches in the Fairview Creek watershed, in east Multnomah County, was surveyed by the principal investigator (Lafrenz), using standard scientific stream channel survey techniques and equipment, in order to characterize stream habitat condition. The same stream reach was surveyed by two different middle school science classes and community volunteers, using similar geomorphic assessment techniques. This project seeks to establish whether stream condition, as determined by the middle school students, is similar or dissimilar to the condition quantified by the PI, as well as to test whether their visual assessments are similar or dissimilar to each other. The stream reach will be re-surveyed by each middle school class in the winter and spring of 2007 and by the PI in spring 2007 to quantify any changes in stream habitat condition during the study period and to test if the students' assessments detected similar changes in stream channel condition.

Keywords: fluvial geomorphology, geomorphic techniques, science education

Magnus Lagerholm, . Email: magnus.lagerholm@kultgeog.uu.se;
Localised learning in a mature regional industry - the case of light metal industry in southern Sweden

Shifting economical circumstances makes it significant to understand the processes of innovation and learning that makes it possible to successfully renew key assets and capabilities within mature regional industry. Recent research in firm clustering and agglomeration indicates that regional specialisation in particular industries has come to be regarded as advantageous in the context of globalisation and competitiveness. This paper focus on a mature agglomeration of light metal companies in the south of Sweden. Within the region approximately 300 companies manufacture products made of light metal, even though there is no raw material present. The agglomeration is studied through a questionnaire, interviews with companies and officials, and an analysis of detailed register data. The paper shows that there are several mechanisms that could help explaining the learning and innovation process of the agglomeration. This is done by focusing on three issues that is important for knowledge creation and diffusion, that also contributes to the creation of trust and embeddedness between the firms in the region. The first issue is about relations and linkages among the companies, both business linkages and more informal connections. The second issue shows that a regional identity is a part of the companies' creation of trust and embeddedness. The last issue examines the labour market mobility and its impact on firms' knowledgebase.

Keywords: economic geography, innovation systems, knowledge, clusters, Sweden

Clement K. Lai, Ph.D., Cornell University. Email: ckl28@cornell.edu;
The Fall Of The Fillmore District: Socio-Spatial Differentiation And Urban Renewal In A Multiracial Neighborhood

In the mid-20th century federal urban renewal or redevelopment policies destroyed neighborhoods bordering downtown metropolitan areas in the name of battling urban crisis and blight, displacing residents (largely of color) by the thousands and effectively erasing their neighborhoods from the landscape. One such targeted area was San Francisco's Western Addition district, a multiracial and multiethnic neighborhood containing the city's largest African American and Japanese American communities. Although redevelopment supporters (or imagineers) targeted both communities for redevelopment and designated their spaces as blighted, the outcomes of this spatial policy in the two communities were not the same. This paper examines the attempted erasure of Japanese Americans and African Americans from the Western Addition's landscape and draws from Ethnic Studies and urban geography to argue that the different outcomes in these two communities were the result of a spatialized 'racial triangulation' or socio-spatial differentiation. I examine particularly the completed development of the Japan Center and Nihonmachi Mall in Japantown and the failed development of the Fillmore Center in the African American part of the Western Addition to argue that imagineers evaluated Japanese Americans and their spaces in terms of mid-20th century Orientalism and perceived African Americans and their spaces as disordered and requiring displacement. In other words, these two racially marginalized communities were differentially positioned or 'triangulated' in terms of property and the redevelopment process.

Keywords: Japanese Americans, African Americans, urban renewal, San Francisco, racial triangulation

Karen Lai, University of Nottingham. Email: lgxpyl@nottingham.ac.uk;
Systems, power and practices: The building of financial markets in Shanghai

Whether as an idea(l), a system or as economic practice, markets lie at the heart of capitalist societies but they remain one of the most elusive concepts within social sciences. This paper opens the black box of 'markets' by scrutinizing the process of market formation and examining its complexities. The development of Shanghai as an international financial centre can be seen as part of a global process servicing finance capital but this conceals the complex reasons behind why such processes are taking place in Shanghai and at a particular point in time and space. The process of market-making in Shanghai and the actors involved are also spread across scales and much of what is happening within the city is determined by economic, social and political considerations elsewhere on the national, regional and global level. The financial markets in Shanghai are framed, understood and acted upon differently by the Shanghai municipal government, the central government in Beijing, and foreign financial institutions in Shanghai within the wider context of their global operations and strategies. Transnational interests and roles of organisations such as the WTO and other financial centres such as London will also be considered. The construction of a financial centre in Shanghai is thus not only an outcome of its own historical context, economic advantages and development trajectory but also intrinsically bound up with the interests and decision of other agencies acting across spatial scales and negotiated amidst conflicts of interests and power struggles.

Keywords: Markets, financial centres, power

Shih-Kung Lai, Department of Real Estate and Built Environment, National Taipei University. Email: lai@mail.ntpu.edu.tw; Interaction between Social and Physical Structures in Urban and Rural Post-disasters Recovery Systems

The objective of the research is to investigate how large scale disasters affect the urban development process in terms of the interaction between social and physical structures and what we can do with it organizationally and institutionally. There is a sea change in modeling urban development from a top-down to bottom-up approach. This new approach takes into account individual spatial behaviors and their interaction to form the emergent urban development process. One of the innovative models of urban development is the spatial garbage can model (SGCM). The SGCM provides a powerful descriptive framework to understand how decision makers, decision situations, problems, solutions, and places interact and how decisions emerge that affect the urban development process. The implication of the SGCM is so rich that it can be applied to explain how the urban development process reacts to large scale disasters viewed as the external disturbances to the system. Grounded on the SGCM, the research constructs a conceptual model of urban development, describes qualitatively how the urban development process in terms of the interaction between the social and physical structures is affected by the external disturbances, and derives hypotheses regarding how recovery strategies and protection plans can be made to restore the functioning of the urban system effectively. Two tentative hypotheses are constructed and examined using the case of Hurricane Katrina: 1) decentralization of decision making is more effective than centralization and 2) resources should be allocated to the nodes of a social-physical network with the most intensive connectivity.

Keywords: spatial garbage can model, complexity, disaster recovery

Gita J. Laidler, University of Toronto. Email: gita.laidler@utoronto.ca; Cultural geographies of sea ice use around Baffin Island, Nunavut

Sea ice, covering Canada's northern oceans for six to eight months of each year, has figured prominently in natural science investigations. This ocean ice cover also plays an integral role in the daily life of Inuit communities. However, there is a general lack of interaction between scientists and Inuit to learn from each other about this dynamic and influential component of the marine environment. My doctoral research aimed to learn about Inuit relationships with, and expertise on, the sea ice environment by working collaboratively with three communities around Baffin Island (i.e. Pangnirtung, Cape Dorset, and Igloolik, Nunavut). Four (4) field research trips were undertaken in various stages of sea ice freezing and decay, between 2004 and 2005. Various participatory methods were incorporated, such as semi-directed interviews (including participatory mapping) (84), focus groups (4), and experiential sea ice trips (14). This presentation will outline a subset of the overall findings, with specific emphasis on the uses of sea ice around these Inuit communities. Therefore, cultural geographies of sea ice will be discussed within a regionally comparative context, regarding: i) dangers associated with sea ice travel; ii) means of evaluating ice safety; and, iii) sea ice conditions employed for marine mammal hunting. Improving our understanding of local sea ice use can aid in evaluating the potential implications of sea ice change within a northern community context. It also highlights several key areas of interest that may provide a common focus

for both scientists and community members to begin working together more effectively.

Keywords: sea ice, Inuit knowledge, Nunavut, hunting, travel

Christopher R. Laingen, Kansas State University. Email: claugen@yahoo.com; Anne Donovan, Kansas State University. Email: donovan@ksu.edu; David Koch, Kansas State University. Email: dkoch@ksu.edu; Sumanth Reddy, Kansas State University. Email: iamindiansumo@yahoo.com; Jacob Sowers, Kansas State University. Email: jsowers@ksu.edu; Richard Marston, Kansas State University. Email: rmarston@ksu.edu; *How Much Do Geographers Collaborate?*

Collaboration has become more common, with research collaboration taking place both between and within disciplines, especially when tackling complex issues. Geography is a diverse field, which makes it a good one to use to study collaboration and collaboration issues. Multiple research methods were used to examine temporal, interdisciplinary, and perceptual changes in collaboration. Data from the Web of Science citation index, using co-authored or multi-authored citations after 1989, were used to summarize temporal patterns of interdisciplinary and intradisciplinary collaboration. Surveys were sent to over 450 geographers, with 108 replies. Respondents were asked to self-report the amount of collaboration as a portion of their total peer-reviewed publications, along with identifying the disciplines with which they collaborated. Respondents were also given the option to provide a brief narrative where collaboration was critical in leading to new understanding in the problem they were investigating. Information from the narrative and interviews was coded using the software program NUD*IST. Most disciplines have had increased levels of collaboration, but the amount of collaboration between Geography and other disciplines has increased at a greater rate than other disciplines. Within Geography it appears that people tend to collaborate more closely among related sub-disciplines. Common themes regarding pros and cons of collaboration were evident in the qualitative data.

Keywords: collaboration, qualitative, quantitative

Sharla Beth Lair, Florida State University. Email: lalair@yahoo.com; *Evaluation of the Compatibility between Applied GIS Program Curricula and Requirements of Potential Employers*

Master's programs designed specifically to provide students with training in Geographical Information Science (GIS) are increasing in the United States. Curricula of these programs are dictated by several factors, including availability of resources, faculty training, as well as requirements of potential GIS employers. The objective of this research is to determine if there is a difference between the education students are receiving and the expectations of employers. We address this question through a series of interviews with: (1) students currently enrolled in applied GIS programs, (2) recent graduates of applied GIS programs, and (3) employers who have hired recent graduates. This paper evaluates whether skills acquired through training provided by applied Master's GIS programs are compatible with what employers are looking for in potential employees. It also assesses whether or not these programs are meeting the students' expectations.

Keywords: GIS education

Adam Lake, University of Oregon. Email: alake@uoregon.edu; *Maghrebins in Marseille: Mapping Activity Spaces and Urban Territoriality*

North African immigrants, commonly referred to as Maghrebins, are the fastest growing population in France. The segregation of this population is a hotly debated topic, especially in light of the assimilation-based French immigration policies. Research in Paris and other northern cities indicate that the Maghrebins are concentrated in the suburbs of the cities. They are physically on the fringe of those cities in the same way the people are on the fringe of society. Marseille is different. The city does not follow the traditional French layout of concentric circles and a large percentage of the people that live in the center of the city are immigrants from North Africa. Yet existing research focuses primarily on Paris and other cities that are more traditionally "French." This paper discusses the results of my research in Marseilles mapping activity spaces of North African immigrants compared to ethnic French. Comparison of which public spaces are used or avoided by each group provides insight into the level of integration of the interaction between immigrants and ethnic French as well as any element of territoriality. These activity spaces also affect the cultural and economic landscapes of Marseille's neighborhoods.

Keywords: Activity Spaces, Immigration, Public Spaces, Territoriality, GPS, Races, France-Marseille

Robert W. Lake, Rutgers University. Email: rlake@rci.rutgers.edu; *The Multiple Relational Geographies of Urban Redevelopment*

Urban redevelopment in the neoliberal city is frequently characterized in unitary terms of destatization, privatization, and marketization, producing iconic landscapes of festival marketplaces and gentrified neighborhoods. Against this generalized model, this paper delineates the multiple redevelopment processes simultaneously unfolding in discrete sub-city neighborhoods of Camden, New Jersey, a mid-sized deindustrialized city recently ranked the poorest city in the nation. Redevelopment processes performed in specific downtown, waterfront, or residential neighborhoods can be variously described as state-, market-, or community-driven, but the apparent supremacy of the state, the market, or civil society is less important than the complex network of interrelations among sectors constituting specific neighborhoods. Each of these multiple redevelopment processes entails a distinct set of relations among state, market, and civil society actors engaged in complex webs of interaction situated at multiple scales; and each distinct set of relations in turn produces a highly specific neighborhood landscape that instantiates a particular form of redevelopment at the local scale. The resulting spatial structure of urban redevelopment is often viewed as a Burgess-like horizontal map of neighborhood characteristics arrayed in what Iris Young (2000) has called a logic of identity. An alternative logic of representation, following Doreen Massey in *For Space* (2005), sees urban neighborhoods as continually (re)constructed through an unstable and transitory relational dynamic that offers continuous possibilities for contesting the hegemony of neoliberalism.

Keywords: Neoliberalism, urban redevelopment, relational geography, civil society, state-market relations

Siana Lakhan, . Email: slakhan@fau.edu; *Surface water quality: Affects on Trinidadian society*

The island of Trinidad is highly dependent on surface water as a source for domestic water supply. Many people in this region have limited access to a reliable source of potable water. This study identifies the areas in need of a drinkable source of water, in order to provide the Water and Sewage Authority (WASA) of Trinidad with a better scope of where to allocate budget resources. Increases in industrialization and population are putting more pressure on water resources. People obtain their water from a variety of sources: WASA, rivers and rain. Part of this study looks at how, and from where people in different proximities to the urban core collect and store water. Results indicate that urban areas rely least on rivers and rain, but more on WASA as a water source. The Urban fringe (the area that lies just outside the urban core) relies on a WASA water supply as well as natural sources for water. Rural regions depend solely on a natural water source. In addition, I look at how geographic location affects nitrate and nitrite concentrations in drinking water. I chose to look at nitrates and nitrites, because high concentrations of these chemicals can be indicators of contamination due to agricultural or sewage run-off. Both the geographic location of the water source and how people collect and store water affects the water quality in terms of nitrates and nitrites. This study can help WASA determine how to efficiently service the entire population of Trinidad.

Keywords: water quality, Trinidad, Nitrates, Nitrites

Nina Lam, Louisiana State University. Email: nlam@lsu.edu; Kelley Pace, Louisiana State University. Email: kpace@lsu.edu; Richard Campanella, Tulane University. Email: rcampane@tulane.edu; *Decision Making Among Businesses in Post-Catastrophe Uncertainty: How Economic Geographies Re-Form in New Orleans*

A major obstacle in research on assessing and modeling the economic impacts of disasters is the lack of systematic, empirical data. In particular, very little research has collected time-critical data on how businesses make decisions on whether they remain or relocate after a major catastrophe, especially a catastrophe as wide and deep as Hurricane Katrina that affects an entire metropolis of New Orleans. We are currently working on a project, funded by the National Science Foundation, to collect and analyze time-critical data on what, where, how, why, and when businesses return to New Orleans. The project includes both telephone and street surveys. The street surveys is a complete survey of three major commercial corridors in New Orleans every two weeks, tracking where, when, and what businesses return and survive (or fail). The telephone surveys, conducted for 3 rounds, target businesses throughout the entire city. This paper reports the results of the first two telephone surveys, conducted in December 2005 and June 2006. The survey results are integrated with other GIS data layers to enable a more comprehensive analysis of key explanatory variables on why some businesses are more resilient than others and whether there is significant space-time difference in business decision making. These telephone survey results, coupled with the results from the street survey, will be useful to future impact modeling and policy making.

Keywords: Business decision making under uncertainty, catastrophe, Katrina

Theodora Lam, Asian MetaCentre for Population and Sustainable Development Analysis. Email: arileft@nus.edu.sg; *Educating Young Singaporeans Overseas*

Singapore, a small natural-resource scarce city-state, has big aspirations of becoming a global city and the 'Talent Capital' of the New Economy. As part of its strategy to extend the country's economic reach, the government is persistently urging Singaporean firms and Singaporeans alike to venture abroad to form its 'external wing'. With an ever-increasing number of Singaporeans living outside its political geo-body, several issues are fast emerging. First, there is an escalating need to meet the educational needs of young Singaporeans overseas as their parents fear that they will be missing out on Singapore's education during their absence. More importantly, dispersal carries a greater danger since Singaporeans who are not deeply rooted to their homeland may eventually lose their 'roots' as they embark on diverse routes taking place outside the nation. In this light, the paper aims to explore the various efforts in educating and rooting young Singaporeans overseas to their homeland by probing specifically into the roles played by their parents in transmitting Singaporean ideals and citizenship values to them. Seeing that these expatriate Singaporean parents form a distinct group of transnationals, namely the 'transnational capitalist class', the paper also seeks to provide a gendered perspective on their transmigratory behaviour and experiences, delving into the challenges and struggles they faced, as well as the family strategies they employed in the wake of the government's call to 'go regional' or 'go global'. The reservations that Singaporean parents have, especially those pertaining to their children's education, are also examined.

Keywords: transnational migration, education, Singaporean, citizenship

Shannon S Lamb, Delta State University. Email: shannonlamb999@yahoo.com; *The Landscapes of Public Memory Suppression*

This study utilizes the geography of secret wars as a backdrop against which to view the landscapes of public memory suppression that inexorably result. Unlike overt military intervention, clandestine operations call for plausible deniability, hence the phrase "secret war." This secrecy can lead to the suppression of public memory, as shown in the post-conflict landscape of 1980s Honduras. Interpretation of these landscapes can inform us on the social, political and economic after-effects of covert operations on local people and political structures. Using ethnographic notes, archival documentation, private memorials and public protest text, this presentation looks into the covert geographies of Honduras and documents the existing struggle between the Honduran political elite and the families of victims of human rights abuses over the erection of public memory for the disappeared.

Keywords: CIA, Cold War, Covert Geographies, Honduras, Public Memory Suppression

David Lambert, Royal Holloway, University of London. Email: d.lambert@rhul.ac.uk; *'Being just arrived in a land of slavery?': White encounters with the Caribbean and the cultural politics of circum-Atlantic mobilities*

The Caribbean has been a crucial site for the production and performance of racialised identities - not only the racialised otherness of the enslaved black subject, but also of white (enslaving) identities. The Caribbean has also been an intense meeting point for differently-embodied mobilities associated with the practices of enslavement and broader systems of trans-Atlantic exchange. Thus, the Caribbean represents an ideal space in which to explore the intersections between articulations of whiteness and various forms of (im)mobility. To do so, this paper focuses on British travellers to the Caribbean in the late eighteenth and early nineteenth century, and on their accounts of the colonial slave societies they encountered. These travellers' textual products would circulate beyond the Caribbean to be consumed by metropolitan audiences. Yet, this paper does not focus on the discourses that animated the debates about slavery during the 'age of abolition'. Instead, by considering such recurrent scenes as visits to the holds of slave ships, meals in hostels and plantation houses, and guided tours of sugar estates, it focuses on the embodied practices involving, and the spatialised relationships between, white metropolitan, white creole, free coloured and black enslaved subjects that can be gleaned from these accounts. In this way, the paper aims to examine not only the co-production of white subjectivities and embodied (im)mobilities, but also the intense cultural politics that accompanied their entanglement during the 'age of abolition'.

Keywords: Caribbean, slavery, postcolonialism, whiteness, mobility, travel accounts

Julie M. Lancelle, graduate student, University of Wisconsin. Email: jlancelle@wi.rr.com; *The Integration of Nature and Sprawl: a look at conservation subdivisions in southeastern Wisconsin*

As populations push ever outward into pastoral territories, rural areas have gradually been integrated into urban landscapes. This is the case in southeastern Wisconsin, where Milwaukee exists as an urban core. Recently, conservation subdivisions have been touted as a happy medium between residential accommodation and preservation of the natural environment. The proposed research will use qualitative and quantitative methodologies to investigate whether some developments in southeastern Wisconsin meet the criteria of a conservation subdivision. An important part of this study will be determining what those criteria are, and exploring whether or not there is consistency between local ordinances, statewide regulations, developer standards, and the generally established definition of a conservation subdivision. Those suspicious of unbridled development have some concern that conservation subdivisions are simply a means of mitigating the guilt some may feel for participating in sprawl. The emerging evidence may conclude that conservation subdivisions can be a beneficial step in allowing people to live in the scenic country landscapes they desire, while keeping disturbance of those spaces to a minimum, so long as the tenets of conservation subdivision design are correctly applied and managed.

Keywords: conservation subdivisions, Wisconsin - southeastern, sprawl, ordinances, planning

Ingegerd Landström, Uppsala University. Email: ingeegerd.landstrom@kultgeog.uu.se; *Towards Collaborative Coastal Management in Sri Lanka?*

In view of seemingly ever increasing and more complex environmental problems and the partial failure of the state to effectively deal with them, it is now widely acknowledged that the state alone cannot handle environmental issues. As a result, the notion of local participation in natural resource management is currently very much in vogue and advocated by environmental organisations, governments and international institutions alike. This paper deals with the efforts in Sri Lanka to bring about a greater degree of local community participation in the use and management of Sri Lanka's coastal land and natural resources, by means of forming partnerships between coastal communities and the Sri Lankan government. Using a political-geographical perspective that highlights the political and spatial dimensions of the shift in forms for governing Sri Lanka's coast, this paper illustrates that, despite an ambition to bring about a sharing of authority and control in coastal management, this has not worked out in practice. Due to circumstances relating to the SAM strategy itself and to the context in which it is implemented, the degree to which coastal communities have gained any influence with respect to the use and management of coastal land and resources remains highly questionable. The study that underpins the paper was carried out prior to the tsunami that hit the Sri Lankan shores in December 2004. However, given the major reconstruction of Sri Lanka's coast that currently is ongoing and the controversy that surrounds it, the issues raised in this thesis are highly relevant.

Keywords: local community, local governance, participation, partnership, natural resource management, coastal management, coastal region, Sri Lanka

Michael Landzelius, Dr, Göteborg University. Email: landzelius@icug.gu.se; *'Homo Sacer' Out of Left Field: Communist "Slime" as Bare Life in 1930s and WWII Sweden*

This paper maps ways in which radical left-wing politics in 1930s and WWII Sweden were conceived in medico-biological and eugenic terms that expressed strong de-humanizing sentiments. The paper engages Agamben's and Foucault's thinking on 'biopolitics' and 'biopower', and extensively exemplifies dehumanizing discourse as deployed by leading Social Democratic politicians, leading figures of government within the police and military, as well as by editors of both right-wing and Social Democratic press. Ways in which individuals labeled 'Communists' were spatially managed in terms of extensive surveillance, registration, detainment planning and forms of incarceration are addressed. The paper further addresses state measures that can be seen as elements of a state of exception, some measures implemented against 'Communists', and others against individuals deemed to have undesirable characteristics seen to be hereditary. In employing Agamben's notion of 'inoperosity' in a discussion of a state paradigm of social productivity, eugenic measures in the building of the Swedish welfare state are then related to the dehumanizing framing of 'Communists'. In conclusion, conditions for regaining a place in the body politic are briefly addressed. The article's focus on ways in which the ethnic and racial same was dehumanized within a democracy on political grounds, results from a conscious effort to complement studies of dehumanization as related to colonialism, dictatorial regimes as well as identity politics.

Keywords: Agamben, Foucault, biopolitics, biopower, anti-communism, dehumanization, Sweden

Bradley Lane, Indiana University. Email: bwlane@indiana.edu; *Travel Behavior and Spatial Variation in the Introduction of Light Rail*

Rail transit continues to be a popular alternative for cities as a tool for alleviating automobile congestion and for redeveloping areas into transit and pedestrian-friendly environments. Ideally, rail transit will draw trips away from cars, but the quantitative work that tests this has often been case studies of neighborhoods, in which conclusions are tough to generalize, or city-wide comparisons where important spatial variation is often lost in aggregation. This research attempts to counter that problem by conducting an analysis of rail transit and travel behavior across numerous US cities. Cities are categorized into groups based on the presence of rail transit. Variables assessing economic and demographic factors as well as transit system service characteristics and the overall transport geography of cities are used to predict travel behavior at the Traffic Analysis Zone (TAZ) level for 1990 and 2000. The spatial variance of those factors within cities is also analyzed. Two research objectives are pursued. One purpose is the analysis of the effect of rail transit on commuting trends on a widespread basis, while another is to assess the ability of rail transit improvements as predictors on local changes in commuting behavior. Initial results suggest shifts away from auto commuting are related to the size of the rail transit system, proximity to rail, and by park and ride access to mass transit, and suggest that rail has a positive effect on bus commuting.

Keywords: light rail, commuting, modal choice, travel behavior, transportation geography

Chad S. Lane, University Of Tennessee. Email: clane6@utk.edu; Claudia I. Mora, University of Tennessee. Email: cmora@utk.edu; Sally P. Horn, University of Tennessee. Email: shorn@utk.edu; Kenneth H. Orvis, University of Tennessee. Email: orvis@utk.edu; *Paleolimnological Evidence of Late-Holocene Precipitation Variability in the Dominican Republic and its Possible Impacts on Prehistoric Human Populations*

High-resolution paleoclimate records from the circum-Caribbean region indicate a steady decrease in precipitation throughout the late Holocene with interspersed severe drought events. This precipitation variability has been primarily attributed to a southward shift in the mean annual position of the Intertropical Convergence Zone. The impact of this precipitation variability on Mayan society on the heavily populated Yucatan Peninsula has received significant attention. However, the impact of regional precipitation variability on smaller populations of the circum-Caribbean, including prehistoric island societies, has not been investigated. We have reconstructed a paleoprecipitation record using sediment characteristics, fossil pollen, aquatic macrofossils, and the oxygen isotope composition of ostracod valves preserved in sediment cores from Laguna Castilla and Laguna Salvador in the Cordillera Central of the Dominican Republic. Our paleoprecipitation record correlates well with regional records including those from the Yucatan Peninsula and the Cariaco Basin. The record indicates that the intervals 930-1550 and 1257-300 cal yr BP were two of the most arid periods in the Dominican Republic during the late Holocene. The two most positive oxygen isotope excursions on record punctuate these extended dry periods and are coincident with paleolimnological evidence of human occupation, which was sporadic at the sites. Synchronous shifts in proxy indicators of human presence and extreme drought may indicate population migration into the interior of Hispaniola in search of dependable water sources during severe drought events. Further research is necessary to verify this hypothesis and to place these potential population migrations into archaeological and historical context.

Keywords: lake sediment, isotope, ostracod, chara, pollen, charcoal

K. Maria D. Lane, Ph.D., Department of Geography, University of New Mexico. Email: mdlane@unm.edu; *High Science: Men, Mountains and the Mapping of Mars*

An interesting episode in the history of science - widespread scientific and popular belief in Martian inhabitants at the turn of the twentieth century? has been shown to have relied heavily on the mapping of canals on the Martian surface. This paper explores one of the ways in which these canal maps gained their authority, focusing on the mountain locations in which astronomers collected their cartographic data. As the first mountaintop astronomical observatories were built in the American West in the 1880s, astronomers began to gain prestige among their peers and in the public eye by emphasizing the isolation and purity of the remote mountains in which they worked. As a result, personal mountaineering experience became a kind of currency among American astronomers in the late 19th and early 20th centuries, allowing the new Western observatories to claim superiority over the established Eastern metropolitan facilities on the basis of their geography. This paper examines the ways that astronomer-cartographers represented their work in mountain locations to their peers and to the public. It shows that astronomers exploited an association of mountain locations with heroic manliness to assert their legitimacy as scientists and cartographers of Mars. Emphasizing the ruggedness and physical challenge associated with working at an observation station in the mountains, these

astronomers reinforced the concept that the best astronomy was being done essentially in the wilderness. They painted themselves as heroic and manly figures, confronting mountain wilderness in the name of science and in the pursuit of cartography.

Keywords: cartography, gender, science, representation, mountains

Robyn J Lane, M.A., RLA, University of Arkansas - Fayetteville. Email: rwilgus@uark.edu; *Spatial Analysis at the Parcel Scale: GIS in Land Development*

The utility of geographic information systems (GIS) in large-scale planning applications is well established, but GIS are underutilized at the parcel-level scales common in land development. Historically, urban land development patterns have focused primarily on economic benefit, while environmental factors that should inform the design process are largely overlooked. As environmental concerns become more pressing, an evaluation of physical factors that potentially constrain site development should be completed before beginning the design process in order to achieve an optimal balance between environmental protection and economic benefit. The history of the Wilson Springs development in Fayetteville, Arkansas, illustrates the importance of such an evaluation. In this research, we adapted McHargian site analysis for use in a GIS to compile and analyze relevant environmental data of the Wilson Springs site in an objective and systematic way. The results of the land use evaluation successfully showed which areas of the site could be developed with minimal environmental impacts and identified areas of concern that warranted further study.

Keywords: site analysis, McHarg, GIS, land development

Robert E Lang, Ph.D., Virginia Tech. Email: rlang@vt.edu; Paul K Knox, Ph.D., Virginia Tech. Email: knox@vt.edu; *The New Metropolis: Rethinking Megalopolis*

This paper explores the relationship between metropolitan form, scale, and connectivity. It revisits the idea first offered by geographers Jean Gottmann, James Vance, and James Pickard that urban expansiveness does not tear regions apart but instead leads to new types of linkages. The paper begins with an historical review of the evolving American metropolis and introduces a new spatial model showing changing metropolitan morphology. Next is an analytic synthesis based on geographic theory and empirical findings of what is labeled here the 'new metropolis'. A key element of the new metropolis is its vast scale, which facilitates the emergence of an even larger trans-metropolitan urban structure?the 'megapolitan region'. Megapolitan geography is described and includes a typology to show variation between regions. The paper concludes with the prediction that the fragmented post-modern metropolis may be giving way to a neo-modern extended region where new forms of networks and spatial connectivity reintegrate urban space.

Keywords: Region, Theory, Urban Geography

Mark D. Lange, University of Southern California. Email: mark.lange@usc.edu; Bernard O. Bauer, University of British Columbia Okanagan. Email: Bernard.Bauer@ubc.ca; *Patterns of Flow at a Tidal River Divergence, Sacramento River, California*

Flow through diverging tidal river channels have only recently received attention in the literature. A divergence, unlike a confluence, represents a 'decision point' where the flow of water and sediment discharge is distributed among two downstream channels, each with its own tidal signature and hydraulic geometry. While many studies have examined the macro geometry and dynamics of distributary channel networks, this study focuses on the changing pattern of flow within a single divergence system over a tidal cycle to enhance our understanding of the 'decision point' aspect of tidal river junctions. Three-dimensional flow was mapped at the junction of the Sacramento River with Georgiana Slough near Walnut Grove, California, over a variety of hydrologic conditions using a boat-mounted acoustic Doppler profiler and Global Positioning System in conjunction with a temporary tide gage network. Measurements were taken during low flow conditions, when tidal processes were dominant, and during moderate flow conditions when fluvial processes became more significant. Secondary circulation is most strongly developed when the difference in discharge between the downstream branches is greatest, which produces a cross-stream gradient in surface elevation that drives the secondary flow. The dynamics of these secondary flows are related to out-of-phase changes in the water slopes in each downstream branch of the divergence. This phase difference is due to their connection to separate channel networks that attenuate tidal wave propagation at different rates. These results have implications for the distribution and delivery of suspended sediment between downstream branches of a tidal river divergence.

Keywords: fluvial, coastal, delta, distributary, geomorphology, Sacramento River, California

James Langill, Salem State College. Email: rockjim@rcn.com; *A Tale of two fires. A Comparison of the Mann Gulch and Storm King Mountain (South Canyon) fires*

On August 5, 1949, a wildfire overran 16 firefighters in Mann Gulch on the Helena National Forest in Montana. Of the sixteen, only three survived. Some 45 years later, on July 6, 1994 a wildfire overran and killed 14 firefighters on Storm King Mountain in Colorado. Using historical weather data, and GIS analysis techniques, this on-going research will compare the two fires to determine if any clear similarities exist between them. In the comparison, existing GIS datasets, including Digital Elevation Models and Digital Raster Graphs, as well as created datasets showing the location of the fallen firefighters and fuel model types will be used. The comparison will look at geographic features in both fire areas, including: slope, aspect, fuel model type(s) and topography.

Keywords: Wildfire, Fuel Models, Smokejumpers

Ruth Langridge, University of California, Santa Cruz. Email: rlangrid@ucsc.edu; Juliet Christian-Smith, University of California, Berkeley. Email: ; Kathleen A Lohse, Arizona State University. Email: ; *Access and Resilience: Analyzing the Construction of Social Resilience to the Threat of Water Scarcity*

Resilience is a vital attribute that characterizes a system's capacity to cope with stress. Researchers have examined the measurement of resilience in ecosystems and in social-ecological systems, and the comparative vulnerability of social groups. This paper refocuses attention on the processes and relations that create social resilience. The central proposition is that the creation of social resilience is linked to a community's ability to access critical resources. This proposition is explored through an analysis of how community resilience to the stress of water scarcity is influenced by historically contingent mechanisms to gain, control, and maintain access to water. A framework is developed to assess the construction of social resilience and to examine, first, the different processes and relations that enabled four communities in northern California to acquire access to water, and second, how access contributed to their differential levels of resilience to potential water scarcity. Access is defined broadly as the ability of a community to actually benefit from a resource, and includes a wider range of mechanisms than those derived from property rights alone. The study suggests that, because legal water rights are extremely difficult to alter, strengthening and diversifying a wider range of structural and relational mechanisms to access water can enhance a community's resilience to water scarcity.

Keywords: access, resilience, water, scarcity, California

Suzanne Langridge, University of California. Email: sml@ucsc.edu; *Contested Views of Restoration: Large-scale Restoration on the Sacramento River, California*

Large-scale restoration of riparian ecosystems has the potential for conflict associated with differing ideas of negative and positive effects of restoration and cultural ideas of land management. In the Sacramento Valley, a large-scale riparian restoration project has led to conflict and tension between restorationists and community members, many of whom believe that the restored habitat is the source of negative inputs, including insect and mammal pests, weeds, and floods. These perceptions of negative externalities have led to efforts by the community within the large-scale restoration project to stop or reduce restoration. However, opposition does not simply fall along restorationist-local community lines, with opposition to restoration varying along the 160km length of river. Actual restoration of riparian forest reflects the support or opposition to restoration within the four counties that encompass the restoration area. This research examines the role of politics, social networks, and ecology in shaping differing visions of large-scale restoration in the Sacramento River restoration project.

Keywords: riparian, river, restoration, large-scale, landscape, conflict

Christopher L Lant, Southern Illinois University. Email: clant@siu.edu; *Adventures in Map Algebra*

This presentation will consider four projects applying map algebra in the form of raster regression that have resulted in two masters theses and two dissertations at Southern Illinois, including a 2004 paper in the *Annals* and a 2006 paper in *Biological Invasions*. The paper will focus on the power of map algebra to perform spatial extrapolation from predictive regression equations and methodological considerations in applying spatial extrapolation using the map algebra approach.

Keywords: GIS, raster regression, stream channels, invasive species, soil organic carbon

Martin Lanzendorf, Dr., Helmholtz Centre for Environmental Research - UFZ. Email: martin.lanzendorf@ufz.de; Henning Nuissl, Dr., Helmholtz Centre for Environmental Research - UFZ. Email: henning.nuissl@ufz.de; *Why are national or supra-national governments funding large-scale transport infrastructures with only regional impact? An assessment of the "City-tunnel Leipzig"*

In urban areas large-scale public transport investments frequently are promoted by a set of typical arguments: Local politicians stress the labor market effects as well as their long-term benefits regarding the improvement of accessibility both for economic activities and for social purposes. Moreover, they argue from an environmental point of view that making public transport more attractive than the private car will lead people to rethink and change their travel modes. However, previous research challenged these assumptions of proponents of large-scale projects. For example the outcome of cost-benefit analysis was questioned by pointing to the typical cost-overruns. The aim of this paper is to analyze by a case study, the "City-tunnel Leipzig" (CTL), why a major public infrastructure investment of approximately 600 million Euros was favored by politicians and planners on national, regional and local scale and how its implementation has been accomplished. Particular attention will be given to the question how local politicians and stakeholders were able to get support (and raise money) from both the national state and the European Union for this project, which will have little impact beyond the regional scale. Given the uncertainty of expected outcomes and the critical role of funding for large-scale transport infrastructures, our analysis focuses on three dimensions: first, the key actors, initiating the planning and accomplishment of the project; second, the justification of the project's funding; and, third, the involvement of stakeholders and the public.

Keywords: governance, transport infrastructure, public transport, funding, European Union, Leipzig, Germany

Yong Lao, California State University, Monterey. Email: yong_lao@csumb.edu; *Efficiency Evaluation Using Data Envelopment Analysis and Geographic Information Systems: A Case Study of Monterey Salinas Transit*

Data Envelopment Analysis (DEA) is an optimization-based technique widely used to measure relative efficiencies. However, current literature pays little attention to the spatial aspects of efficiency measurement. Our study aims to combine DEA and Geographic Information Systems (GIS) to examine the efficiency of a spatial organization, in this case, the public transit system in Monterey-Salinas area. We first use GIS to create demographic profiles within the service corridor of each bus line. Then we apply DEA method to compute and analyze relative efficiency scores for each bus line based on the service costs (inputs) and benefits (outputs). In particular, we want to closely inspect the under performed bus lines with low efficiency scores. Finally, we give recommendations on how to improve the operational efficiencies of the transit system based on the local commuting patterns and population characteristics.

Keywords: Data Envelopment Analysis, GIS, transportation modeling

Paul Laris, Ph. D., CSU Long Beach. Email: plaris@csulb.edu; *The 'legacy landscape' of fire and long-term fallow in the savanna landscape of Mali*

Legacy landscapes are the outcome of long term human occupation. Through practices of settlement, land management, and everyday life activities, people shape biogeography and create cultural landscapes through time. The Malian landscape is a legacy of many factors but perhaps none have played so great a role in modifying biogeography as the tandem of farming and fire. Yet little research has explored the complex interactions between long-term patterns of burning, farming and settlement in detail. While recent research has documented complex spatiotemporal patterns of indigenous burning regimes, the implications of these regimes on vegetation recovery after farming have rarely been explored. To address this gap, this study compares the tree cover on abandoned agricultural plots with savanna plots that were not farmed in human memory in an area where burning is a near annual event. Village elders identified study sites located in abandoned hamlets where there was a known boundary between abandoned agriculture plots (over 30 years) and unfarmed savanna. Tree height and girth and species were recorded for a series of quadrats on each plot. The results find that the most striking difference between the farmed and virgin plots is the greater number of tall trees on the fallow plots. In general the trees on fallow plots were straighter and taller, while those on the virgin plots were twisted and stunted an indication that they had been subjected to repeated stress. Oral histories combined with a burned area database covering a 30-year period are used to interpret the results.

Keywords: Savanna, fire, biogeography, Africa, settlement

Wendy Larner, University of Bristol. Email: w.larner@bristol.ac.uk; *Embodying Neoliberalism? Mike Moore and the WTO*

Former freezing worker, trade unionist, Labour politician and Prime Minister, New Zealander Mike Moore is best known outside his home country for his role as Director General of the World Trade Organization 1999-2003. How did a working-class boy from rural New Zealand come to head a major global institution during such a critical period? How does he justify his support of global free trade? What does his story tell us about the shift in neoliberalism from the domestic politics of particular country cases, to globalizing processes driven by international institutions and actors? In answering these questions, the paper shows that neoliberal discourses and techniques do not always travel in the forms we would expect, or the directions we would anticipate. It argues the need to historicize and spatialize the flows and networks through which neoliberal discourses and techniques have been disseminated, and interrogate the various forms in which neoliberalism has been instantiated and embodied.

Keywords: Neoliberalism Policy Technocrats Techniques Globalisation

Sonya J. Larocque, University of Wisconsin at Whitewater. Email: larocqus@uww.edu; *Dendrogeomorphic analysis and sedimentary signature of slushflows in southeastern Canada*

Only a few slushflows have been documented in the Chic-Choc Mountains of southeastern Canada. Despite the lack of direct evidence, the analysis of dendrogeomorphic and sedimentary data from one location provides a better understanding of the dynamic and frequency-magnitude relationships of such events. Recent occurrences in 1988 and 2006 are described through visual documentation gathered shortly after the episodes. Dendrogeomorphic analysis based on impact scars, reaction wood and traumatic resin ducts, identified two additional slushflow events in 1925 and 1964. The low frequency and high magnitude of these events, linked to exceptional initiation conditions, produce considerable geomorphic and ecological impacts. Slushflows contributed to the formation of a tongue-shaped accumulation of 17,900 m² at the outlet of a first-order drainage basin. The slushflow boulder tongue is composed of heterogeneous-sized, angular and unoriented clasts, which are markedly different from the sediments of an adjacent alluvial fan and from other hillslope deposits found in the region. Although movements were initiated above the altitudinal forest limit, slushflows induced forest fragmentation along the treed slope and greatly reduced the success of colonization by woody vegetation in the accumulation area. Investigations on local and climate conditions show that the drainage basin configuration in combination with heavy snowpack and rain-on-snow weather conditions are important parameters in the initiation process.

Keywords: slushflow, dendrogeomorphology, Canada, hillslope

Eric J. Larsen, University of Wisconsin - Stevens Point. Email: elarsen@uwsp.edu; *Population dynamics of the Southern Royal Albatross on Campbell Island, New Zealand*

The Southern Royal Albatross (*Diomedea epomophora*) ranges widely in the high latitudes of the southern hemisphere. However, its breeding range is constricted almost exclusively to Campbell Island, New Zealand, where 99% of all Southern Royal Albatrosses nest. A study of the population dynamics of the Southern Royal Albatross was initiated in January 2005. We conducted intensive ground searches for Southern Royal Albatross nests on Campbell Island from December - February during the years 2004-05, 2005-06 2006-07, to census and analyze population trends. Data from the past 3 years indicates that a recent upward trend in Southern Royal Albatross breeding populations (1950-90's) has now leveled off. Data from the current census was compared to historic nesting data. A second objective of the research was to remove or replace the metal leg bands on breeding albatrosses. More than 35,000 of Campbell's Southern Royal Albatrosses were banded from 1941-96, and a portion of the bands have caused injury to the birds. Data from the past 2 years indicates that 8% of the banded albatrosses have been injured by their metal leg bands, with approximately 2% suffering permanent damage to their leg. Most commonly, the permanent damage was a fusing of the ankle joint due to the penetration of the metal band into the leg.

Keywords: albatross, New Zealand

Henrik Gutzon Larsen, Aalborg University. Email: hgl@plan.aau.dk; Anders Lund Hansen, Lund University. Email: anders.lund_hansen@keg.lu.se; *Gentle gentrification? Urban renewal policies and socio-cultural transformations in Copenhagen*

This paper contrasts the stated intentions and actual outcomes of the publicly initiated and supported urban renewal of the Vesterbro (West Bridge) district of Copenhagen. Vesterbro is located near the central railway station and has for years been known as the red-light district of Copenhagen with a high concentration of socio-culturally 'vulnerable' people. Apart from a physical upgrading the building stock, some of the central aims of the urban renewal policy were to include the inhabitants in the decision processes and to prevent

displacement of people from the neighbourhood. Did the policy succeed in creating a socio-culturally inclusive urban transformation? Or is the case of Vesterbro rather an example of 'gentle' gentrification - a Scandinavian articulation of state-led, neo-liberal 'general' gentrification?

Keywords: Gentle gentrification, urban renewal, Scandinavian urbanism, neo-liberalism

Kristian Larsen, BA, The University of Western Ontario. Email: klarsen2@uwo.ca; Jason Gilliland, PhD, The University of Western Ontario. Email: jgillila@uwo.ca; Paul Hess, PhD, The University of Toronto. Email: hess@geog.utoronto.ca; Patricia Tucker, MSc, The University of Western Ontario. Email: patucker@uwo.ca; *Assessing the walkability of urban neighborhoods for children and youth*

Less than half of all children in North America today are active enough to achieve the well-known health benefits of physical activity. The most common (and convenient) form of physical activity for people of all ages is walking. Previous research suggests that neighbourhood factors such as traffic, built form, land use mix, and crime rates (real and perceived) may influence decisions regarding a child's mode of travel to school. Using a multi-method approach this ongoing research project examines 'walkability' in the local environments of children and youth in London, Ontario, Canada. In this paper, we present the results of a systematic literature review to determine the environmental (social and physical) characteristics that influence walking behaviors among children and youth, and then incorporate these variables within a GIS to identify 'walkable' neighborhoods in London. By validating our GIS-based analysis using questionnaire data from a detailed survey of the walking behaviors of elementary school students, we will identify objective measures of environmental features that influence a child's trip to school. The ultimate aim of our study is to provide city planners and policy makers with a user-friendly tool that can help them design healthier communities that promote physical activity among children and youth.

Keywords: walking, built environment, children's geographies, GIS, urban geography

Soren C Larsen, University of Missouri. Email: larsens@missouri.edu; *Constructing Community Forests in British Columbia: Results From Ethnographic Fieldwork*

The community forests program in British Columbia provides local organizations with temporary, renewable tenure over a tract of forestland that is used to support a variety of social programs and economic initiatives in the area. Scholars are just now beginning to assess the impact of this initiative on the social sustainability of forest-reliant areas in BC, and until recently, systematic, comparative ethnographic work had not been conducted on the topic. The focus of six weeks of fieldwork in summer 2006 was to determine the specific criteria used by stakeholders to define sustainability, the ways in which stakeholders conceptualize the forest, and how these stakeholders feel the forest has affected quality of life and equity within the community. The broader significance of the project, however, was to explore how stakeholders are constructing these forests as distinctive places in their communities. They are, in effect, creating a new industrial landscape that responds to contemporary developments in North American forestry involving negotiations among government, labor, capital, indigenous people, and environmental groups.

Keywords: community forestry, indigenous peoples, ethnography, rural change

Evan R Larson, University Of Minnesota. Email: lars2859@umn.edu; *The Status of Whitebark Pine in the Lakes Basin Area of the Eagle Cap Wilderness, eastern Oregon*

Whitebark pine is a vital component of subalpine ecosystems throughout the west. This species has experienced dramatic declines over the past century due to natural and anthropogenic causes. Much of the research investigating the decline of whitebark pine forests has been conducted in the Northern Rocky Mountains. This research has done well to inform management activities in this region, but whitebark pine is broadly distributed along multiple environment gradients. The diverse biophysical settings whitebark pine inhabits likely lead to the development of unique communities and forest dynamics across the species' range. These potential differences limit the appropriateness of one-size-fits-all management strategies based on data collected from limited environments. My research addresses part of the gap in our understanding of whitebark pine ecosystems by describing the structure, composition, and disturbance regimes of whitebark pine forests in a relatively unstudied part of its range - the Eagle Cap Wilderness in eastern Oregon. Whitebark pine represents the dominant species in my study area with respect to basal area and continues to reproduce in the presence of later-successional species. However, subalpine fir exceeds whitebark pine in the frequency of saplings and trees. Blister rust is relatively limited in this area, but evidence of past mountain pine beetle activity is abundant. Fires are relatively rare, and it is unlikely that modern fire suppression has influenced

forest succession in my study area. My research may describe a unique example of an intact whitebark pine system in which the mountain pine beetle was the historically-dominant disturbance agent.

Keywords: Whitebark pine, *Pinus albicaulis*, Oregon, Wallowa-Whitman National Forest, Eagle Cap Wilderness Area, fire suppression, mountain pine beetle

Joel Larson, Macalester College. Email: jlarson@macalester.edu; Reaching the limits: food insecurity and hunger mitigation strategies for households in Minneapolis and St. Paul, MN

Food security and hunger are issues that continue to prove difficult to eradicate, even in developed nations. Many studies have attempted to measure and model communities that might be at risk for food insecurity, particularly in urban areas. In previous research, I undertook a similar project for the greater 7-county metropolitan area of Minneapolis and St. Paul, MN, identifying several neighborhoods that had a high risk of food insecurity. Through the use of qualitative research methods, this study intends to discover strategies and behaviors that help households and individuals mitigate the effects of hunger and food insecurity. Focusing on two ethnically distinct areas, one dominated by Southeast Asian and East African immigrants and the other by African-Americans, this ongoing research attempts to determine if there are differences in coping strategies for domestic and foreign-born minority groups, allowing for better targeting of food aid and broad programs that help eliminate food insecurity.

Keywords: Food security, hunger, immigrants, Minneapolis-St. Paul

Kelli L. Larson, Ph.D., Arizona State University. Email: Kelli.Larson@asu.edu; Residential Landscaping Patterns and Practices in Metropolitan Neighborhoods of Phoenix, Arizona

Residents' landscape preferences and practices have implications for both water demand and water quality, in addition to other environmental impacts. In the arid western U.S., water conservation programs have recently shifted focus from indoor to outdoor uses, with particular attention to converting wet (mesic) grass landscapes to relatively dry (xeric) alternatives. Research in the southwest illustrates the potential water savings from xeriscape yards; however, the actual amount of water used depends not only on the type of groundcover and plants in a landscape, but also on technological and behavioral aspects of irrigation practices. While water may be saved by landscape conversions, the use of herbicides may increase due to the persistence of grass blades that rise up through the crushed stone groundcover of xeric landscapes. This poster presents research aimed at understanding residential water and pesticide use in relation to various landscape types in metropolitan Phoenix, Arizona. In addition, cognitive, normative and social-structural variables are evaluated as hypothesized drivers of landscaping practices. A case study approach focused on four neighborhoods, ranging from low to high income and varying in other unique ways, allows qualitative consideration of how place-specific factors influence landscaping patterns and associated drivers.

Keywords: water resource geography; residential landscapes; environmental behavior; Phoenix, Arizona;

Paul R. Larson, PhD, Southern Utah University. Email: larson_p@suu.edu; A New Technique for Teaching the Koppen Climate Classification

Climate classification is a common activity in introductory physical geography courses. The purpose of this activity is to make sense of the geography of climates in terms that the typical college freshman can understand and apply. The Koppen system, often in a modified format, is the most common classification system used in introductory physical geography texts. The Koppen system is perhaps not the best or most complete system, but it is straightforward and easy to apply, and it works well toward achieving this goal. Students encounter several problems while applying the Koppen system, including mixing the codes of different categories, determining whether and when a dry season occurs, and distinguishing between humid and dry climates. The technique described in this paper addresses these problems and simplifies the classification process.

Keywords: Koppen, Climate Classification

Scott Larson, Graduate Center, City University of New York. Email: slarson21@hotmail.com; The Geographic Fixing of Panama's Emberá

For generations Panama's Emberá limited their exposure to outsiders, living semi-nomadic lives in the remote jungles of Darién Province, one of the least-developed regions in Latin America and home to one of its largest remaining rain forests. But over the past half century land grabs by ranching and timber concerns, the initiation of multilateral development projects and the establishment of environmental reserves have introduced new notions of land use and value that have helped redefine Emberá relationships to their traditional lands.

Confronted by encroaching modernity, they have increasingly settled in permanent communities, abandoning their subsistence practices in order to engage with the global economy. The proposed paper aims to assess the degree to which these new spatial realities, fueled by powerful global forces, are geographically fixing the Emberá and thereby transforming their conceptions of space and time. Through a critical reading of state, multinational organization and development bank policy papers and a review of related literature it traces the manner in which the land policies and conservation programs being pursued in the region contribute to the Emberá's evolving perceptions about land, its economic functions and the mix of opportunity and conflict that such shifts inevitably invite. Ultimately, it asserts that by sedentarizing the Emberá through the promotion of private property rights and the creation of "protected" lands where their activities are restricted in the name of conservation, a range of outside actors hope to institutionalize the logic of the market.

Keywords: Indigenous, land policy, conservation

Claus Lassen, CL, . Email: claus@plan.aau.dk; Networking, Knowledge Organisations and Aeromobility

This paper explores work and travel in two international knowledge organisations placed in Denmark. It shows that such knowledge organisations are organised through networks on different scales. The paper argues that such networks activities can not be understood separate from aeromobility (aeromobility is defined as airborne mobility). In relation to business air travel, a core of obligations can be identified where the employees, though culturally embedded expectations, are expected to be present in relation to events, places and people. International work travel by air planes functions as an instrument to be at the right place at the right time to socialise with others and to share moments of co-presence and face-to-face communication. However a number of more individual orientated mechanisms for international air travelling are identified, e.g. the possibility to combine work and pleasure, to develop a cosmopolitan identity, to play at new places etc. The paper therefore concludes that more air travel in knowledge organisations does not necessary mean an efficient knowledge production. This means that the knowledge organisations can benefit from establishing an 'aeromobility management' concept that can balance the use of air travel and virtual communisations.

Keywords: Aeromobility, Knowledge Organisations and work-related travel

Unna I. Lassiter, PhD, California State University Long Beach. Email: lassiterui@gmail.com; Creating a new place for animals in Iran

When Reza Shah ordered that all pictures of camels and donkeys be destroyed, his intention was to set in motion the new image of Iran as a modern country. With this order, the Shah also recognized the power of representation that is bestowed on animals. Today and in the context of a fauna that is highly endangered and often neglected in Iran, what new representation of animals is necessary for Iranians to more fully concern themselves with animals, endangered or otherwise? This question is complicated by the undeniable fact that the people of Iran suffer hardships, making it particularly problematic to raise awareness about animals and nature there. And yet this is happening. More Tehranis share their homes with companion animals. And air pollution, the decline in caviar producing Caspian sturgeon, and international concerns regarding the extremely rare Asiatic cheetah have helped galvanize an Iranian environmental movement. This new movement fits squarely in the Republic's Revolutionary Constitution that states that protection of the natural environment is a 'public obligation.' The endangered Asiatic cheetah and sturgeon can thus stand for a better tomorrow that does not overlook the past, but instead helps shape a new, and thoroughly Iranian, post modernity. This case study offers an opportunity to better understand the interface of political ideology and the diverse and sometimes contradictory representations of animals.

Keywords: political geography, Iran, animals

Ann Laudati, University of Oregon. Email: umhleki@hotmail.com; The Encroaching Forest: Gorilla and Human Conflict in Bwindi Impenetrable National Park, Uganda

Presently listed as endangered under the IUCN red list, the mountain gorilla exists in just two small isolated populations in the Virunga Volcanoes on the borders of Rwanda, the DRC, and Uganda and in the Bwindi Impenetrable National Park in southwest Uganda. In 1979, the first mountain gorilla conservation initiative was formed, based on the early work of George Schaller and Diane Fossey. Since then, organizations working on behalf of the gorillas have focused on three main strategies for gorilla conservation: park security, conservation awareness, and tourism. In response to concerns that conservation subsequently address the costs associated with parks which are currently shouldered by local communities, tourism has emerged as the main conservation strategy. While the arguments for development of gorilla based tourism as the main strategy for conservation are persuasive there is as yet insufficient research concerning the full effects of tourism. There is clearly a risk of disease transmission, stress,

behavioral modification, and greater conflict between gorillas and people, yet there is little discussion of the actual effects the increased interaction between people and wildlife has had. Using a case study of Bwindi Impenetrable National Park, this talk introduces how increased human visitation in the region has affected gorilla behavior and examines how such changes have impacted the daily lives of local people, raising critical questions about the role of ecotourism as a sustainable strategy for conservation.

Keywords: wildlife, people, parks, uganda

Nina Laurie, Newcastle University UK. Email: Nina.laurie@ncl.ac.uk; *Workfare and the partial geographies of technocratic learning*

When workfare came to the UK in the mid 1990s it was championed as a successful example of the newly emerging trend towards international policy transfers. As a result, neoliberal social welfare travelled to the UK from the Wisconsin USA as well as Australia and Sweden. The international travel usually associated with trade missions became firmly established in welfare -policy-making as MPs went on 'fact finding missions' to amass evidence to replicate best practice in the UK. A decade on from the UK's Employment Committee's report 'the right to work/workfare' (published in February 1996), and a surprising amount of work by geographers on neoliberal workfare, there is still little reflection on the geographies of learning involved. While we know much about how Australian, Swedish and US experiences have shaped UK workfare, we know little about similar welfare policies in 'other' parts of the world. For example, Workfare and Emergency Employment Programmes were functioning in Latin America long before their Northern counterparts, yet we hear little about the fact finding missions that took place to these parts. What can we learn from the partial geographies of such untold stories? What experiences can and can't be talked about? Is there an iconoclast history of welfare policy making, if so who are the players? Are they still relevant?

Keywords: Workfare, technocrats, UK, Latin America

Miri Lavi-Neeman, Department of Geography, UC Berkeley. Email: mirilav@berkeley.edu; *Beyond the Concrete: The Place of Urban Environmental Educators in the Israeli Desert*.

In the past two decades, the Israeli Negev desert—Israel's last land reserve—has become a region seething with geo-political pressures. Ever since the Israeli declaration of independence, the desert has been a landscape of great symbolic and material importance and the hub of Zionist environmental educators, predominantly of Western European origin and of upper middle class, who drew mostly on rural romantic Zionist trends. This preliminary ethnographic study examines how, with the dismantling of the Zionist project and the rise of neo-liberal policies, symbolic and material meanings of the Israeli desert are contested and changed through environmental education practices. The paper follows the practices of residents of a marginalized industrial southern "Development Town" that traditionally considered the desert the crux of their continuing oppressions and now attempt to recreate their relationships with the desert. The emerging environmental education movement of the development town has been highly inspired by discourses of minority rights, feminists, New Social Movements and indigenous Bedouins. This study however, questions the role of nationalism and Zionism in framing their presumably new strategies, terms, and understandings of place and identity. It shows how environmental education, a mechanism central to sustaining the Zionist hegemony, has become a central terrain where multiple identities (class, national, ethnic and gender) are contested, reworked, and rearticulated—and where Zionism is reinvented. It also marks these environmental educators as prominent meaning makers whose influence might reach beyond their localities and bear new possibilities and challenges for regional social change.

Keywords: Gender, nation, environmentalism, place, identity, education

Jean Lavigne, PhD, College of St. Benedict/St. John's University. Email: jlavigne@csbsju.edu; *Dangerous Liaisons: The Wild Life and Strange Death of Steve Irwin*

In September of 2006 Steve Irwin, better known as Australia's wildly popular "Crocodile Hunter," died in a freakishly unusual encounter with a non-human animal. Swimming off the Great Barrier Reef, Irwin was struck in the chest by the barb of a stingray, a normally placid creature; because the barb pierced his heart, Irwin died within minutes. Ironically, Irwin was at the time taking a break from filming a new episode of his show "Ocean's Deadliest." Although the manner of his death was not inconsistent with the dangerous nature of his life's work, responses to the event were intriguingly varied, both in attitude and in physical expression. Similarly, while Irwin wowed millions with his 'up close and personal' encounters with dangerous and clearly non-charismatic fauna, a skeptical few found his approach fundamentally flawed in its masculinist anthropocentrism. The basic premise of this paper is that a critical analysis of Irwin's incredible popularity during his lifetime and of the varied responses to his death can reveal important ambiguities in the way that Anglo-American society

conceptualizes, represents, and encounters the non-human world.

Keywords: non-human geographies, nature-society, representations of nature, popular culture

Kevin Law, Marshall University. Email: law14@marshall.edu; *Key Factors in Atlantic Rapid Hurricane Intensification Prediction and the Differences between the 2005 and 2006 Atlantic Hurricane Season*

A statistical hurricane intensification model was developed to forecast the 24-hour wind speed increase. The premise of this model is that hurricanes of different intensities will intensify differently and that different factors will be responsible for intensification. Therefore, different types of intensification models were developed for major and minor hurricanes, and also based on how close the hurricane is to its rapid intensification period (RIP). A discriminant function analysis (DFA) was performed to help predict which storms will eventually become major hurricanes or only achieve minor status (Category 1 or 2 on the Saffir-Simpson Scale), thereby helping select the correct model to use. In addition, the DFA was used to help predict how close the storm was to its RIP. Therefore, the DFA helped select the correct model to predict the 24-hour wind speed increase, but the DFA also had a predictive quality in itself. The DFA was able to distinguish the key predictors between major and minor hurricanes, and the key predictors at different stages in relationship to the RIP. The 2005 Atlantic hurricane season was extremely active with 15 hurricanes of which 7 were major hurricanes. The 2006 Atlantic season has been noticeably calmer with only 5 hurricanes of which 2 were major. The key factors in hurricane intensification produced by the DFA were examined for both the 2005 and 2006 seasons. These predictors were used to explain the dramatic difference in hurricane activity between the two seasons.

Keywords: hurricane, intensity, predictors

Nicholas Lawalin, Western Kentucky University. Email: nicholas.lawalin@wku.edu; Rezaul Mahmood, PhD., Western Kentucky University, Kentucky Climate Center. Email: rezaul.mahmood@wku.edu; Stuart Foster, State Climatologist, PhD., Western Kentucky University, Kentucky Climate Center. Email: stuart.foster@wku.edu; *Temporal Shifts in Seasonal High (Peaks) and Low (Dips) Diurnal Temperature Range*

This project focuses on the daily diurnal temperature range or DTR for the eastern United States. The DTR has two maximums and two minimums in the eastern United States, east of the 100-degree West meridian and displays a pattern; it peaks in the spring, dips in the summer, peaks in the fall and dips in the winter. It peaks in the early spring because of increasing solar radiation, but very little evapotranspiration. In the summer the DTR dips because of abundant evapotranspiration, in the fall it peaks again because of diminishing evapotranspiration and in the winter it dips again because of significant daily cloud cover. What is being proposed is that these maximums and minimums have been "shifting". We tracked the DTR using USHCN (United States Historical Climate Network) data, smoothed the data and tracked the DTR over several decades to discover when these peaks and dips were occurring and looked for any trends. Since the spring peak is associated with the growth of vegetation the spring DTR can be used to get an estimate on the start of "spring." Some stations are indicating an earlier onset of the spring season.

Keywords: Temporal Shift, DTR

Henry W. Lawrence, Edinboro Univ of Pennsylvania. Email: hlawrence@edinboro.edu; *The early development of street tree planting in American cities, 1780-1820*

Street trees are a common feature of urban landscapes in the United States. How and where did this arboreal urban landscape form develop? My research looks at a crucial forty-year period after independence when many people began to plant street trees in American cities and towns. European precedents were influential but not determining forces. French cities had various forms of linear promenades, Dutch cities had tree-lined canals and British cities had green residential squares. But the American pattern of city trees began with individuals planting trees in front of their houses. The most important early plantings appeared in areas settled first by the Dutch — New York City and Albany — by the middle of the eighteenth century. Soon after independence people in other cities along the east coast began to plant street trees. By the middle of the nineteenth century most cities had street trees and they were becoming a ubiquitous feature of the American urban landscape. The American elm and the Lombardy poplar played crucial roles as pioneer species in the urban landscape and paved the way for other species later. This poster uses archival material, city maps and views to document this process.

Keywords: urban historical geography, United States, trees

Megan Lawrence, University of Oregon. Email: mlawren5@darkwing.uoregon.edu; Amy Lobben, University of Oregon. Email: lobben@uoregon.edu; *Tactile Map Use and Spatial Abilities: A Neurological Approach*

Cartographers have been interested in how people cognitively process cartographic representations for years. More recently there has been an increased interest in how blind and partially sighted map users process map information and use tactile maps. But, cartographic researchers are only beginning to understand potentially key components of blind and partially sighted map use, including spatial abilities and how they relate to tactile map use and comprehension. While behavioral research has been the back-bone of the emerging research in tactile map use, spatial abilities and blind navigation, new brain imaging techniques will allow us to move beyond behavioral data such performance and reaction times as a measure of the cognitive processes that define behavior. The growth of modern brain imaging techniques, such as functional magnetic resonance imaging (fMRI), has allowed cartographic researchers' to investigate the neurological patterns of brain activation, and therefore the cognitive processing that accompany spatial abilities and the neural underpinnings of complex high-order cognitive tactile map reading tasks. Functional MRI may reveal the spatial abilities used to solve tactile map reading problems, the strategies employed while engaged in tactile map reading activities, and differences in how individuals cognitively process tactile cartographic representations. This paper will present results from a project designed to investigate neurological brain patterns associated with completion of both general spatial ability and map-related tasks.

Keywords: cognitive cartography, tactile maps, blind map use, neuropsychology

Patrick L. Lawrence, University of Toledo. Email: patrick.lawrence@utoledo.edu; Kevin Czajkowski, Department of Geography and Planning, University of Toledo. Email: KCzajko@UTNet.UToledo.Edu; *Organizing Spatial Data for Watershed Planning in the Maumee Basin, Ohio*

In recent years several projects that apply GIScience techniques and technology to assist regional watershed planning efforts have been developed by faculty, staff and students affiliated with the Geographic Information Science & Applied Geography Research Center (GISAG) at the Department of Geography and Planning, University of Toledo, Ohio. The Maumee Basin in northwest Ohio is the largest watershed with direct drainage into the Great Lakes. The watershed is comprised of approximately 70% agricultural land cover resulting in significant water quality concerns related to surface runoff and sedimentation into streams and rivers. Rural residential development, industrialization and urban growth are also important land use trends that present numerous watershed planning concerns such as flooding, toxic contaminants, and wastewater discharges. In partnership with regional and state agencies including US EPA, USDA NRSC, Ohio EPA, Maumee RAP, and the ACOE, geographic information science and remote sensing have been utilized to examine land use changes, agricultural practices, spatial and temporal trends in water quality indicators, the organization of environmental and human use data, and application of conservation tillage methods. The work has been undertaken with public consultation and an aim towards improving community awareness and understanding of the issues and concerns within the Maumee watershed, which has included the development of spatial and GIS data base delivery via the web by use of ArcIMs and other tools. The paper will provide a review of results to date for these projects and an evaluation of the challenges and opportunities presented by this work.

Keywords: GIS, water resources, Great Lakes

Philip Lawton, Trinity College Dublin. Email: laton@tcd.ie; *Public Space and the so-called Urban Renaissance: Case Studies from London Dublin and Amsterdam*

This paper is aimed at examining the role of public space in urban change during the last decade in three European cities - London, Amsterdam & Dublin. In each city three spaces were selected that were part of, or central to, an urban renewal project during the last decade. So as to allow comparisons and contrasts to be made within and between the selected cities, these spaces were also selected based on three typologies: 1); Civic spaces of iconographic significance in terms of both the city and nation ? Trafalgar Square, London, Dam Square, Amsterdam, and O'Connell Street, Dublin; 2); Spaces that are central to distinct urban quarters or 'villages' ? Peckham Square in South London, Mercatorplein in The Baarsjes area of Amsterdam, and Smithfield Square in Dublin; 3); Spaces central to designated business areas ? Paternoster Square in The City of London, Zuidplein in the Zuidas area of Amsterdam, and Mayor Square in the IFSC business quarter of Dublin. The aims of the paper can be summarised as follows; A;) To examine the degree to which the design, management and overall delivery of public space is becoming standardised within cities and throughout cities across Europe; B;) To examine who the main beneficiaries are from re-vamping and re-imagining of public space; C;) To examine the knock-on effect of these changes on everyday

life, in terms of public reaction and usage. Overall, the paper will seek to address the role of public space in terms of the so-called 'urban renaissance'.

Keywords: Public Space, Urban Form, Urban Renaissance

Helen Lawton Smith, Birkbeck University of London. Email: h.lawton-smith@bbk.ac.uk; *R&D Activities in Foreign-owned Firms in the UK: Strategy, Power and Globalisation*

One of the central concerns for both the European Union and at the member state level is how to retain R&D capacity in foreign-owned companies in the face of growing competition from developing countries such as China, India and Russia on the one hand, and the US with its major markets on the other. This paper reports on the findings from five interviews with R&D intensive multinational companies in the Oxfordshire region. These form the UK component of a current eight country European Commission Framework 6 study which is concerned with factors that drive locational decisions on R&D by internationally operating firms. The three issues investigated in interviews are: locational determinants ('why are you here'), organizational structure ('how are your activities linked to other parts of the firm'), and regional linkages ('how are your activities embedded in local institutions and business environment'). Analytically the study is concerned with power - the extent to which senior managers in individual sites have autonomy to make decisions and determine practices relating to intra- and inter-organisational networks - e.g. with local universities. The study shows that in the short-term there are geo-historical reasons why companies will maintain core activities in Europe, while in the longer term, the pattern of relocation of R&D to countries which have supplies of the kinds of highly skilled people that are diminishing in Europe will escalate. Thus the link between structure and agency is examined in relation to both centrifugal (consolidation) and centripetal (dispersal) forces within international R&D activities.

Keywords: R&D, subsidiaries, universities, globalisation

Sarah C Laxton, PhD student, University of Cincinnati. Email: laxtonsc@email.uc.edu; Lewis Owen, PhD, University of Cincinnati. Email: lewis.owen@uc.edu; *Dendrogeomorphological reconstruction of an avalanche track in the Lahaul Himalaya, northern India: a framework for predicting snow avalanching in the Himalaya*

Snow avalanches substantially impact the landscape morphology and human infrastructure throughout the Himalaya; however, there is a paucity of event documentation for the region to assess the magnitude and frequency of events and to determine the causal factors. A dendrogeomorphic study was therefore undertaken in the Lahaul Himalaya of northern India during the summer of 2006 to provide a framework for future research to quantify the factors influencing and to determine the impact of snow avalanches throughout the Himalaya. The preliminary investigation defined the frequency and magnitude of snow avalanche events at a well-vegetated track near the village of Ratoli. This provided a chronology for avalanche events over the last few hundred years. The approximate minimum number of events is used as a proxy to show that climate variability is the major factor in controlling avalanche activity. This tree-ring record of snow avalanche activity will be expanded in future studies in the adjacent regions of the Lahaul and Garhwal Himalaya to aid in the prediction of snow avalanching.

Keywords: snow avalanche, Himalaya, dendrogeomorphology, India

Yanfen Le, Northwest Missouri State University. Email: le@nwmissouri.edu; *Discrete time in base geographic data: representation, implementation, and visualization*

Spatio-temporal representation and visualization are research challenges identified by University Consortium for Geographic Information Science (UCGIS 2004). This paper studies the representation, implementation and visualization of discrete time in base geographic data, including boundary, and elevation. Since space can be represented in objects or fields, we argue time should not be restricted to one model. Based on the continuous-discrete dichotomy in space and time, we extend representations from space to space-time. The feature-based temporal model is introduced for objects, and the layer-based model for fields. The latter can be further divided into sequential snapshots and changes-based, such as current-state-with-changes (CSC). We recommend CSC for fields with little change, and sequential snapshots for fields with considerable fragmentation across space over time. The feature-based temporal model can be implemented in an object-relational (OR) database. A record in an OR table describes a temporal feature, which may have multiple temporal spaces and themes. Since OR features are not supported by existing GIS programs, we develop a temporal GIS to visualize temporal geographic data stored in OR database. Different spatio-temporal models are integrated in the temporal GIS based on common spatial area and temporal period. In other words, geographic data are displayed in the map window only if they are within the same study area and are valid during same time period. In this temporal GIS, we can display a status or visualize a history by

animation. This paper contributes to add the time dimension to base geographic data.

Keywords: GIS, Representation, Visualization, Time, Base geographic data

Philippe Le Billon, University of British Columbia. Email: lebillon@geog.ubc.ca; Resources, Identities, and Territorialization: Kirkuk's Oil Fields and the Kurdish Question in Iraq

This paper engages with arguments linking natural resources, identities and territorialization, using the case of Kirkuk's oil fields in southern Kurdistan/northern Iraq. The control and exploitation of oil reserves in Kirkuk has been a major point of contention in processes of territorialization and state formation in Iraq. It resurfaced most recently through Kurdish territorial claims, populations movements, and military activities seeking to incorporate Kirkuk into an autonomous Kurdish region. Building on a review of the literature on the 'resource curse' and the particulars of the case of Kirkuk, the paper takes a historical approach to questions of identity, territoriality and governmentality around Kirkuk's oil fields. It suggests that oil undermined state formation and consolidation, notably through the symbolic codes of identity associated with its territorialization.

Keywords: political geography, political ecology, oil, Iraq

Mathias Le Bossé, Kutztown University of Pennsylvania. Email: lebosse@kutztown.edu; D-Day Tourism: Sites and Paths of Memory

In this poster I will survey and discuss the place of tourism and related activities in the commemoration of "D-Day". Besides official ceremonies and other forms of public remembrance, "cultural tourism" has emerged as an important element in the constellation of practices that perpetuate the legacy of a major world event and the memory of its participants. The poster will primarily focus on World War II tourism in Normandy, the original site of the Battle of 1944, while suggesting comparative forays into the phenomenon elsewhere, especially on this side of the Atlantic.

Keywords: memory and commemoration, cultural tourism

Richard Le Heron, University of Auckland. Email: r.leheron@auckland.ac.nz; Co-constituting spaces and scales of food governance: the examples of the globalising New Zealand dairy and kiwifruit agri-food chains

One of the most interesting features of recent developments in global agri-food activity has been a fundamental shift in the basis of international competition, further separating out and differentiating the globalising elements of the world food system. This development has been broadly associated by many international researchers with a shift in power from the production to the retail end of the agri-food system and changes in the geo-economic and geo-political regulatory environment. The paper explores the genesis of two different regulatory approaches to food governance in the New Zealand agri-food context. The specific New Zealand conditions are shaped by the insertion of New Zealand's neo-liberalising agri-food actors and commodity chains into different regulatory frameworks around the world. Agri-food activities in New Zealand are now highly concentrated, at the farm, processor and marketing levels, though with quite different production and marketing organisations, cultures, strategies and aspirations. Dairy and Kiwifruit provide distinctive examples for the interrogation of the emergence of different scales of governance and their multiple and interactive effects at different geographic scales and temporal horizons. The paper considers recent developments in dairying, with reference to the domestic and international strategies of Fonterra, the 5th ranking global dairy corporate headquartered in New Zealand, and, in the case of kiwifruit, the emerging relationship between EuropGap and Zespri, the New Zealand kiwifruit marketing organisation.

Keywords: Globalisation, governance, geographic scale, agri-food chains

Jennifer Lea, University of Glasgow. Email: jennifer.lea@ges.gla.ac.uk; Investing in the body

The human body is increasingly being framed as an object of anxiety (Bauman 2005), and as such it is a lucrative site for economic engagement. We are being called to make cultural investments in, across and through our bodies, making and remaking them at the same time as our bodily registers are being cultivated and populated by a variety of capitalist forces. One response to this bodily anxiety has been the use of a number of corporeal technologies and techniques that are based in the realms of the performative, or the non-cognitive (Thrift 2006). This marks a move towards a 'control society' (Deleuze 1995) in which bodies are organized, constituted and defined in ever more intimate ways: power runs through the depths and across the surfaces of bodies as they perform the world into being. This paper looks at one of these corporeal technologies which serves to both define the body in particular ways, and also is a tool with which we can initiate bodily becomings. Rooted as it is in the experiential register, yoga highlights the importance of such realms as the affective, the

virtual and the visceral for consumer society. The paper firstly asks how yoga (as a philosophical and spiritual project) defines spaces of corporeal action, in order to constitute yogic bodies. The paper then moves to interrogate how the practice of yoga materially constitutes individual bodies, perhaps offering a proliferating range of possibilities for the relational constitution of human life.

Keywords: Body geographies, corporeal technologies, yoga, consumer society

Michael Leaf, University of British Columbia. Email: leaf@interchange.ubc.ca; Southeast Asia's New Urban Frontier: Regulatory Informality and Periurban Change in Indonesia and Vietnam

This paper discusses three propositions: (1) that ongoing urban transitions throughout the nations of Southeast Asia will mean that significant proportions of new urban growth will occur in the periurban zones of the region's major metropolitan areas, and therefore periurbanization represents a new urban frontier for many of the countries of Southeast Asia; (2) that periurbanization is better understood through a set of interlinked processes of socio-spatial change rather than in terms of distinct territorial units; and (3) that the interaction of these processes presents new challenges and constraints for local governance and regulation, particularly with respect to the oversight of land use and environmental changes within Southeast Asia's metropolitan regions. An examination of these dynamics in metropolitan regions of Indonesia and Vietnam indicates how persistent and reconfigured practices of regulatory informality, in tension with formal structures of local governance and planning, shape the socio-spatial outcomes of urban growth and change in these locales.

Keywords: periurbanization, urban transition, informality, governance, Southeast Asia

J H. Leaman, Ph.D., Villanova University. Email: j.harold.leaman@villanova.edu; The Spatial Significance of the Amish School Shooting

The October 2, 2006 shooting in a Lancaster County (Pennsylvania) Amish school gained global attention. What was largely missed in this coverage was the importance of the school as a geographic focus for the Amish community. The school serves as a community center for the Old Order Amish. They have no church buildings and the school is therefore one of the few centers of community life outside of the home. The centrality of the Amish school in Old Order Amish culture is analyzed in this paper. The analysis also examines the discussion for more secure Amish schools after the October, 2006 shooting.

Keywords: Amish, education, Pennsylvania

James L. LeBeau, Ph.D., Southern Illinois University Carbondale. Email: lebeau@siu.edu; George Rengert, Ph.D., Temple University. Email: grengert@temple.edu; The Impact of Ethnic Boundaries on the Spatial Movement of Illegal Drug Dealers

Abstract: Geographic profiling commonly uses a metric that predicts an anchor point (such as the home) of a serial offender to be located near the center of a point pattern of their offenses. These routines commonly do not account for barriers to the spatial movement of the offender. These barriers include physical barriers such as rivers and expressways as well as psychological barriers such as boundaries between ethnic groups. The impact of ethnic boundaries is explored in this analysis. It is determined that the impact of an ethnic barrier is to spatially displace the predicted anchor point of the offender in the direction of the ethnic boundary.

Keywords: Movement, ethnic barriers, Drug Dealers

Alexandre Lebel, Centre for Research in Regional Planning and Development, Laval University. Email: alexandre.lebel@crad.ulaval.ca; Robert Pampalon, National Institute of Public Health, Quebec. Email: robert.pampalon@inspq.qc.ca; Marius Theriault, Centre for Research in Regional Planning and Development, Laval University. Email: marius.theriault@crad.ulaval.ca; Geography of obesity in Quebec, Canada

The interest for the geography of obesity in Canada is recent and most of the effort remains descriptive. Usually, rates of obesity are simply mapped or presented over a single set of large administrative areas. In this study, we expand our understanding of the geography of obesity in the Canadian province of Quebec, by taking into account two geographical levels, simultaneously, and by introducing various individual and ecological variables into an explanatory framework of obesity. Data come from the 2003 Canadian Community Health Survey. About 25,000 respondents are nested into their local area ($n = 1,500$) and regional area ($n = 60$) of residence. The response variable is a binary version of the Body Mass Index ($BMI < \text{or} = 30 \text{ kg/m}^2$). Predictors include individual variables such as age, gender, income, educational attainment and physical activity as well as various contextual variables such as fast food restaurant's density, mixed land use and area deprivation, measured at both the local and the regional levels. In the forthcoming analysis, a first set of logistic multilevel

models will be performed to ascertain the existence of local and regional variations in obesity, after accounting for individual attributes. Furthermore, a second set of multilevel models will be carried out to examine the association between contextual variables and obesity. Results, including the construction of the geographical units, will be presented and discussed during the conference.

Keywords: Obesity, multilevel modeling, Land use, milieu

Scott Lecce, East Carolina University. Email: lecces@ecu.edu; Robert T. Pavlowsky, Missouri State University. Email: ; Gwenda J. Schlomer, Missouri State University. Email: ; Mercury Contamination of Floodplain Sediments from Historic Gold Mining in Gold Hill, North Carolina

Although mercury is the most common contaminant of aquatic ecosystems worldwide, its sources, pathways and toxicity-controlling processes are complex and relatively poorly understood. One source of mercury contamination is gold and silver mining where use of the mercury amalgamation process has led to the release of unprecedented amounts of mercury to the environment. The first documented discovery of gold in the U.S. occurred in 1799 in the Piedmont of North Carolina, leading to the nation's first gold rush between about 1830 and 1860. Although North Carolina led the nation in gold production until 1848, and produced more gold than any other state in the southern Piedmont gold belt, few studies of mercury contamination associated with this mining exist. The purpose of this study is to determine the magnitude and explain the distribution of mercury contamination in floodplain sediments more than 100 years after large-scale gold mining ceased in the region. This paper presents preliminary data suggesting that floodplain sediments are highly contaminated downstream from the Gold Hill mining district, one of the most intensively mined areas in the North Carolina gold belt. Maximum background Hg concentrations in 25 samples collected from source area soils is about 0.1 ppm. Samples collected from exploratory floodplain cores show that about half are contaminated above 0.1 ppm and 25% had more than 5 times the maximum background concentration. Well-defined peaks in mercury concentrations in overbank deposits are used to assess historic rates of floodplain sedimentation.

Keywords: mercury contamination, gold mining, floodplain sedimentation, North Carolina

Robert M. Leddy, U.S. Census Bureau. Email: robert.m.leddy.jr@census.gov; Use of Satellite Imagery to Distribute Populations to Inhabited Places for Population-at-Risk Assessments

In response to a natural or human-induced disaster that has impacted one or more countries, the U.S. Census Bureau staff that analyzes international population data may be called upon to provide current population estimates of the specifically affected local areas. However, for many countries in the developing world, reliable census populations at the place level - cities, towns, and villages ? are not readily available. The Census Bureau therefore is developing methodologies to estimate populations of discrete inhabited places by (1) using medium- and high-resolution satellite imagery to identify and characterize the structures within their built-up areas; and (2) distributing provincial or district populations, available from most national censuses, to those places based on their structural footprints. These methodologies will be illustrated in this presentation, and validations of the populations by correlations with census numbers in areas where the latter are available also will be discussed. Numbers produced from these methodologies for assessing populations at risk in local areas with no available census data, anywhere in the world, would be invaluable.

Keywords: Humanitarian response, GIS, remote sensing, urban-rural, population estimates

Samuel Thomas Ledermann, University of Florida. Email: sledermann@gmail.com; Agricultural Export Strategies Revisited: A Cross-Country Analysis of the Impact of Agricultural Exports on Development and Inequality in sub-Saharan Africa

Over the past decades, global measures of income inequality have become a focal point in analyses of development. While a vast amount of global studies have supported the popular belief of a rise in both within- and between-nations' income inequality over the past century, fewer studies have dealt with an in-depth analysis of income inequality in sub-Saharan Africa. A plethora of studies on the other hand have investigated patterns of growth, finding that increases in trade resulted in increases in growth. This presentation attempts to bridge these two bodies of work by focusing on agricultural export production and its impact on development and inequality in sub-Saharan Africa. The presentation provides first an overview of some applicable theories and literature on development and income-inequality, agricultural export strategies and trade liberalization in the sub-Saharan African realm. Second, using the most recent UN-WIDER database on World Income Inequality, the author presents an empirical cross-national analysis of agricultural exports' relationship with development and inequality measures at the national scale. Finally, by highlighting specific case studies of sub-Saharan African nations, the author discusses policy implications of the findings

for agricultural-exporting nations, especially in the context of the continuing World Trade Organization's (WTO) Doha Round negotiations and their proximate impact on agricultural trade and liberalization.

Keywords: Africa, agriculture, economic development, globalization

Amy Renae Ledin, University of Wisconsin Eau Claire. Email: ledinar@uwec.edu; Lisa Theo, University of Wisconsin Eau Claire. Email: theolj@uwec.edu; The Changing Visibility of Wisconsin's Queer Communities

Previous research on Wisconsin's Queer communities demonstrated a diffusion of Queer focused businesses and/or organizations from predominantly mid-size cities and large urban areas to rural regions and smaller towns. This project examines the current visibility of Wisconsin's Queer-friendly businesses and/or organizations to determine if a similar spatial distribution currently exists. Data was collected on the type and location of businesses and/or organizations advertising in publications marketed towards Queer individuals such as: Damron's Travel Guide, Gayellow Pages, Quest, and Instep. The number, type, and distribution of current Queer-friendly businesses and/or organizations are compared to similar data collected for the years 1979, 1985, 1990, 1995. November 7, 2006 the state of Wisconsin voted to enact a constitutional amendment that read "only a marriage between one man and one woman shall be valid or recognized as a marriage in this state and that a legal status identical or substantially similar to that of marriage for unmarried individuals shall not be valid or recognized in this state." The amendment passed, and Wisconsin voting results for this amendment are compared to counties with Queer-friendly businesses.

Keywords: queer, Wisconsin, county map, gay, lesbian

Byoungjae Lee, University at Buffalo. Email: bleec4@buffalo.edu; Capturing Near Boundary Behavior of Moving Object through Spatially Extended Topology

There are many cases in which a sense of oppression or moral pressure is felt when we cross the boundary of a region. To cross a boundary, it is understood that a minimum level of effort or cost is required. Here, the boundary of the region can be described as a threshold line with a critical limit needed in order to cross. Thus, crossing the boundary can be significant signal to activate spatially embedded intelligent system such as emergency management system. To represent the behaviour of moving object near the boundary of the region, a new formal approach about the scope of influence for an object is described. A scope of influence is defined as the conceptual area where there is a possibility of a phenomenon or event occurring because of this object. Such an object can be considered a spatially extended point (SEP) by considering its scope of influence in conjunction with its location. The formalism is based on a topological data model and uses a 12-intersection model to represent the topological relations between a region and the SEP. Fourteen topological relations are described in the formal model. Compositions of gradual changes between topological relations show how to represent the qualitative spatial behaviors of a SEP objects near the boundary of the region. These qualitative spatial behaviors will hold the potential for enhancing spatial decision support system by providing more refined description of object movement near the predefined region.

Keywords: Moving Object, Human Environment Perception, Spatial Cognition, Qualitative Spatial Reasoning, Spatially Extended Point, Scope of Influence

Chang Ho Lee, Dr. Alan MacPherson, SUNY - Buffalo. Email: chlee3@buffalo.edu; Technology acquisitions and spillovers in US pharmaceutical industry

This study explores technology acquisition and spillovers in US pharmaceutical industry. It shows how companies in pharmaceutical industry acquire key technologies from what specific source and why. Integrating resource-based view, the study examines the mechanism of technology acquisition and spillover effects between the firms and the sources of their R&D. Surveys and interviews with selected firms will be used for the research method.

Keywords: technology spillover, technology acquisition, R&D, pharmaceutical industry

David Lee, PhD in Geography, Florida Atlantic University, Florida Atlantic University. Email: Dlee@fau.edu; Charles Roberts, PhD in Geography, Florida Atlantic University. Email: croberts@fau.edu; The Napa and Sonoma Valleys Compared: Contrasts in Land Use Texture

Both the Napa and Sonoma Valleys of California are renowned for growing grapes for wines of international reputation. Popular media describe the Sonoma Valley as smaller (correct) and more rustic and varied in character (not self-evident). This study uses a variety of cartographic and imagery inputs to determine the texture of land use in the two valleys. The objective is to identify vineyard polygons on Digital Orthographic Quarter Quadrangles, to map the size

and shape of vineyards vs. non-vineyard land, and to arrive at a rational description and visualization of the textures of land usages in the two valleys. We conclude that the Napa Valley pattern is one of nearly constant, contiguous cultivation of grapes interrupted occasionally by riparian vegetation, oak forest on slopes, settlement forms, and (rarely) other agricultural land uses. The Sonoma Valley has a smaller percentage of the land in grapes, individual vineyards are smaller, and the non-grape uses are more widespread. This technique permits the mapping of vineyards using remotely sensed imagery and could be used as a first step to create a topology of viticultural patterns beyond these test regions.

Keywords: Wine, viticulture, land-use, geovisualization, cartography, Sonoma and Napa Valley, California

Elizabeth Lee, University of British Columbia. Email: liz_lee@interchange.ubc.ca; Geraldine Pratt, University of British Columbia. Email: gpratt@geog.ubc.ca; *Transnational Lives and Gendered Immobilities*

We draw upon empirical studies of two migration experiences: those of Mexican women who travel between Mexico and the United States delivering remittances to family and friends in their hometowns in Mexico; and those of Filipinas who come to Canada as domestic workers on temporary work visas and later sponsor family members' migration to Canada. In both cases, we examine the chronic persistence of the migration process in migrants' lives, how a 'single' migration experience radiates through the generations, such that migrancy continues as a destabilizing way of life. We examine how migrancy, often never quite completed, nonetheless creates many types of immobility? geographically, economically, and politically? in part, through the radical deskilling of future generations. Rather than a celebration of migration and mobility, we draw attention to the play between mobility and immobility in migrants' lives.

Keywords: migration, gender, domestic workers, migrants

Eungul Lee, University of Colorado at Boulder. Email: eungul.lee@colorado.edu; Thomas N. Chase, Ph.D., University of Colorado at Boulder. Email: tchase@cires.colorado.edu; Balaji Rajagopalan, Ph.D., University of Colorado at Boulder. Email: Rajagopalan.Balaji@colorado.edu; Roger G. Barry, Ph.D., University of Colorado at Boulder. Email: rbarry@nsidc.org; Trent W. Biggs, Ph.D., INTERA Incorporated, Niwot, Colorado. Email: trentbren@yahoo.com; *Effects of spring land cover change on early Indian summer monsoon variability*

Effects of land cover change over the Indian subcontinent during the preceding March through May (MAM) on early Indian summer monsoon (ISM) rainfall were examined using the Normalized Difference Vegetation Index (NDVI) and Global Precipitation Climatology Project precipitation for the period of 1982–2003. MAM NDVI anomalies have increased significantly in western and northern India. NDVI anomalies are correlated with the decreasing trend of early ISM rainfall. Decreasing rainfall originates from the decreased land-sea thermal contrast, which is due to the decreasing trend of July sensible heat flux in central and northern India. This is related to the increase in the preceding MAM NDVI anomalies because early ISM rainfall is significantly and negatively correlated with the standardized principal component of the first leading empirical orthogonal function for the preceding MAM NDVI anomalies. Also, composite differences of early ISM rainfall for the five years of highest and of lowest MAM NDVI anomalies demonstrate that early ISM rainfall is significantly less for the years of highest MAM NDVI anomalies. Composite differences of wind vectors and divergence in the upper level also support the conclusion that the weak early Indian summer monsoonal circulation is due to the increase in land cover during the preceding spring, which would promote an increase in latent heat flux and a decrease in sensible heat flux thereby favoring a reduced horizontal temperature gradient.

Keywords: Indian summer monsoon rainfall, Land cover change, Land-sea heat contrast

Gunhak Lee, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: lee.2584@osu.edu; Alan Murray, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: murray.308@osu.edu; *Municipal wireless broadband network design: facility location-network design approach*

Many U.S. cities and counties are attempting to build wireless broadband networks for their own communications infrastructure and services in their communities. The reason for this is that local governments are willing to provide broadband services to their communities at a lower cost and in wider areas to meet economic, social, and public needs. Such a 'wireless movement' is followed by the emergence of wireless mesh technologies such as IEEE 802.11x (Wi-Fi) and 802.16x (WiMax). Each access point of wireless mesh networks can forward and receive data to nearby nodes as a wireless router and thus only a few access

points are required to be connected to existing wired infrastructure. Therefore, wireless mesh networks are highly reliable, flexible, and low cost extensions of wired infrastructure. In this work, we address a facility location-network design problem dealing with Wi-Fi equipment siting and wireless backhaul network design simultaneously. We focus on an empirical study in the city of Dublin, Ohio.

Keywords: facility location-network design problem, Wi-Fi equipment siting, network topology, maximal covering location problem

Harry F. Lee, Department of Geography, The University of Hong Kong. Email: harrylee@hkusua.hku.hk; *Climatic Change and Chinese Population Growth Dynamics over the Last Millennium*

Climate-population relationship has long been conceived. Although the topic has been repeatedly investigated, most of the related works are Eurocentric or qualitative, thus the relationship remains ambiguous. In this study, we employed fine-grained temperature reconstructions and historical population data to test quantitatively a hypothesized relationship between temperature change and population growth (i.e., cooling associated with below average population growth) in China over the past millennium. Results were: (1) Geographically, long-term temperature change significantly determined the population growth dynamics of China. Besides, population growth in Central China was shown to be responsive to both long- and short-term temperature changes; wherein in marginal areas population growth was only sensitive to short-term temperature fluctuations. (2) Temporally, the temperature-population relationship was clouded in some periods, yet it was attributable to the factors of drought and social buffers. In summary, a temperature-population relationship was mediated by regional geographic context, the aridity threshold, and social factors. Subject to the upcoming threat posed by climatic change on human societies, this study seeks to contribute to a better accounting of climatic effects on human societies.

Keywords: climatic change, demography, carrying capacity, China

Jae Yong Lee, Department of Geography, Ohio State University. Email: lee.2187@osu.edu; *Space-Time Activity Measure Focused on Individual Space-time Path and Social Network*

Space-time activity analysis based on the time geography concept has received more attention in recent year, as the analysis is sensitive indicators of individual activities in space and time. Increasing availability of individual-level data and improvement in the capabilities of Geographic Information System (GIS) make be more feasible than ever. Space-time path based on time geography concept provides information about the individual's activity space and the influence of fixed activities. Space time path is also suitable to explain the relationship with other people or with society because repeated process of coupling and uncoupling path with other paths for specific purposes or the daily process of forming "activity bundles" devoted to various forms of social interaction. Conceptually, "activity bundles" can catch the social interaction. But, practically, this "activity bundles" is not suitable because "activity bundles" contains "whole network" concept. "Whole network" assumes that the entire actors and their relationships are known. This assumption is often impractical, especially in large area. Even though space-time path itself is often impractical to show social interactions, the concept of space-time path is powerful. Conceptually, space-time path can show each individual's activity and interaction with other individual or society based on space and time. Therefore, it is necessary to develop more suitable measure for investigating both activity pattern and social interactions based on space and time. In this presentation, more suitable measure for social interactions at specific time and space will be discussed.

Keywords: Time Geography, GIS, Social Network, Space-time

Jeffrey A. Lee, Texas Tech University. Email: jeff.lee@ttu.edu; Kevin R. Mulligan, Texas Tech University. Email: kevin.mulligan@ttu.edu; Lucia Barbato, Texas Tech University. Email: ; Laura Petteway, Texas Tech University. Email: ; Matthew Driscoll, Texas Tech University. Email: ; Benjamin Sawicki, Texas Tech University. Email: ; Jordan Long, Texas Tech University. Email: ; Catherine Lee, Texas Tech University. Email: ; Jim Dick, US Fish & Wildlife Service. Email: ; *Modification of Playa Lake Wetlands in West Texas*

The Llano Estacado region of West Texas and Eastern New Mexico contains tens of thousands of small playa lakes. These ephemeral water bodies, essentially, are the only wetland environments for local and migrating wildlife species. Mapping and classifying playa lakes for the National Wetlands Inventory using a soils database (SSURGO) and photointerpretation provides a data set to investigate the degree of human-induced modification of these wetland resources. We compare two areas. Hale County is dominated by irrigated agriculture and 1238 playas were mapped in our study. Deaf Smith County has more varied land uses, mainly irrigated agriculture, dryland farming and rangeland and has 318 mapped playas. This study is concerned with direct modification of the playas

themselves, including plowing the playa surface, draining and ditching, excavating, and diking and impounding. In Hale County, 25% of the mapped playa area is plowed for crops. This, obviously, removes the wetland vegetation and alters the surface characteristics of the clay soils. Three percent of the playa area is drained or ditched, 2% is diked or impounded and 1% is excavated. These last three modifications significantly alter the hydrology of the playas, reducing the area that is water-covered. For Deaf Smith County, 7% of the playa area is plowed, 10% is drained or ditched, 3% is diked or impounded, and 1% is excavated. Also significant, but not measured here, is farming in a playa's drainage basin but not plowing the playa itself. This increases sedimentation into the playa, thus reducing its water storage capacity.

Keywords: wetland, playa

Jiyeong Lee, University of North Carolina at Charlotte. Email: jlee68@unc.edu; *Defining 3D Spatial Neighborhoods for Topological Analyses using a 3D Network-Based Topological Data Model*

After 9/11 there are special interests in 3D models to represent internal structures of micro-scale urban areas, in order to understand and analyze human movements in micro-levels. Spatial analyses such as optimal evacuation route or fire spread analyses within the building need to define spatial relationships among rooms to describe how individual spatial units interact - termed "spatial neighborhood". 3D searching operations should deal with complex geometric computational problems involved with defining spatial neighborhoods between the 3D target object and well-formed 3D objects in a micro-scale urban area (rooms in a building). Therefore, this study is motivated by the need of a new method to define the spatial neighborhoods among the 3D objects for analyzing human behaviors in micro-space, such as a relative accessibility measurement for people with different abilities, or an evaluation of neighborhood pedestrian accessibility. This study presents an algorithm to define spatial relationships based on network-based neighborhoods for 3D topological analyses in micro-scale urban areas. The approach utilizes the algorithm to find a minimum spanning tree (MST) in a connected and undirected graph. Because the dual graph topological model G is a network representation having geometric properties, well-known algorithms for finding minimum spanning trees in graphs can be applied to defining 3D spatial neighborhoods. In other word, the algorithm can generate a minimum spanning tree from a node n_i of the network G, and then the network segments within a certain distance from the node n_i can be identified from the MST.

Keywords: 3D GIS, Spatial Neighborhood, Computational Geometry, 3D Topological Data Model

Jongwon Lee, Ewha Womans University. Email: jongwonlee@ewha.ac.kr; *Development of Spatial Skills Test*

The Association of American Geographers is currently developing a Teacher's Guide to Modern Geography (TGMG). The project is funded by FIPSE (US Department of Education). The primary aim of the teacher's guide is to improve the preparation of pre-service teachers. A spatial skills test has been developed to assess teachers' mastery of the Guide's content and skills. The 16-item standardized test measures performance on a variety of tasks based on aspects of spatial cognition, including orienting oneself on a street map, comparing map information to graphic information, choosing the best location based on several spatial factors, imagining a slope profile based on a topographic map, correlating spatially distributed phenomena, overlaying maps, and recognizing spatial data types (point, line, or polygon) based on verbal descriptions. The two equivalent forms of the spatial skills test have been developed to be used for pre- and post-test research design. 470 undergraduate and graduate students from 9 different universities in the US took the test. The preliminary results based on the test data will be discussed at this presentation. The sample test items of the spatial skills test will be shown at the same time.

Keywords: Spatial Ability, Spatial Skills, Test

Richard P Lee, University of Newcastle-Upon-Tyne. Email: R.P.Lee@ncl.ac.uk; *The Political Economy of Food Security and the Everyday Practices of Food Sovereignty*

Over recent decades the growth in international agricultural trade has led to increasing interest in the notion of food security. In the post-war developed nations, productivist frameworks prioritised national self-sufficiency but these have been eclipsed with the construction of more highly integrated and international food supply chains. In states which are home to high levels of under-nutrition and hunger, food security strategies are also being shaped by trade considerations. I argue that a new mode of food security is emerging as a consequence of the WTO Agreement on Agriculture, with different implications for different places. I first examine recent work on food security by the UK's Department of Environment, Food and Rural Affairs (Defra). As a response to new, trade-driven notions of food security, an international social movement is emerging to promote food sovereignty rather than security. The food sover-

eignty movement, comprising a network of NGOs, demands the removal of agriculture from the international trade system and rejects agricultural biotechnology and industrial agriculture in favour of localised food production and the protection of rural livelihoods across all nation-states. Drawing upon interviews and participant observation work, I investigate the everyday political practices and moral economies of those involved in the food sovereignty movement and relate these to the current international political economy of food security.

Keywords: Food Security; International Agricultural Trade; Food Sovereignty

Sang Lee, PhD Candidate, University of California, Berkeley. Email: salee@nature.berkeley.edu; *Migrant Women in the Global South: Nicaraguan women working in the nontraditional agricultural export industry in Costa Rica*

The expansion of nontraditional agricultural exports (NTAE) resulting from neoliberal agricultural policies promoting an export oriented economic development, have changed the shape and structure of rural economies in the global south. This study focuses on how changes related to NTAE production determine where and how women work in the agricultural industry. While a number of studies demonstrate an increased labor demand in women's participation in NTAE production and post harvest processing, there is a dearth of literature examining the relationship between international migration and export agriculture. This study uses the case of Nicaraguan migrant women working in pineapple and cassava post-harvest industry in north-central Costa Rica to examine the relationship between international migration and NTAE production, more specifically how legal status and gender shape women's work options and its structure. Informed by in depth interviews, surveys and participant observation the study shows that international production norms for export required by purchasing countries, namely the European Union, is the most significant factor for segmenting the labor pool between documented and undocumented women migrant workers. Furthermore, women absorb the challenges of fresh crop production and export, such as irregular demands and perishability through their work structure and piece rate wages in both pineapple and cassava packing plants. At the broadest level, this study seeks to understand the relationship between international development and international migration in the global south, illuminating how the process of economic globalization unravels on the ground for the most marginalized workers in the global economy.

Keywords: agriculture-export, international migration, international development, women-migrant, migrant labor, Costa Rica, segmented labor market

Taesoo Lee, SUNY-Buffalo. Email: taesoo@buffalo.edu; Chris S Renschler, SUNY-Buffalo. Email: rensch@buffalo.edu; *Community based integrated watershed management and modeling in Cattaraugus Creek Watershed, NY*

The 1,500 km² Cattaraugus Creek Watershed, NY, covers five counties and is a major contributor of discharge and sediments to Lake Erie. The watershed provides various recreational activities, fishing resources, and excellent biodiversity. The gorge area has been identified by EPA as best remaining forest landscape in the region in terms of biological integrity and diversity. Recent decades, human induced landuse changes and poorly designed land management resulted in water quality degradation. The negative impacts are caused by intensive agricultural landuse, residential sprawl, stormwater, and toxic sites including superfund and radioactive waste management sites. Moreover, poor coordination and communication among the municipalities, inefficient information and data, and financial and technical resources unavailability are responsible for the problems deterioration. This study introduces the recently launched Cattaraugus Creek Integrated Watershed Management Project to develop strategy together with local stakeholders for soil and water conservation, biodiversity, and recreational sources. This project consists of two major elements. First, scientific research part in the project including data acquisition, sampling, and modeling provides basic understanding of watershed conditions, spatio-temporal dynamics of runoff and sediment discharge, and the impact of future landuse change to design an integrated watershed management plan. The modeling for runoff and sediment yields will be conducted based on historical and grab sampling data using the Soil and Water Assessment Tool (SWAT). Second, watershed protection plan and the modeling effort will support community based collaboration in watershed management including problem identification, community education, and guideline and regulation development.

Keywords: integrated management plan, SWAT

Wook Lee, Texas State University-San Marcos. Email: wlee@txstate.edu; A disaggregate analysis of accessibility

This paper explores accessibility patterns and its changes for the tri-state area including Indiana, Kentucky, and Ohio. Locational accessibility is differentiated by type of workers, as a way to measure the growth potential of employment or residential development. Utilizing the information minimization (IM) model developed by O'Kelly and Lee (2005), balancing factors of each occupation are employed as surrogates for accessibility with respect to residential and employment locations, respectively. Locational accessibility is examined for 6 occupational groups and visualized in 1990 and 2000 at the county level for the tri-state area.

Keywords: commuting, accessibility, disaggregation

Yong-Sook Lee, National University of Singapore. Email: geolys@nus.edu.sg; An Unhappy Coupling between Competitiveness and Balanced Development?: Unpacking the New Regional Policy in South Korea

This paper examines the new regional policy under the Roh Moo-Hyun administration and its impacts on regional development in South Korea. The new regional policy aims at achieving more balanced regional development through the construction of regional innovation systems. For this goal, the Special Act for Balanced National Development was enacted in 2003, and several projects have been pursued. The projects include 'a new administrative capital', 'innovation clusters', 'regional strategic industry', 'transfer of public institutions to local areas', 'establishment of regional innovation system' and so on. Problematising the rationale behind the new regional policy, this paper debunks the "innovation-oriented balanced development", which is characterized by an unhappy coupling between the contradictory policy goals (enhancing competitiveness through innovation vs. achieving more balanced development). We examine the socio-political contexts under which the two contradictory policy goals have been combined in South Korea and evaluate the feasibilities and the limits of the new regional policy.

Keywords: regional policy, regional development, innovation, South Korea

Youngmin Lee, Ewha Womans University, Korea, and Ohio State University. Email: ymlee@ewha.ac.kr; Youngmin Lee, Ewha Womans University, Korea, and Ohio State University. Email: ymlee@ewha.ac.kr; Transnationalism "unspeakable": A Globalizing Change of Los Angeles Koreatown

Globalization across the Pacific is bringing new patterns of urban-social change into the western coast of North America. Traditionally the coastal urban centers have drawn Asian immigrants seeking to achieve the American dream, taking advantage of the inner ethnic town as a stepping stone to mainstream society. Los Angeles Koreatown is such a place, having played an important role for Korean immigrants to make "go east to the U.S." history. Recent decades, however, have seen L.A. Koreatown re-territorialized into a newly identified multi-ethnic place as well as a nodal point of Korean transnationalism. Global-scaled South Korean transnationalism, which has increased in parallel with her rapid economic growth, has brought a huge influx of Korean capital and concomitantly led many undocumented migrant workers of many backgrounds into L.A. Koreatown. This study examines the nature and process underlying this spatial and economic transformation in, and cultural re-ethnicization of K-town in the era of globalization. Korean and Korean-American newspapers and other media data are examined to identify the strengthening global connection of K-town with the outer-world. Also, L.A. mainstream newspapers and government-issued documents are examined to identify the mainstream perspective on, and the redevelopment plan for, downtown and inner ethnic town, including K-town. Semi-structured as well as informal interviews are being conducted with key informants from the hegemonic actors above, to the undocumented laborers at the bottom. The activities of K-town based NGOs also are examined, so as to present the dynamic interplay of transnationalism and the local politics of place.

Keywords: Koreatown, transnationalism, re-territorialization, politics of place

Ronnie D Leeper, WKU. Email: vergungen@hotmail.com; Rezaul Mahmood, WKU. Email: rezaul.mahmood@wku.edu; Stuart Foster, WKU. Email: stuart.foster@wku.edu; Kenneth Hubbard, University of Nebraska-Lincoln. Email: khubbard1@unl.edu; Increase in Near Surface Atmospheric Moisture Content Due to Land Use Changes

Land use change can affect soil moisture, surface energy, and near-surface temperature and moisture content. During the 20th century portions of the North American Great Plains have experienced introduction of irrigated agriculture. It is expected that land use change from natural grass to irrigated land would increase moisture content. Modeling studies have shown enhanced rate of evapotranspiration from irrigated areas. This study analyzes dew point temperature (Td) to assess the affect of irrigated land on near surface moisture content. This provides an opportunity to use Td data from the Automated Weather Data

Network. Td data from six non-irrigated and eleven irrigated locations were analyzed. Daily time series were developed with their length as the factor in selection. Comparison of Td between non-irrigated and irrigated locations showed higher growing season Td over irrigated areas. Average growing season Td at irrigated sites can be 4.74 °C higher. Moreover, individual monthly Td at irrigated sites can be 5.43 °C higher during growing season. The results conclude that land use change in the Great Plains has modified near surface moistness.

Keywords: Evapotranspiration, Land use change, and Great Plains.

Loretta C. Lees, King's College London, Dept. Of Geography. Email: loretta.lees@kcl.ac.uk; Gentrification and social mixing: towards an inclusive urban renaissance?

Twenty six years ago now Holcomb and Beauregard (1981) were critical of the way that it was assumed that the benefits of gentrification would 'trickle down' to the lower classes in a manner similar to that hypothesized in the housing market. Nevertheless, despite fierce academic debate about whether or not gentrification leads to displacement, segregation, and social polarization, it is increasingly promoted in policy circles both in Europe and North America on the assumption that it will lead to less segregated and more sustainable communities. In keeping with a longstanding strand of research that has identified the liberal desires of the new middle classes for difference and diversity in the city as key to the process of gentrification and to the creation of a more diverse and tolerant city, the benefits of functionally as well as socially mixed urban communities have become something of an unquestioned gospel in policy discourse. But there is a poor evidence base for this policy of 'positive gentrification'. For as the gentrification literature tells us despite the new middle classes' desire for diversity and difference they tend to self-segregate and far from being tolerant, gentrification is part of an aggressive, revanchist ideology designed to retake the inner city for the middle classes. In light of this I argue that New Labour's policy of social mixing requires critical attention with regards to its ability to produce an inclusive urban renaissance and the potentially detrimental gentrifying affects it may inflict on the communities it intends to help.

Keywords: gentrification, social mixing, public policy, New Labour

Laura Leete, Willamette University. Email: lleete@willamette.edu; Manuel Pastor, University of California, Santa Cruz. Email: mpastor@cats.ucsc.edu; For Richer or Poorer? A Regional Comparison of Labor Market Intermediaries Serving Higher- and Lower-Income Workers

In this paper we examine differences in labor market intermediary (LMI) usage among higher and lower-income workers in two different regional economies. In previous work (Benner, Leete and Pastor, 2007) we find that the pattern of LMI usage is different in the Silicon Valley region of California and in Milwaukee, Wisconsin, with more LMIs in Silicon Valley serving white-collar and higher income workers. Here we probe this difference. We examine how the LMI sector reflects differences in the economic structures of the two places and whether LMIs provide different services and have different implications for different classes of workers in the two locations. We also test whether the relationship between LMI use and social capital differs in the two locations for higher- and lower-income workers. This work will draw on a unique set of survey data collected on over 1,000 workers in the two regions in 2001 as well as on case studies of LMIs in both locations.

Keywords: regional economics, workforce issues

Stephen Legg, University of Nottingham. Email: stephen.legg@nottingham.ac.uk; Stephen Legg, . Email: stephen.legg@nottingham.ac.uk; Race, sexuality and scale as problematisations of colonial governmentality: interwar and international regulation of Indian prostitutes

The social hygiene movement of the early 20th century addressed the biopolitical realm from its controversial heart, the sexual politics of reproduction, to the more mundane practices of public health. Across these epistemological and material spaces were intertwined questions regarding race and sexuality: who should reproduce; who threatened future generations; who was safe to be where; and which race could bear the liberal burdens of a life of social/civil hygiene. This paper will trace the negotiation of these questions by the colonial Government of India with regard to the question of prostitution. The question was posed both internally and internationally. The Association for Moral and Social Hygiene was emboldened by a radical tradition and worked from the local level in India to shame and expose the government into action to clamp down on regulated or tolerated brothels. In contrast, the League of Nations, after initial social purity inclinations, adopted hygienist campaigns, with the help of various international organisations, including the British Social Hygiene Council. The League, however, was forbidden from intervening in "domestic" or "national" affairs, and thus initially confined itself to international trafficking. The undeniable role of licensed brothels in sustaining this traffic led, however, to bolder calls for national and local action to tackle this global problem. This

provoked a serious debate about scale, authority, race, and sexuality which threw into question the imperial geographies of the long nineteenth century in contrast to the international and globalising geographies of the twentieth.

Keywords: Governmentality race sexuality scale india prostitution

Carl J. Legleiter, Department of Geography, University of California Santa Barbara. Email: carl@geog.ucsb.edu; *Quantifying the spatial variability of river morphology and hydraulics in natural and restored gravel-bed rivers*

Current research at the interface between geomorphology and ecology emphasizes linkages among geomorphic complexity, habitat heterogeneity, and the diversity and productivity of aquatic ecosystems. River restoration seeks to reestablish these connections by rehabilitating fluvial processes that create and maintain habitat and thus sustain viable populations of critical species. Achieving this goal will require a spatially explicit approach to quantifying variability in channel morphology and hydraulics. Geostatistics provides an appropriate, stochastic framework for this characterization, summarizing variance at different scales based on the dissimilarity between pairs of observations separated by a range of lag distances. Although Euclidean distance is not an appropriate metric for meandering channels, transformation to a channel-centered coordinate system allows variations along and across the channel to be described in an intuitive frame of reference. This approach to quantifying reach-scale spatial variability is demonstrated using field data from pristine and restored gravel-bed rivers in Yellowstone National Park and California's Central Valley, respectively. For example, variogram models fit to depth and velocity measurements collected at different discharges summarize the stage-dependent spatial structure of the flow field, and comparison of variogram models from different reaches illustrates the relationship between disturbance history and reach-scale spatial variability. For the recently restored river, geostatistical tools are used to characterize morphologic response to a period of sustained high flows: point bar development, bank erosion, and modification of the constructed pool-riffle geometry. This type of spatially explicit description efficiently and quantitatively summarizes the evolution of geomorphic complexity from the simple initial conditions of restored channels.

Keywords: fluvial geomorphology; river restoration; spatial variability; geostatistics; gravel-bed river

Ann M. Legreid, Ph.D., Central Missouri. Email: legreid@cmsu1.cmsu.edu; *Space and Place in the Nordic-American Experience*

Nordic immigrants in America read, analyzed, and cognitively mapped their environments in innumerable ways, maps that were influenced by a host of factors such as age, gender, worldview, and Old World experience. The New World meant new spatial forms and modifications of old ones. Nordic-American perceptions of space were shaped largely by four intertwining forces, i.e. personal experience/cognition, mass produced cartography, school geography, and the National Geographic Society, a widely available source of information and images about American and world cultures. The world view of an immigrant was a collage of cognitive and factual maps. It was shaped by national atlases, county platbooks, values, attitudes, and experiences, a blending of the Old World and the New. Immigrants navigated their environments with a set of interrelated visual cues influenced heavily by kin and social relationships. They were attached to spaces at different scales, from dwelling to neighborhood and ethnic community. The study utilizes immigrant letters and memoirs that expressed an evolving sense of place in the immigrant mind.

Keywords: space, perception, cognition, immigrant

Ute Lehrer, Assistant Professor, York University. Email: lehrer@yorku.ca; Jennefer Laidley, York University. Email: jlaidley@yorku.ca; *Waterfront Developments as Megaprojects: The Post-Industrial Promise?*

Starting from an analysis that posits large-scale urban waterfront redevelopment as exemplary of a 'new megaproject' in a post-industrial, 'post-modern' context, this paper examines the promises made by proponents of these redevelopments, focusing particularly on the discourses which frame waterfront redevelopment as a "public good". Significant criticism was leveled against 'old megaprojects' for their inability (or unwillingness) to deliver on the modernist promise of urban equality. As such, adequate evaluation of the 'new megaproject' requires a comprehensive understanding of the promise that it holds in a significantly different economic and cultural context. As part of a larger project examining Toronto's current waterfront redevelopment project, this paper will present the results of a textual analysis of a range of official documents as well as newspaper articles and will offer a variety of preliminary conclusions about the efficacy of the 'new megaproject' as a conceptual category for urban waterfront analysis.

Keywords: megaproject, waterfront, public good, urban redevelopment, post-industrial morphology, neoliberal urbanism, discourse analysis

Ute Lehrer, Assistant Professor, York University. Email: lehrer@yorku.ca; Patrick Gamsby, York University. Email: pgamsby@yorku.ca; *Gentrification, neo-liberalism, and the condo boom in Toronto*

Using the case of Toronto, Ontario this paper will explore the 'condo boom' that is currently taking place in Canada's largest metropolis. We argue that the ideology of neo-liberalism is propelling the rapid construction of expensive condominiums in Toronto, while concurrently constraining the potential for affordable housing projects. We, therefore, wish to shed light on the confluence of power that is utilizing the city of Toronto's official plan to privilege the expansion of middle class housing over working class housing, thus resulting in gentrification. It is our position that a tripod of gentrification, neo-liberalism, and the condo boom are altering the makeup of the city, and serve as mutually reinforcing entities in the discourse of Toronto's condominium explosion.

Keywords: gentrification, condominium boom, urban policy, neo-liberal urbanism

Jonathan Leib, Florida State. Email: jleib@fsu.edu; *Plates and Politics: Banal Nationalism, Geopolitics, and Identity in the Automobile Era*

In the automobile era of the 20th and early 21st Centuries, the most visible expression of a person's place of residence is found on the license plate attached to their vehicle. While the first automobile registration numbers were assigned in Europe in the 1890s, it was in 1903 that the U.S. state of Massachusetts issued the first standard license plate with the location of the place of registration clearly marked. Within several decades of the first issuance of license plates, localities began to use these devices for advertising purposes, such as promoting local economies and tourism through pictures and slogans. By the middle to late 20th Century, however, some countries and localities started to use the license plates they issued to promote nationalist ideology, as a way of trying to establish a measure of sovereignty, and to pursue geopolitical claims to territory. Using Michael Billig's concept of 'banal nationalism', this presentation uses numerous examples to illustrate how some authorities use such a banal signifier of place as the license plate to further nationalist goals (as in slogans found on Quebec and Panama license plates), seek to legitimate claims to independence and sovereignty through the issuance of new license plates to vehicles in breakaway regions (such as Katanga, Serbian Krajina, and the Transdnister), and further states' claims to neighboring territory (such as Iraq's claim to Kuwait, and Venezuela's claim to the western part of Guyana).

Keywords: political geography, license plate, banal nationalism, geopolitics, identity

David S. Leigh, University of Georgia. Email: dleigh@uga.edu; *Human Influence On Floodplain Sedimentation Along The Upper Little Tennessee River, Southern Blue Ridge Mountains, USA*

This research examines human-induced geomorphic transformation of the Upper Little Tennessee River valley within a 363 km² catchment of the Southern Blue Ridge Mountains. Objectives focus on measuring late prehistoric and historic overbank floodplain sedimentation rates and deriving ungaged flood records from sedimentology. Stratigraphy, particle size, and geochronology (radiocarbon and cesium-137) data were measured at three mainstem floodplain sample sites from cores and outcrops. Particle size was measured in continuous down-column overbank sediment samples (1-3 cm increments). Results indicate that late prehistoric sedimentation rates were less than 1 mm/yr, whereas historical sedimentation rates are an order of magnitude higher (5 to 17 mm/yr). Furthermore, the most rapid historical sedimentation rates of 13-17 mm/yr occur after 1960. These latest high sedimentation rates correspond to a time period of gentrification in the region characterized by second home construction, road construction, and other erosive land uses related to population and infrastructure growth. Comparison of particle size data with post-1945 stream gage data indicates that the percent of particles larger than 0.25 mm is a good indicator of the frequency of large overbank floods, but that little information is provided about flood magnitude. Particle size data indicate that the highest frequency of large floods occurs after 1960, relatively few large floods occurred circa 1910-1960, whereas many large floods occurred during the peak time of timber harvest in the region circa 1875-1910. Ongoing research concerns the importance of wet versus dry climatic periods on sedimentation versus changes in land use.

Keywords: Appalachian, fluvial, geomorphology, sediment

Nancey Green Leigh, Professor of City and Regional Planning, Georgia Institute of Technology, Atlanta, GA. Email: ngleigh@coa.gatech.edu;
Gun Control in Local Economic Development

H.J. Rubin's now classic 1988 article characterized the practice of economic development as "Shoot anything that flies, claim anything that falls." Little has changed about economic development practice in the nearly 20 years since his article was published. But during the same time period, the academy has engaged in critical debate over "economic development equals economic growth" perspectives, as well as what challenges the larger movement towards sustainability poses for the theory and practice of local economic development. After reviewing the debate, this paper discusses some promising strategies that may coax economic development practitioners into putting down their traditional weapons and engaging in the real business of local economic development planning. The widening inequality and environmental degradation that is the legacy of traditional economic development makes it critical that they do so, and that the gap between economic development theory and practice is bridged.

Keywords: economic development, sustainable development, theory, practice

Karl K. Leiker, Ph.D, Westfield State College. Email: karllkr@aol.com;
Spatial variation of heat mortality according to gender, age and day in the New York City heat wave of 1901: a GIS approach

The June-July, 1901 heat wave was the most deadly weather-related event in New York City (NYC); nearly 700 lives were lost due to the intense heat and humidity of that heat episode. Using data from a vital statistics and newspapers, this study examines the spatial variation of heat mortality in regard to age, gender and spread of the heat wave, by day from the first day to the last. The daily pattern of the mortality is sporadic at first, but by the third day is linearly distributed along Third Avenue on the east side. On the peak day, heat mortality spreads throughout the west side and into lower Manhattan and then into Brooklyn. No clear spatial pattern exists with gender, except more male deaths are noted on the west side. Unlike present day heat waves, the 1901 episode has more deaths evenly distributed throughout the age cohort, even in the 20-40 division, a group that usually had the fewest heat deaths. Most heat deaths in the elderly cohort seem to be located on the west side, ranging from about 20th street to the forties

Keywords: heat wave, medical geography

James Kurt Lein, Ohio University. Email: lein@ohio.edu; Karis L Day, Palmer Engineering. Email: kday@palmernet.com; Assessing the Growth Inducing Impact of Infrastructure Development in Appalachian Ohio

Within the context of environmental impact assessment, growth inducing impacts describe a project's potential to foster spatial, economic, or population growth in a geographic area. Although typically viewed as an adverse consequence of land use change, examples can be noted where the investment in infrastructure was used to promote growth and encourage beneficial changes to a region. One example of this intent can be found in Appalachia with the Appalachian Regional Commission's program to construct the Appalachia Development Highway System (ADNS). Initiated in 1965 to address the severe economic disparities in the Appalachian region, the success of the ADHS program remains unclear. The purpose of this study is to examine the spatial expression of growth along the Ohio portion of the ADHS (Corridor D/State Route 32) for the period 1976 to 2005. Using a combination of remote sensing and GIS techniques, the result of this study reveal a detectable pattern of change with respect to the highway corridor and provides a methodology to spur additional research within the broader Appalachian region.

Keywords: remote sensing, Appalachia, environmental assessment

Thomas R. Leinbach, University of Kentucky. Email: leinbach@uky.edu; Matthew Zook, University of Kentucky. Email: zook@zooknic.com;
Adoption of E-commerce Strategies by U.S. Manufacturing Firms and the Role of Customer Initiated Demands

There has been much speculation about the impact of the Internet on the production and distribution process as well as the spatial organization of firms and industries and the changing roles of suppliers and customers. Based on a mail/web survey conducted in 2006, this paper explores the major forces which propel E-commerce strategies and how these strategies are being adopted by U.S. manufacturing firms. We focus largely on the motivations behind the innovative use of E-commerce and particularly the extent to which it is being driven by customers. Preliminary interviews with firm managers indicate that customer initiated demand is an important factor in its adoption. The detail and creativity of the applications clearly vary by firm size, ownership structure, and industrial sector. Also considered is the extent to which other factors (internal dynamics, suppliers, etc.) are affecting E-commerce adoption.

Keywords: e-commerce, adoption strategies, manufacturing firms, suppliers, outsourcing

Anthony Leiserowitz, Decision Research. Email: ecotone@uoregon.edu;
Alaskan Perceptions of Global Warming

Americans generally perceive climate change as a geographically and temporally distant problem, with significant consequences for marginalized people and places (e.g., small island or poor tropical countries), but not for the United States (Leiserowitz 2005). Climate change, however, is already having severe impacts on the U.S. state of Alaska. Alaska's climate has warmed about 4°F (2°C) since the 1950's and 7°F (4°C) in the interior during winter. It has already experienced significant impacts including dramatic loss of sea ice, shifting ecosystems, permafrost melting, infrastructure damage, and forest fires. This presentation reports results from a representative statewide survey of the Alaskan public (n=1018) conducted in 2006 to investigate whether Alaskans have detected these changes, attribute them to anthropogenic climate change, perceive climate change as a significant threat, and what mitigation and adaptation measures they support. The Alaskan results will also be compared against recent national survey data to examine the role of actual experience in climate change risk perception and behavior.

Keywords: climate change, risk perception, hazards, Alaska

Michael Leitner, Louisiana State University. Email: mleitne@lsu.edu;
The Impacts of Hurricanes Katrina and Rita on Public Safety in Louisiana - A Spatial and Temporal Analysis of Reported Crimes

The natural disaster that took place on August 29, 2005 (Hurricanes Katrina and Rita) in Louisiana has created a historic opportunity to evaluate our understanding of the impact of massive population displacement and resettlement on crime, community and the criminal justice system. This research assesses the impact of massive displacement of people (non-criminals and criminals) on crime rates both within Louisiana and selected urban areas outside of Louisiana (Houston, Atlanta). Within Louisiana certain parish populations have dramatically increased in a relatively short period of time, including Baton Rouge, Shreveport, and many rural parishes. Three different types of data are used in this analysis. As denominator data to calculating crime rates, population counts were collected from the US Census Bureau and from applicants for the FEMA Individual Assistance (IA) program. Reported crime data used in this research represent the seven index-crimes that define Part-I criminal offences: Murder, rape, robbery, aggravated assault, burglary, larceny theft, and motor vehicle theft. Part-I offences were provided by the Louisiana Commission on Law Enforcement for the years spanning 2000-2005. Crime data for 2006 will also be collected, if they become available in time. Finally, socio-economic data were collected from the US Census Bureau. Methods include exploratory spatial and temporal data analysis, including co-maps; detection and mapping of crime hot spots and their changes over time; and spatial regression models to analyze the relationships (and their changes) between crime and other demographic and socio-economic data believed to be associated with crime.

Keywords: hurricane, crime, Louisiana

Margareta Amy Lelea, UC Davis. Email: malelea@ucdavis.edu; Sorina Voiculescu, Ph.D., West University, Timisoara, Romania. Email: vsorina@cbg.uvt.ro; Representations of Gender in the Romanian Academy: the development of a feminist field of study in a post-socialist state

How is gender perceived by scholars within Romania? How do these gender studies reflect the evolution of feminist research in this post-socialist country and how do these intersect with analyses by non-indigenous researchers? As concepts cross borders, how do they transform in the process? Critically, how does uneven development influence power relations among these transactions? This literature review of gender in the Romanian academy aims to focus on changing representations and subjectivities in relation to the last decade and a half since the Revolution from communism.

Keywords: Gender, Academia, Post-Socialism, Romania

Denyse Lemaire, Associate Professor, Rowan University. Email: lemaire@rowan.edu; The Southern Burgundy Wine Region - A Distinctive Terroir

The Burgundy wine region is most famous for the "Vignobles de la Cote" and the "Hautes Cotes de Nuits", the region located between Beaune and Dijon. This paper will examine the merits of the southern portion of Burgundy, namely the "Vignobles de la Cote" and the "Hautes Cotes de Beaune", a region that includes Meursault, Santenay, and La Rochepot.

Keywords: Wine, Vineyard,

Dave Lemberg, Western Michigan University. Email: lemberg@wmich.edu; Feasibility of Improving Aid to Heart Attack Victims with CPR-Trained Volunteers

The dispatch of Emergency Medical Services (EMS) has been a longstanding problem in Geography. EMS response times to calls have been reduced to 5-6 minutes through location-allocation and routing approaches. To reduce response time by ambulances would require larger numbers of vehicles and crews that would stretch the economic viability of the service providers. On the other hand, there are potentially many people trained to give Cardiopulmonary Resuscitation (CPR) within a minute or two of many heart attack incidents. If they could be contacted and dispatched to incidents on a voluntary basis, initial aid could be started minutes before the EMS team arrives, with a significant improvement in survivability. To explore the feasibility of this approach, travel diaries will be completed by a group of CPR-trained subjects to overlay travel patterns and activity spaces on a set of geolocated heart attack incidents to determine potential coverage. Surveys will also explore issues and perceptions of CPR-trained volunteers participating in a program using spatial technologies to call for emergency aid.

Keywords: Emergency Medical Services, CPR, travel diaries, dispatching

Mary D. Lemcke, University Of Delaware. Email: mdlemcke@udel.edu; Tracy L. DeLiberty, University of Delaware. Email: tracyd@udel.edu; Brian Hanson, University of Delaware. Email: hanson@udel.edu; Cort J. Willmott, University of Delaware. Email: willmott@udel.edu; Cathleen A. Geiger, Cold Regions Research Environmental Laboratory. Email: Cathleen.A.Geiger@erdc.usace.army.mil; Stephen F. Ackley, Clarkson University. Email: sackley@pol.net; Evaluating the Utility of Remotely-Sensed Antarctic Sea-Ice Thickness Information for Use in Model Validation Studies

The distribution of Antarctic sea-ice thickness, and its response to climate change, has been evaluated using a variety of climate models, often producing conflicting results. Such studies may be limited by poor model physics and the lack of continental-scale, sea-ice thickness observations for model validation. From 1995 to 1998, the National Ice Center (NIC) produced weekly, operational sea-ice charts using a variety of remotely-sensed imagery, from which sea-ice thickness estimates have been derived for the entire Southern Ocean. Antarctic sea-ice thickness estimates derived from remotely-sensed imagery were compared to in situ ice-thickness observations and determined to be suitable for use in model validation. The Antarctic ice-thickness distribution derived from the NIC charts were then used to validate the Antarctic ice-thickness distribution produced by the National Center for Atmospheric Research (NCAR) Community Sea Ice Model, Version 5 (CSIM 5.0).

Keywords: sea ice thickness, Antarctica, sea ice modeling, model evaluation, polar climate

Josh Lepawsky, Memorial University of Newfoundland. Email: jlepawsky@mun.ca; Clustering as anti-politics machine? Economic development and political expediency in planning Malaysia's Multimedia Super Corridor.

High-tech industrial clustering is increasingly being adopted as a policy panacea for local and regional development in newly industrializing countries. This paper addresses the formation of an 'intentional cluster' in Malaysia called the Multimedia Super Corridor. Drawing on Ferguson's notion of development projects as 'anti-politics machines' the paper demonstrates how notions of clustering are mobilised by state stakeholders to literally reshape the political-economic landscape of the country while nullifying political opposition to those plans. In this sense, the paper 'theorizes back' to mainstream economic geography literature that tends to treat clustering as an exclusively economic phenomenon.

Keywords: clustering, agglomeration, information technology, Malaysia, Asia

Timothy F Leslie, Arizona State University, Tempe. Email: Timothy.Leslie@asu.edu; Economic Subcenters in a Postmodern Urban Area

Centers of economic activity within urban areas have fascinated scholars and led to a wide range of conceptual frameworks and theories to explain patterns of development and interaction. This paper sets forth a method to define urban centers within a spatial-economic framework. Phoenix is used as an exemplar city, growing by over a factor of thirty between 1950 and 2005 and labeled as one of the largest of the fastest growing metropolitan areas in the United States. My analysis combines previous methodologies to define centers, and follows with an investigation of their economic and employment properties. Both employment and establishment patterns are critical to my definition of centers. Smoothing provides the distributions used to generalize center locations. Following the identification of centers, I develop a binary choice model to assess the factors that drive establishment location in a center. In order to show temporal change in this rapidly growing metropolitan area, centers are identified

and their structure investigated in 1995 and 2004.

Keywords: urban structure, subcenters, clustering, industrial location

Agnieszka Leszczynski, Simon Fraser University. Email: aleszczy@sfu.ca; Quantitative limits to qualitative discussions: Critical GIS, GIScience, and the philosophical divide

Historically there has been a disjuncture between the discourses of Critical GIS and GIScience, associated with the inability of the critical establishment to leverage their critiques in a language relevant to the technical community. While much attention has been given to early debate, this paper examines postmillennial exchanges and appraises what, if anything, has changed. Although critiques have moved beyond emphases on positivism, poststructuralist interpretations of GIS continue to privilege epistemology as a basis for deconstructing the technology. Stemming from competing understandings of ontology and epistemology, poststructuralist critiques misapprehend the realist commitments latent in GIS' foundation in computing. Whereas poststructuralism positions epistemology as the basis of inquiry and thereby the antecedent of ontology, GIScience interprets ontology to be a fixed universe whose contents are epistemologically encoded into existence. These differences are philosophical, and are subject to Richard Rorty's observation that any two discourses separated by such divergent ontological and epistemological commitments are ultimately incommensurable. If these discourses are to communicate, a mechanism must be identified to articulate critique in tractable terms. These arguably exist in the form of the Semantic Web, which is engineered to enable nuanced knowledge representation. Formal ontologies - domain-specific conceptual models? constitute flexible means of mapping between philosophical and informatics interpretations of ontology. Because they represent partial accounts of reality, formal ontologies effectively situate knowledge at the level of the machine. While formal ontologies operationalize a new vocabulary for representation, they do not bridge the philosophical divide. Critical GIS and GIScience may remain irreconcilable discourses.

Keywords: Critical GIS, GIScience, ontology, epistemology, formalization

Chi Kin Leung, California State University, Fresno. Email: cleung@zimmer.csufresno.edu; Yehua D Wei, University of Wisconsin at Milwaukee. Email: weiy@uwm.edu; Wangming Li, Zhejiang University. Email: ; Economy, Institution, and Location: Foreign Investment in the Yangtze Delta Region, China

Based on an investigation of foreign manufacturing establishments in four cities (Shanghai, Nanjing, Hangzhou, Suzhou) in the Yangtze Delta region, this paper examines the relative importance of economic and institutional factors in the location decisions of multinational companies (MNCs) in China. The paper finds that unlike their location decisions in developed host economies, MNCs generally pay more attention to institutional factors when placing their investments in the Yangtze Delta region. The range of institutional factors MNCs consider includes the administrative level or affiliation of Chinese partner(s), transparency of local regulations, and quality of local government agencies. The range of economic factors MNCs consider includes market size, operation costs, and land availability. MNCs generally place their investments in Shanghai or Nanjing if their ventures involve state-affiliated Chinese partner(s). These joint ventures tend to situate in the existing sites of their Chinese partner(s) in old industrial districts in inner city areas; they tend to have a stronger host market orientation. By comparison, MNCs undertaking wholly-owned investments usually place their establishments in Suzhou and in the new industrial districts in the outer city areas of the four studied cities. Early foreign wholly-owned investments in the region tend to have a lower, and recently newly established ones a higher, host market orientation. Operation costs (such as wages and various fees) and land availability are common economic considerations of MNCs for their investments in the region.

Keywords: economy, institution, location, foreign investment, Yangtze Delta

Michael J. Levengood, University of Georgia. Email: mikey912@uga.edu; Designing green space for a crowded Cairo: Al-Azhar Park

Situated on a 74-acre former debris and fill site in Cairo, Egypt, the Al-Azhar Park is an example of green space development in a city characterized by high density and a lack of open space. When the park opened in 2005, the network of local and international NGOs that planned and financed its development, touted the park as a much-needed recreational space and 'green-lung' for Cairo and as a catalyst for economic development in the neighboring Darb al-Ahmar district. I ask what kind of space the park offers the city and its inhabitants, and how the use of the space compares to the planners' stated vision. Through qualitative investigation, including interviews with park visitors, and through participant observation and behavioral mapping, this research reveals the extent to which the formal and informal land uses of the park correspond

with the project's planned purpose.
Keywords: Egypt, planning, parks

Delphis Levias, University of Delaware. Email: dlevias@udel.edu; Steven Quiring, Texas A&M University. Email: squiring@geog.tamu.edu; Assessment of student learning in a hybrid PBL capstone seminar

Successful assessment is key to the learning process. Instructors need to provide students with appropriate, explicit and timely assessment to optimize student learning. Despite the potential benefits of problem-based learning (PBL), some may be reluctant to formulate PBL activities for their classes because it would require a new set of rubrics and assessment practices. In PBL curricula, assessment should be used to encourage and reward student participation. This talk presents an analytical rubric developed for diagnosis of student learning via formative assessment in a capstone environmental impact analysis course. The use of the analytical rubric in student grading is also explained. It is hoped that this rubric provides a template for how student learning can be assessed in other courses in geography curricula that employ a similar student-centered approach to learning.

Keywords: geography education, assessment, problem-based learning

Arielle Levine, University of California - Berkeley. Email: alevine@nature.berkeley.edu; Staying Afloat: State agencies, local communities, and international involvement in marine protected area management in Zanzibar, Tanzania

As funding for international conservation initiatives has shifted away from directly supporting developing states towards privatization and decentralization in natural resource management, developing countries are working increasingly through international NGOs and private sector organizations to support protected areas. The government of Zanzibar has come up with an innovative system to guarantee access to international funds through its Environmental Management for Sustainable Development Act. This Act strategically enables external organizations to be designated as protected area managers while maintaining a role for the state as an intermediary in reaching local communities. While this system allows protected areas to be established when government resources are limited, it sets up a convoluted relationship between the Zanzibari state, international agencies, and local communities that is not conducive to fostering sustainable programs. In the case of Zanzibar's marine protected areas, this results in many challenges and obstacles including confusion over the links between conservation and development objectives, the limitations of ecotourism as a development strategy, the uneven concentration of program resources, the peripheralization of the Zanzibari state, and the negative implications for local capacity-building when the state is threatened by a strong civil society. More attention must be given to promoting a supportive role for the Zanzibari state, as well as strengthening local initiatives for natural resource protection.

Keywords: Tanzania, Zanzibar, protected areas, marine, coastal, community-based conservation, ecotourism, international development, developing states, ICDPs

Yael Levitte, Cornell University. Email: yl343@cornell.edu; Sharmistha Bagchi-Sen, SUNY-Buffalo. Email: geosbs@geog.buffalo.edu; Global Pressures on Learning Regions/Clusters: Time Series Analysis of Biotech Firms

New economic geography theories, particularly Porter's Cluster theory and Florida's Learning Region theory, are instrumental to understanding the role of spatial proximity for actors in high-tech, knowledge-based industries. Successful innovation and economic success in these industries is often credited to geographical agglomeration. Increasingly, however, critics of such conceptualizations label them 'chaotic' or 'fuzzy,' questioning their emphasis on local interaction and their utility for policy makers (e.g. Martin and Sunley, 2003; Bathelt et al, 2004). Alternative conceptualizations suggest a more complex geography of global and local economic networks. Empirical evidence to support these new ideas is still quite sparse. Studies of the biotechnology industry, however, highlight the utility of both local and global networks to innovation and economic growth. We argue that the maturation of the biotech industry provides an opportunity to revisit New Economic Geography theories. In this paper, we employ a time-series analysis of two surveys of biotech firms, from 1998 and 2004, to bring out changes in economic practices as the industry matures. Empirical data help reformulate some controversial ideas, contributing to the critical controversy. We conclude by suggesting how a consideration of the ways maturing biotech firms alter their practices leads towards a more nuanced articulation of the ideas under critique.

Keywords: New Economic Geography, clusters, learning regions, regional innovation systems, biotechnology

Adam Levy, University of Colorado-Boulder. Email: adam.levy@colorado.edu; From Bakery to Brothel: Re-territorialization and exploitation in urban Turkey

Turkish slums - or *gecekondus*— have evolved considerably since they first emerged over 30 years ago. Following the resurgence of Kurdish separatism and the manifestations of structural adjustment, competing forces have exposed the *gecekondus* to re-territorializations of their social and economic spaces. Domestic development priorities, negotiated within this context of post Cold War neoliberalism and a messy counterinsurgency, have yielded distinctive urban and political geographies including new spaces of exclusion. Explicitly, these consequences are visible where urbanization and mobility patterns have fragmented and altered traditional social networks to reveal new rural-urban migration and exploitation trends. "Natashas", or women from the former Soviet Union engaged in prostitution, have typically served as the most notorious markers of regional changes. Recent findings suggest Turkish citizens are also trafficked and exploited internally as indicated by shifting uses and controls over slum spaces; neighborhoods too poor to support bakeries are finding brothels emerging behind these same facades. Drawing on a 2005 pilot study of internal Turkish trafficking, this paper incorporates theoretical perspectives about spatial scales and social networks using both quantitative and qualitative methods to produce more geographically sensitive development research. Through ideas about the hyper-differentiation of space and the uneven impacts of neoliberal urbanization, the conventional divide separating domestic versus international human trafficking research is also reconsidered. The findings and conclusions provide support for a typology of spaces of exclusion and exploitation while paying special attention to urban and peri-urban slum processes.

Keywords: Slums, migration, networks, Turkey

Alan A. Lew, Ph.D., Northern Arizona University. Email: alan.lew@nau.edu; Web 2.0 Virtual Travel-escapes

Blogs, podcasts, instant messaging, user reviews, photo sharing, mashups, wikis, multiplayer virtual worlds, open source, interactive Ajax-based websites, social bookmarking, tagging (folksonomy), social networks, and other forms of social software are all aspects of Web 2.0, which is generally defined as a more user participatory and emersive web environment than was Web 1.0, which was more of a one-way, web-as-information-source. Travel and tourism websites, primarily focused on destination promotion and travel agency sales, were (and continue to be) a leading segment of the first wave of Web innovation in the 1990s. Web 2.0 applications in travel and tourism have, so far, been relatively limited. However, what is currently under development can provide considerable insight into the future of tourism promotion, destination development, and the travel experience. Areas, for example, that will have particular resonance for how people conceive and experience travel destinations include niche market development, online community building, and user-generated content. These have the potential to create new destinations and change existing destinations in ways that are difficult to predict.

Keywords: travel, tourism, web 2.0, virtual worlds, social software, WWW, internet, new media

Shawn W Lewers, MS URP, Florida State University. Email: swl2727@fsu.edu; 3-D Visualization Techniques of On Site Sewage Disposal Systems in Woodville Florida

North Florida is experiencing heavy development pressures in rural areas outside of Tallahassee. One area experiencing these pressures is the Woodville/Wakulla Springs area. This area is a karstic plain, which recharges one of the largest and most pristine fresh water aquifers in the world that is susceptible to groundwater contamination from septic tanks or On Site Sewage Disposal Systems (OSDS). This poster will depict techniques that will be used not only to map the locations of OSDS sites in the area, but use GIS techniques to create 3 dimensional visualizations of the septic tank spatial locations and their proximity to selected environmental features such as Wakulla Springs.

Keywords: Ground Water, Contamination, Nitrates, OSDS, Septic Sytems, Karst

Geoffrey Lewis, University of Michigan. Email: glewis@umich.edu; High-value wind power: spatial and temporal correspondence of wind speed and electricity LMP in Michigan

Renewable sources are currently responsible for a small fraction of the electricity generated in the U.S., only 2.4% in Michigan. There are 4 wind turbines now operating in Michigan with 2.6 MW of combined capacity, much less than the estimated 16,560 MW of Class 3 and above wind resource available (Class 3 wind speeds are greater than 6.4 m/s at 50m height). There is clearly a large unrealized wind resource in Michigan, but which areas are the most desirable for locating wind generators? This presentation discusses work addressing this question. By examining the relationship between the wind resource in Michigan and wholesale electricity prices (measured hourly as locational marginal prices

(LMP) at 7380 generator nodes across the state), we can develop an understanding of which areas offer the greatest economic value. This examination specifically focuses on how wind speed and LMP vary in space and time and how they are correlated. LMPs include the effects of congestion and so tend to be higher at times of peak demand and in areas with marginal transmission capacity. The use of LMPs allows us to differentiate between areas with favorable wind resources, which can be found using wind speed data alone, and areas with the greatest economic value, which have high LMPs as well as favorable wind resources. Historical data are used to explore where and when favorable wind resources coincide with high LMPs, highlighting those places and times deserving of closer scrutiny for siting wind generators.

Keywords: energy, wind power, electricity

Jason M Lewis, School of Geography and Earth Sciences, McMaster University. Email: lewisjm@mcmaster.ca; Susan Vajoczki, School of Geography and Earth Sciences, McMaster University. Email: vajoczki@mcmaster.ca; Monitor and Quantify Shoreline Change between Playa Guiones to Playa Ostional, Guanacaste, Costa Rica

The study area consists of four beaches separated by rocky headlands located along the Pacific coast of the Nicoya Peninsula, Costa Rica. Although the beaches are concurrent along a 12 km stretch of coastline each is characterized by a unique combination of: beach slope, length and shape; sediment composition, size and mineralogy; and vegetation. It is anticipated that the active tectonism in the region combined with the distinct wet/dry seasons will result in dynamic beaches with distinct morphology. The four beaches each have discrete land uses: Playa Guiones is a tourist beach that is experiencing a rapid increase in development; Playa Pelada is the only beach in the region that is suitable for boat access; Playa Nosara and Playa Ostional, although less developed, is an important Olive Ridley turtle nesting site. The first objective is to quantify the influence of wet/dry climate on seasonal shoreline position. The second objective is to quantify longer term temporal changes through analysis of air photos and satellite imagery from 1940 to 2005. It is anticipated that this time series will provide evidence of the influence of tectonism on shoreline position. The analysis involves a comparison of Digital Elevation Models (DEM) created from real-time kinematic GPS data collected in June 2005 and January/February 2007 with aerial photography and satellite imagery from 1940-2005. Preliminary results from this analysis will be presented in this poster. These results will provide further understanding of past temporal changes; thus, assisting future coastal management decisions along this section of coastline.

Keywords: coastal, geomorphology, digital elevation model, Costa Rica

Joseph Lewis, Ohio State University. Email: lewis.844@osu.edu; States Beyond Borders: Sovereign Overreach and Extraterritoriality in the Israel-Palestine and Israel-Hizbullah Conflicts

This paper examines the differing modes of sovereignty exercised by Israel upon neighboring populations, and problematizes these layers of sovereignty as responses to non-state threats. Prior to the July, 2006 Israeli incursion into Lebanon, the Palestinian Territories were subject to a project of patchwork extraterritorial sovereignty perpetrated by the Israeli Defense Forces (IDF), as well as formally and informally through the creation and growth of Israeli settlements outside of the internationally-recognized borders of Israel. The imposition of a new border (despite Israeli government rhetoric to the contrary) in the guise of the "Security Barrier" formalized not only the abandonment of the Israel-Palestine peace process, but also re-created notions of sovereignty beyond Israeli borders. The winding route of the Security Barrier concretized the patchwork of Israeli sovereignty in the Palestinian Territories that had previously centered on concentrations of Israeli bodies—that is, the settlements. The events of July, 2006 introduced a new wrinkle to the imposition of Israeli sovereignty outside its borders. As Israel's bombing campaign and re-invasion of southern Lebanon was tacitly accepted by the international community, it was cast as a state response to a non-state threat, and justified on these terms. The extension of Israeli sovereignty over its northern border, however, came at the expense of another state—Lebanon. As a result, though the IDF has pulled out, Lebanese sovereignty over its own bounded territory has been compromised.

Keywords: Israel, Palestine, Lebanon, Sovereignty, Middle East, Geopolitics, International Security

Nancy Davis Lewis, PhD, East-West Center. Email: LewisN@eastwestcenter.org; Unraveling the Millennium Ecosystem Assessment: Implications for the Geography of Health and Disease

Completed in March 2005, the Millennium Ecosystem Assessment (MA) was a massive five year undertaking involving over 1,360 experts from 95 countries. The objective of the MA was to "assess the consequences of ecosystem change for human well-being and the scientific basis for actions needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being". The total bill was \$17 million with an

additional \$7 million of 'in kind' support. The bottom line of the MA is that human activity is straining the planet's ecosystems to such a degree that sustainability for future generations can not be taken for granted. Human-well being was a central concept in the MA and human health (largely but not entirely in relation to infectious disease) was directly addressed in three chapters as well as in a Synthesis Report, "Ecosystems and Human Well-Being: Health". There was also an "afterthought chapter on the implications of the MA for achieving the Millennium Development Goals (MDG). Disease ecology has been a cornerstone of medical geography. While medical geographers (and geographers in general) were by and large not key players in the MA, the challenges raised by the MA would certainly benefit from the conceptual frameworks, theories and methods of geographic analysis. The MA process is briefly explored and other new initiatives, e.g. the journal *EcoHealth*, the International Society for Ecology and Health, etc. are discussed with a view to the potential contribution of medical geography to these interdisciplinary endeavors.

Keywords: Millennium Ecosystem Assessment, disease ecology, geography of health and disease, ecology and health

Nathaniel McAllister Lewis, M.A. student, George Washington University. Email: nlewis@gwu.edu; Adaptation and Accommodation: Immigrant Acculturation and the Response of Receiving Communities in National Minority Regions

From a geographic perspective, the second half of the 20th century was characterized by two major trends in the organization of people on the earth's surface. One is the increasing interaction of societies and cultures through the growth of transnational migration. A second is the tendency for non-state actors to seek greater self-determination through the pursuit of cultural autonomy and re-definition of the cultural landscape. This paper examines the confluence of these two trends in Quebec and other societies. Although findings reveal that transnational migration and minority self-determination can coexist through the emergence of multicultural systems and careful policy management, many societies?Quebec included?demonstrate tensions related to race, immigrant status, and questions of political independence.

Keywords: immigration, national minorities, Quebec, Canada, acculturation

Nick Lewis, University Of Auckland. Email: n.lewis@auckland.ac.nz; Richard Le Heron, The University of Auckland. Email: r.leheron@auckland.ac.nz; Ward Friesen, The University of Auckland. Email: w.friesen@auckland.ac.nz; Eugene Rees, The University of Auckland. Email: e.rees@auckland.ac.nz; Internationalising tertiary education in New Zealand: changing imaginaries in research and teaching

Internationalising education is seen by entrepreneurial economic agents (including universities) and state actors as an economically significant industry. Other commentators are beginning to recognise it as a force for transformation in the production of knowledge, but geographers have been slow to examine it as a political, educational or economic phenomenon. In articulation with the neoliberalisation of tertiary education and the promotion of the knowledge economy, the internationalisation of education is implicated in transforming the practices of universities, the political work that they perform, and the forms and spatialities of knowledge production. These transformations have implications for the structuring of post-foundational knowledge spaces and state projects in education, and for resolving the enduring educational problematic of what gets taught to whom and by whom, and the question of how is this decided. In this paper, we trace the emerging imaginaries and transformative practices associated with a maturing industry of international education in New Zealand. We draw on multiple data sources including interviews with those responsible for international education strategy and operations in fifteen of New Zealand's 30 tertiary education institutions. We reveal a diversity of practices and responses to the imperative to internationalise and identify key contradictions between the impetus to raise revenue and various educational interests and between domestic and international policy. We highlight the implication of internationalisation in the remaking and rescaling of tertiary education.

Keywords: international education; political projects; knowledge space

Robin A. Lewis, University of Arizona. Email: ralewis@email.arizona.edu; Interdiscursivity and the politics of expertise: Certifying sustainable forest management in Malaysia

This paper explores how recent discourses surrounding ecological sustainability serve to transform forestry politics in Malaysia. With its economy strongly tied to the exportation of timber and timber-based products, Malaysia simultaneously faces international pressure to produce certifiably sustainable timber originating from 'well-managed' forests. In 1992, the Malaysian Timber Certification Council (MTCC) was established to address these very issues. MTCC, however, faces continuous criticism regarding its forest certification standards, as outlined by its 2001 Malaysian Criteria and Indicators for Sustainable Forest Management. Since February 2004, Greenpeace International (GPI)

published a series of reports challenging the sustainability and legality of the MTCC scheme. MTCC responded through rebuking GPI's claims in its subsequent press releases. Using critical discourse analysis, to evaluate this series of publications, my work (1) investigates how MTCC and GPI conceptualize the term 'sustainability,' (2) explores instances in which broader environmental discourses are invoked and subsequently challenged by each organization; and (3) identifies the key foci of contention underlying the MTCC-GPI debate. Results indicate that MTCC and GPI draw upon conflicting notions of sustainability, suggesting that the broader discursive practices shaping each institution's argument are incongruent yet strategic. In identifying two very different forms of interdiscursivity being displayed in the MTCC-GPI debate, this study serves as a poignant example of the ways in which international discussions surrounding sustainability have successfully infiltrated policy discussions across a variety of spatial scales.

Keywords: forest certification, discourse analysis, sustainability, Malaysia

Andrew Leyshon, University of Nottingham. Email: andrew.leyshon@nottingham.ac.uk; *The software slump: code and the crisis of the recording studio sector*

The music industry has been radically transformed by software, perhaps to a greater extent than many other contemporary businesses. Software formats such as MP3 and the rise of Internet 'piracy' have had significant impacts upon intellectual property rights and distribution within the industry. This paper explores another part of the musical economy which has also been radically transformed through code. It traces the roots of the use of software in the recording studio sector which encouraged a vertical disintegration of production in musical agglomerations from the late 1970s on. In so doing it helped leading recording centres to strengthen their hold on the market for recording budgets. However, the impact of software since the mid-1990s has been less benign for such centres. The rise of more affordable digital recording rigs and easier programming protocols represents a democratisation of technology, making available a process that was once only accessible through the facilities and skills provided by a recording studio. Software and code has made possible a regime of distributed musical creativity, which is having significant impacts on the organisation of the musical economy. The recording studio sector is in crisis which has produced a spate of studio closures, redundancies and underemployment within musical agglomerations. The 'institutional thickness' of key recording centres has been significantly depleted in recent years. The paper draws on research undertaken by the author in the UK professional recording studio sector between 2005 and 2006.

Keywords: music industry, recording studios, software, digital technology, agglomerations

Michael Leyshon, Dr, University of Exeter. Email: mleyshon@ex.ac.uk; *De-coupling from the rural: Young people's bodies, social exclusion and identity formation in the countryside of the UK and USA*

In this paper I extend our understanding of the ways in which young people in rural areas experience their identity. Through a close ethnography of the leisure activities of 7 groups of young people, 4 from the south west of England and 3 from New Jersey, USA, this paper shows how pubs, clubs, bedrooms and other informal spaces such as 'behind the village hall' or on the sidewalk provide performative arenas in which identities are constructed, negotiated and reproduced. In particular this paper explores the significance given by rural young people to their discursive leisure practices and the extent to which these practices lead to inclusionary and/or marginalising experiences. Eschewing conventional notions of the body, by recognizing the body as malleable, porous and an unfinished product, subject to socially produced alteration, this paper teases apart the different lived experiences of rural young people by arguing that much of their behaviour in public and private space(s) can be seen in terms of acts of spectacle, compliance and challenges to disciplinary frameworks. To illustrate this point I discuss how rural youth employ various embodied strategies to move between spaces to experiment with alcohol, sexuality and alternative femininities/masculinities and 'do' gender, thereby contesting acceptable rural gender roles and expectations and decoupling from the rural. Through shedding light on informal leisure practices, I reveal how this experimentation affects their sense of their body, gender identity, belonging and their current and future prospects in the countryside.

Keywords: Youth, Identity, Exclusion, Rurality

Bailiang Li, Texas A&M University. Email: libl@geog.tamu.edu; Douglas J. Sherman, Texas A&M University. Email: sherman@geog.tamu.edu; *Temperature and pressure corrections for aeolian sediment transport experiments*

Air density and kinematic viscosity are commonly treated as constants in aeolian sand-transport experiments and modeling. However, they are not universal constants, and will change gradually with air temperature and pressure. The typical range of temperatures that we find in nature or in wind tunnels is large enough that these effects can substantially impact results. For example, if the air temperature rises from 0°C to 40°C and the atmospheric pressure is fixed at 1 atm, the air density decreases by 12.8% and kinematic viscosity increases by 25.8%. On the other hand, density increases when pressure rises, but decreases with increased pressure. Specifically, if the pressure drops from 1 atm to 0.7 atm (associated with high altitude arid regions, for example) and the temperature is fixed, the density will decrease by 30.0%, kinematic viscosity will increase by 42.9%. As air density and kinematic viscosity are significantly changed under different conditions, two equivalent dimensionless-parameters (free stream velocity and grain size) are recommended to standardize the reporting of aeolian sediment dynamics under different temperature, pressure. Here, we use dimensionless mean flow velocity and dimensionless sediment grain size. From the above two parameters, the free stream velocity and grain size under different conditions can be converted to an arbitrary reference condition (here we use dry air at 1 atm and 10 °C). Dimensionless analysis can help to correct the temperature and pressure influence, which may reduce the errors.

Keywords: equivalent density, equivalent kinematic viscosity, air temperature, air pressure, air humidity, aeolian sediment

Bin Li, Central Michigan University. Email: bin.li@cmich.edu; *Geographic Strategy of China's Overseas Direct Investment*

China has surpassed Japan as the country with the largest amount of foreign reserves. Its economy has been booming for the last two decades. To secure the supply of raw materials and energy, and to find new markets for its commodities, China has systematically carried out a geographic strategy to invest in foreign countries directly. This paper examines the geographic patterns of direct investments from China. We attempt to address two groups of questions. (1) How do China's overall overseas direct investment change geographically and structurally in the past 10 years? Which sectors and counties have China been investing in the same period of time? (2) What are the impacts of overseas investment on domestic economy and regional development? What are the potentially challenges for Chinese multinational enterprises to invest overseas? In this paper, we present our preliminary findings through analyzing data published by the Chinese government, the World Bank, and host countries.

Keywords: China, Overseas Direct Investment, Geographic strategy

Deren Li, Wuhan University. Email: drli@whu.edu.cn; Jingxiong Zhang, . Email: jxzhong@whu.edu.cn; Zhenfeng Shao, Wuhan University. Email: shaozhenfeng@163.com; *Scalable Geospatial Grids in a Grid Computing Environment*

With the development of spatial data infrastructure, there are growing interests in synergism of multi-source data. For resources sharing and collaborative computing, various inconsistencies in terms of temporal datum, geodetic datum, data format, accuracy, and semantics need to be dealt with. Based on the proposed method for representing spatial data and information, the spatial information multi-grid (SIMG), this paper describes a scalable grid-based strategy for integrated processing of multi-scale data in a grid computing environment. The core of SIMG is to divide global and national grid into hierarchical sub-grid layers according to latitude and longitude. Each grid cell is located by the latitude and longitude at the central point, with items recorded, such as latitude and longitude, geo-central coordinates, and coordinates in different projections. Each object located in a grid cell has its relative distance to the central point in a specific coordinate system recorded. The grid cell size is dependent upon the level of economical development and density of objects, with coarse grids used for sparsely distributed objects, while finer grid for densely distributed objects, making SIMG adapted to local natural and social characteristics. The data conversion and transfer between SIMG and conventional spatial databases will be discussed, with the positional accuracy of affine transformation as opposed to rigorous transformation between SIMG coordinates analyzed. Geostatistics for spatial data conflation will be explored. The applicability of SIMG at different levels will be elaborated on.

Keywords: spatial information multi-grid, scale, grid computing, spatial databases, conflation

Dingmou Li, Ohio State University. Email: li.662@osu.edu; Ningchuan Xiao, Dr., Ohio State University. Email: xiao.37@osu.edu; *Topology-Preserving Vector to Raster Transformation: Experiments and Algorithms*

The vector and raster data models have been widely used in geographic information systems. It is a common practice to convert a vector dataset into a raster format. For some applications (e.g., corridor analysis), it is important to maintain topological relationships such as connectivity. However, traditional rasterization algorithms are typically designed to maintain area or other non-topological features. As a result, topological relationships between spatial objects may be lost during the conversion process. In this paper, a number of computational metrics are used to measure the topological characteristics of the raster data created using different rasterization algorithms. For each rasterization algorithm, the scale effect will also be examined. Finally, we develop rasterization algorithms that can be used to preserve topological characteristics of a vector when it is converted to a raster; we also compare the performance of our algorithm with existing methods.

Keywords: Rasterization, GIS, Topology

Jia Li, . Email: rebecca_ljia@hotmail.com; Jia Li, Department of Geography, Hong Kong Baptist University. Email: rebecca_ljia@hotmail.com; *Function Division in Nature Reserve*

Nature Reserve represents a special land use type with the protection of wildlife species, ecosystems of natural relics as the main objectives. But the success or failure of conservation depends on the effectiveness and sustainability of Nature Reserve management, which is the fundamental guarantee of the healthy development of Nature Reserve. However, people are harming the Wolong Nature Reserve, China's largest protected area for giant pandas. To a certain degree, the fate of Wolong Nature Reserve represents the success or failure that Chinese government and international organization have made. The researcher Hardin made a major contribution to economy by firstly developing the "Common" approach to the understanding of the interaction between social interests and common resources in environment destruct causation. As a kind of social and common resources, Nature Reserve is of "Common" characteristic. Two serious consequences that are directly brought by "Common" characteristic of Nature Reserve are crowded tourists and dense facilities. Obviously, there is a close relation between tourism and environment. To avoid conservation being destroyed by tourism activities as well as divert tourists for optimal utility of resource, Nature Reserve should be functional divided. As a special Nature Reserve for panda conservation, Wolong is different from others. Tourism could only be developed in restricted area. The reserve should be divided into six functional zones: natural maintenance and core zone, buffer and control zone, experimental and utilization zone. Furthermore, exact range of area and percentage should be defined.

Keywords: Wolong Nature Reserve; Tragedy of the commons; Function Division

Li Li, Department of Geography, State University of New York at Buffalo. Email: lli7@buffalo.edu; Ling Bian, Department of Geography, State University of New York at Buffalo. Email: lbian@buffalo.edu; Guiyun Yan, College of Health Sciences, University of California, Irvine. Email: guiyun@uci.edu; *Modeling spatial and temporal patterns of mosquito larval habitats in the Kenya Highlands*

It has been estimated that 34 million individuals in the highland areas of East Africa are at risk of malaria. In the last two decades, an increase in severe malaria cases was observed in this region. Malaria outbreak in Kenya Highlands occurs almost annually from May to July. This seasonal pattern of malaria outbreaks is associated with the availability of mosquito larval-habitats. An understanding of the seasonality of habitat availability is critical for malaria control. Due to the complexity of mosquito reproduction process, there are two primary challenges for adding the seasonal aspect to a spatial larval-habitats model. The first challenge regards to the incomplete knowledge of the mechanism regulating the seasonal fluctuation of mosquito population. The second challenge is that information is limited for describing the seasonal difference in the spatial distribution of habitats. A method which is flexible and capable of dealing with the incomplete knowledge and information is needed. To cope with these challenges, we coupled two methods to build spatial larval-habitat models which explicitly take seasonality into consideration. One method is Dempster-Shafer theory, a probability theory of evidence. Another is Weight-of-Evidence method, which is a data-driven method and used for preparing evidence for the Dempster-Shafer theory. This integrated method identifies unique spatial patterns for habitats at different seasons. Our study also identifies areas which are sensitive to climatic changes. The uncertainties associated with the habitats models are quantified to support more rigorous mosquito-control decision making.

Keywords: Malaria, Mosquito larval habitat, Dempster-Shafer, Weight-of-Evidence

Li Li, . Email: susieqksl@gmail.com; *Spatial Differentiation and Driving Mechanisms of Urban Sprawl in Shenzhen*

Abstract. Since the economic reform was initiated in 1978, urbanization in China has been accelerating and most cities have experienced rapid expansion. Yet spatial differentiation and driving mechanisms of urban sprawl in China are not well understood. Based on the analysis of the urban land use changes between 1994 and 2001 in Shenzhen, this paper aims to examine the amount and intensity of urban sprawl and shed light on the defining characteristics of its spatial differentiation using Shannon's information entropy measure. Using the hierarchical clustering classification approach according to the amount and the entropies of the urban sprawl, we can detect four spatial patterns of urban sprawl in Shenzhen: compact congregation pattern, administrative-center congregation pattern, traffic-center congregation pattern, and low-density sprawl pattern. Conceptual and policy implications of our empirical results will be discussed in detail.

Keywords: Urban sprawl, information statistics, Shenzhen

Linna Li, Penn State. Email: lul123@psu.edu; Alan M. MacEachren, Penn State. Email: maceachren@psu.edu; *Supporting Geocollaboration Using Map-based Discussion*

Traditionally, GIS has been designed to support individual work. However, many important decisions are made by teams using geospatial data, and the members in a team are often from various disciplines in different places. The need for different-place collaborative work with geospatial data has escalated recently due to events such as natural disasters like the Katrina hurricane and concerns over risks such as avian flu. Advances of GIS and the Internet make communication between team workers easier. Geocollaboration is an emerging area that investigates how to support team-based decision making using collaborative visualization in a geospatial context. This research studies how geocollaboration can be facilitated by map-based discussion among a group of participants. It provides a communication platform, supporting immediate contact, map annotation and message sharing. Software designed for this study will help users build group awareness to help negotiation. A profile of participants will be provided for the purpose of common ground establishment. Users can attach the comments to a specific position or object on the map and the entire group can be aware of others' perspectives and activities. In addition, the history of discussions through time can be tracked.

Keywords: Geocollaboration, GIS, Map

Naicong Li, The Redlands Institute, University of Redlands. Email: naicong_li@institute.redlands.edu; Nathan Strout, The Redlands Institute, University of Redlands. Email: nathan_strout@institute.redlands.edu; Steve Paplanus, The Redlands Institute, University of Redlands. Email: steve_paplanus@institute.redlands.edu; *Ontology-Driven Spatial Information Retrieval in GRIP*

Scientists, land managers, decision makers and regulators require more effective and efficient tools to find and compile knowledge for use in plans, reports, analyses, models and assessments. GRIP (Geospatially-Reference Information Portal) is developed to meet this need and to support spatially-enabled knowledge management applications. It has an open service oriented architecture (SOA) that supports distributed geoprocessing. GRIP functionality addresses several challenges including searching against heterogeneous data formats (documents, images, etc) and data sources (local files systems, network databases, web search engines), and improving the relevance of retrieved data in relation to the user query. In this paper we present the architecture of GRIP, as well as a prototype application which adopts an ontology-driven approach to spatial information retrieval. We will present the OWL ontologies that we developed to facilitate spatial information retrieval in the application domain of desert tortoises science, and we will show how these ontologies can be used (1) to index geospatial data in project databases, and (2) to invoke the appropriate geospatial analysis operations based on the spatial relations specified in the user query. We will demonstrate the workflow of the spatial information retrieval process, including the ontology-guided user query formulation, spatial analysis and reasoning, and the clustering of search results based on the structure of the ontology.

Keywords: spatial information retrieval, spatial web portal, geospatial semantic web

Shujuan Li, Texas A&M University. Email: shujuan@geog.tamu.edu; Shenzhen's urban planning: Review and evaluation

Rapid urban development in China attracted abundant research while relatively few enquiries focus on the urban planning. Few studies have been done to examine the relationship between urban planning and the built environment. This paper provides a review and demonstrates a quantitative evaluation of Shenzhen's urban planning which will provide enlightenment for urban planning for other Chinese cities. During the short urban development history of Shenzhen, three master plans were established in 1982, 1989, and 1996 along with numerous revisions. Instead of guiding urban development, master plans seem to try every effort to catch up with the rapid pace of urban development. The quantitative evaluation of Shenzhen's third layout plan was conducted with land census data of 1996, 2000, and 2003. The result shows that newly built up area was primarily located out of area planned rather than within its originally proposed boundaries. Proposed ecological reserves were seriously threatened by urban growth. It is quite questionable whether master plan plays its role.

Keywords: Urban planning, Land use, Shenzhen

Si-Ming Li, Hong Kong Baptist Univ. Email: lisiming@hkbu.edu.hk; Changing Job and Housing Distributions under Marketization in Chinese Cities: A Study of Guangzhou

In China, under the work-unit system, workers used to live in the work-unit compound where they worked. Yet with the economic and housing reforms, the work-unit system has undergone fundamental changes. Many work units have relocated the production plants to the suburbs and redeveloped the former work-unit compound in whole or in part to capitalize on rising land prices. Others may not survive the increased competition and have gone out of business. The almost perfect match between job and housing distributions is being torn apart at an increasingly rapid pace. The need for commuting is on the rise. Especially caught in the massive urban transformation are the low-income manual workers. The factories they used to work in have moved out to the suburbs or simply disappeared. Yet they still have to reside in the old dilapidated housing provided by the work units. Unemployment is on the rise, although in some cases the work units the workers formerly worked in would still allow them to occupy the old and dilapidated work-unit housing in the former work-unit compound. A situation not unlike that of the spatial mismatch phenomenon in American cities (Kain, 1968; Houston, 2005) probably has emerged. Based on large-scale surveys conducted in Guangzhou in 2001 and 2005, this paper tries to examine the extent to which the separation between residence and workplace has increased and whether the spatial mismatch hypothesis holds in the Chinese case.

Keywords: spatial mismatch, housing and job distributions, Chinese cities

Wei Li, Dr., Arizona State University and Queen's University, Canada. Email: wei.li@asu.edu; Chris Airries, Dr., Ball State University. Email: cairries@bsu.edu; Angela chia-chen Chen, Dr., ASU. Email: angela.ccchen@asu.edu; Verna Keith, Dr., FL State U. Email: vkeith@fsu.edu; Karen Leong, Dr., ASU. Email: karen.leong@asu.edu; Surviving Katrina and its Aftermath: Community mobilization among Vietnamese Americans and African Americans in New Orleans East

The interdisciplinary team consists of geographers, Asian- and African-Americanists, language specialists, a nursing scientist, sociologist, and historian with complementary analytical and language skills. The study area is located in the easternmost New Orleans residential subdivisions that boasted an almost equal distribution of Vietnamese Americans and African Americans. The research addresses 1) the pre-Katrina socio-spatial configuration of the Vietnamese American and African American communities in the study area, and what damage Katrina caused to these communities; 2) if previous experiences of involuntary geographic displacement of evacuees, especially among Vietnamese Americans, as well as gender, cultural, linguistic, legal status, geographic, and socioeconomic differences affect their perceptions of risk and uncertainty, their access to emergency relief services; and what similarities and differences between the two communities are evident and how did each community negotiate evacuation and access to emergency relief services, relocation assistance and rebuilding funds through existing racial/ethnic and/or faith-based community networks, as well as their adaptation to temporary or permanent resettlement or of their community and business rebuilding efforts in New Orleans; 3) the similarities and differences in physical and psychological vulnerability between the two groups of interests after the disaster and what are the critical factors contributing to their physical and psychological outcomes. This timely study will evaluate the mental and organizational decision-making process by the two study groups in the face of uncertainty and produce policy recommendations to better serve the needs of such communities during the recovery period and to better prepare for similar disasters in future.

Keywords: African Americans, Vietnamese Americans, Katrina, community

Weidong Li, Department of geography, Kent State University. Email: weidong6616@yahoo.com; Chuanrong Zhang, Department of Geography, Kent State University. Email: czhang2@kent.edu; A Markov Chain Random Field Algorithm for Conditional Simulation of Categorical Variables from Random Point Samples

Quantitative prediction and simulation of categorical variables from limited samples are crucial for cost-effectively acquiring exhaustive area-class maps. However, conventional methods usually cannot meet all of the requirements for class simulation in incorporating interclass relationships and generating polygon features. This study develops a random-path sequential simulation algorithm based on the Markov chain random field (MCRF) theory. The objective is to find a suitable method for predictive area-class soil mapping from irregularly distributed point samples, and thus extend Markov chains into practical nonlinear geostatistics. The algorithm is used to simulate soil type maps conditioned on three different sample datasets, and compared with the widely-used indicator kriging simulation algorithm - sequential indicator simulation with ordinary indicator kriging (SISoik). Results show the algorithm works well with both dense and sparse random samples in reproducing all classes and input statistics. Compared with SISoik, the algorithm indicates the following advantages: (1) it more effectively captures complex patterns of soil classes and obeys their interclass relationships; (2) it generates less spatial uncertainties and more accurate realizations; for example, the relative increases in average PCC (percentage of correctly classified locations) values of realizations for the sparse, medium and dense datasets are 5.0%, 9.9% and 8.5%, respectively; (3) it generates polygon features in realizations in accordance with the style of area-class soil maps; and (4) it can generate classes missed in sampling but confirmed by experts. It is concluded that the algorithm provides a practical spatial statistical tool for prediction and simulation of categorical soil spatial variables.

Keywords: Markov Chain, Categorical Variables, Conditional Simulation

Weimin Li, Geographic Information Science Center, 412 Wurster Hall, University of California at Berkeley, CA 94720-2000, USA. Email: lw@berkeley.edu; John Radke, Geographic Information Science Center, 412 Wurster Hall, University of California at Berkeley, CA 94720-2000, USA. Email: ratt@gisc.berkeley.edu; Desheng Liu, Department of Geography, 1036 Derby Hall, Ohio State University, Columbus, OH 43210-1361. Email: ; Peng Gong, Center for Assessment and Monitoring of Forest and Environmental Resources (CAMFER), 137 Mulford Hall, Berkeley, CA 94720-3114. Email: ; Object-based Classification and Height Extraction of Urban Vegetation with Multi-source High Spatial Resolution Imageries

High resolution imageries bring opportunities and challenges for image processing to obtain highly detail urban landscape information. In this paper, we develop a comprehensive approach to automatically extract both vegetation cover and height information, which are further used to model view-blocking effects of urban vegetation. This approach is an integration of object-based image classification, GIS spatial decomposing, geometry computation and overlay analysis. It is designed to handle multi-source imageries, i.e. airborne orthoimage (.3 meter) and spaceborne QuickBird multispectral standard imagery (.6 meter) in this case, and ancillary GIS data. First, we use an automatic registration algorithm to geometrically align the unorthorectified QuickBird imagery to airborne orthoimage. Next, we conduct image segmentation and object-based classification on above-mentioned multi-source data in Definiens software. A hierarchical classification schema is designed to increase the overall performance of classification. Within this schema, we select a group of prioritized classification features from spectral features, textures, thematic layers, and geometric features to obtain best classification results of vegetation features and their shadows. Vector format of classification results are then processed in ESRI ARCGIS environment. We calculate and assign height for vegetation objects through shadow modeling, an integrated method of spatial decomposing, geometry computation and overlay analysis on shadow objects. Finally, the view-blocking effects of vegetation are modeled based on their density, height, connectivity, and spatial relationship. The above approach is successfully tested in neighborhoods within different levels of vegetation cover in City of Oakland, California. The accuracy of the approach is assessed with field survey data.

Keywords: Object-based Classification, Urban Vegetation, Height Extraction, High Resolution Imageries

Wenwen Li, George Mason University. Email: wli6@gmu.edu; Chaowei Yang, . Email: cyang3@gmu.edu; Danqing Xiao, . Email: ; Rob Raskin, . Email: ; *Earth Science Gateway and Earth Information Exchange*

Based on the emerging Spatial Web Portal (SWP) technologies, Earth Science Gateway (ESG) provides an interoperable environment to integrate geospatial resources, such as earth observations, earth system models, and decision support tools. This interoperable prototype also provides a good platform to support integration and sharing of resources from different geoscience research areas, such as Air Quality, Water Cycle, and Ecological Forecasting. The Earth Information Exchange ("Exchange") will be the culmination of the ESIP Federation's work in these areas, integrating existing web-based resources and making them available to users through a single point of entry. The Exchange will provide one-stop access to a wealth of ESIP Partner earth science data products, services and tools as well as those from unaffiliated organizations. Therefore, ESG provides an ideal platform for implementing EIE. This paper introduces the implementation of EIE using ESG and gives a demonstration of EIE. Relevant issues, such as internal functional models and intercommunications, Quality of Services of spatial web services, and the techniques of SWP, are also discussed.

Keywords: ESG, EIE, SWP, Interoperability

Xia Li, Sun Yat-sen University. Email: ; Anthony G Yeh, University of Hong Kong. Email: ; Xiaoyue Chen, University of Hong Kong. Email: cupemcxy@hkusua.hku.hk; Fast Detection of Urban Land Use Change

Land use change detection has great importance to urban planning and urban studies. But most studies focused on a long-term analysis due to the limitations of satellite images with optical sensor such as Landsat TM and SPOT. Synthetic Aperture Radar (SAR), which is for all weather conditions, seems to be the best option for monitoring land use changes in a more frequent basis. Yet confusion problems in satellite images, especially SAR images, have not been fully resolved, although many scholars and experts have contributed their effort in these problems. Soil moisture and seasonal changes of vegetation is the two main sources of confusion problems. Soil moisture could have great impact on radar remote sensing images. Prior knowledge and field data would be collected for creating a knowledge base for error correction of rainfall and soil moisture. An expert system would be set up for the classification and detecting the land use changes. The study focuses on Pearl River Delta in southern China. A series of Radarsat data will be used for training and monitoring the land use change. Finally, knowledge-based approaches would be used to link the field data, local knowledge and Radarsat data to generate the land use change.

Keywords: Land Use, Remote Sensing

Xiaoxiao Li, . Email: xli@clarku.edu; Estimating the Land Transition Matrix Based on Erroneous Maps

This article presents methods to estimate a land cover transition matrix based on maps from two points in time. The land cover transition matrix indicates the amount of land that transitions from each category at time 1 to each category at time 2. Observed differences between the two land cover maps can be due to change on the ground or error in the maps. This paper offers methods to distinguish between these sources of differences. If the maps were perfectly correct, then the observed differences would indicate true land transition on the ground. This paper's methods consider the situation when the maps are not correct, and a confusion matrix indicates the structure of the errors in each map. We consider three different methods to estimate the land cover transition matrix while taking into consideration the error in the maps. Each method considers a different way to interpret the errors. The three methods provide a lower, middle, and upper estimate for each possible land transition. For situations where formal confusion matrices are not available, we perform sensitivity analysis to show how the suspected error in the maps influences the estimates of the land cover transitions. We illustrate the technique using land cover data from 1971 and 1999 in the Plum Island Ecosystems of Northeastern Massachusetts, which is a Long Term Ecological Research site of the National Science Foundation. Ultimately, the method produces maps that show the probability of any particular land cover transition, given the observed data and the confusion matrices.

Keywords: accuracy; cross-tabulation; change; uncertainty; diagonal

Xingong Li, Dr., Department of Geography, University of Kansas. Email: lixi@ku.edu; Justin Penka, Department of Geography, University of Kansas. Email: ; Justin Busboom, Department of Geography, University of Kansas. Email: ; GIS Tools for Visualizing and Analyzing the NEXRAD Precipitation Data

Precipitation data is critical to many hydro-meteorological applications. The National Weather Service's Next Generation Weather Data WSR-88D (NEXRAD) has the capability of capturing both the spatial variation and dynamic nature of rainfall and has the potential to provide better spatio-

temporal precipitation data as the technology advances. This study will develop a set of GIS tools which make directly accessible various NEXRAD precipitation data products in a GIS data format, visualize the NEXRAD precipitation data, and perform spatial and temporal zonal analysis. In addition, the research will also use an example application to demonstrate how hydrological models could improve their performance by using NEXRAD precipitation data.

Keywords: GIS, NEXRAD, Precipitation, Hydrological Modeling

Yingkui Li, University of Missouri-Columbia. Email: liyk@missouri.edu; Yonggui Guo, Rice University. Email: ; Charles M. Onasch, Bowling Green State University. Email: ; Automated grain boundary detection using GIS raster analysis

The recognition of grain boundaries from thin-section images is critical in many geo-science studies such as fabric analysis of sediments / rocks in determining paleo flow/strain directions. However, current work in this perspective was mainly based on labor-intensive manual digitization of grain boundary information. Here, we propose a GIS-based method to automatically detect grain boundaries and construct a grain boundary map and database in which the shape, orientation, and spatial distribution of identified grains can be quantified and analyzed in a reproducible manner. The proposed method includes a series of raster operations and functions to identify grain boundaries, reduce noise, and construct the grain boundary map and database. These processes are integrated into a GIS model using ArcGIS Model-builder; thus, little or no operator intervention is required to perform the whole analysis. The method was tested using thin section photomicrograph images taken from three sandstone samples. Initial results indicate that the proposed method can correctly identify > 70% of grain boundaries without any intervention and is especially suitable for analyses where large numbers of grains are required.

Keywords: Grain boundary detection; Thin section; GIS

Zhe Li, Clark University. Email: zheli@clarku.edu; Neurocomputational measurements of spatial uncertainty

Both the Self-Organizing Map (SOM) and fuzzy ARTMAP neural network are trained based upon competitive mechanism and use the "winner-take-all" rule. This paper proposes non-parametric measurements for these two recurrent computational neural networks to handle spatial uncertainty in remotely sensed imagery classification. These soft algorithms are neuron-triggering/committing-frequency based and are grouped into two types, i.e., Commitment and Typicality, expressing in the first case the degree of commitment a classifier has for each class for a specific pixel and in the second case, how typical that pixel's reflectances are of the ones upon which the classifier was trained for each class. Two measures are designed for each of the two neural network models, i.e., SOM Commitment (SOM-C) vs. SOM Typicality (SOM-T) and ART Commitment (ART-C) vs. ART Typicality (ART-T). To evaluate these proposed algorithms, soft classifications of a SPOT HRV image around Westborough, Massachusetts were undertaken. Conventional soft classifiers such as Bayesian posterior probability classifier and Mahalanobis typicality classifier were used as a comparison. Principal Components Analysis (PCA) was employed to explore the relationship between these different measures. Results indicate that great similarities exist among the ART-C, SOM-C and the Bayesian posterior probability classifier, and significant similarities exist among the ART-T, SOM-T and the Mahalanobis typicality classifier. ART models distinguish themselves from all others due to its special features.

Keywords: The Self-Organizing Map (SOM), Fuzzy ARTMAP neural network, commitment, typicality, spatial uncertainty, soft classification

Zhijie Li, Geography, GIS, LSU. Email: zli4@lsu.edu; Using Bayesian Network Theorem to Describe Regional Economic Structure of Louisiana Based on Geographically Weighted Regression

Regional economic structure is usually expressed in tabulated aggregate data such as GDP digits by economists. In such list, the structural relationship between economic factors is ambiguous. On the other hand, economic factors are affected by unequally spatial distribution among the regional economic system. The spatial distribution of regional economic structure is seldom discussed by researchers or economists. This makes the decision-makers hard locate and analyze economic development in a spatial vision. In this research, regional economic structure will be analyzed by the methodology combining Bayesian network and geographically weighted regression. Bayesian network is proved to be a feasible method to describe the structure of multiple factors. It can uncover the unknown structure and probabilistic relationships between factors. Geographically weighted regression is a powerful geo-statistical method to explore spatial relationships among economic factors. The results then can be visualized in a GIS by integrating with other relevant spatial data. Bayesian network has been popularly introduced into spatial analysis, for example, population spread, crime analysis and disease mapping. Its scoring function and structure searching can be helpful in knowledge discovery of spatial database. In research, census data of

2000 will be collected for all counties in Louisiana State. These data will include a number of factors relative to economic, social, health, and environmental aspects. Directed acyclic graph of Bayesian network will be generated as result of data mining. Accompanied with geographically weighted regression analysis, last outcome will be visualized in choropleth maps.

Keywords: GIS, Bayesian Network Theorem, Geographically Weighted Regression

Fuyuan Liang, Department of Geography, University of Georgia, Athens, GA 30602. Email: liangfy@uga.edu; George A. Brook, Department of Geography, University of Georgia, Athens, GA 30602. Email: gabrook@uga.edu; *A Holocene record of environmental change in the Southeastern USA from DeSoto Caverns, Alabama*

Speleothems are one of the most valuable archives of high-resolution climatic data available for study. Entire stalagmites are typically removed from caves for scientific analysis with resulting damage to the cave. In many caves the longest records of climate change are in fact preserved in very large stalagmites that are far too big to be removed. To limit damage to caves and to access the long records preserved in large stalagmites, we have developed a drilling device that can remove vertical cores, up to several meters long and 5 cm in diameter, along the growth axis of a stalagmite. To test the drill we have obtained a 1m long vertical core from an active stalagmite in DeSoto Caverns, Alabama. This core has provided a detailed record of climate change in the Southeastern U.S.A. during the Holocene. ICPMS U-series dating has established an accurate chronology for the record. Variations in petrography, growth rate, oxygen and carbon isotopes, gray color, and UV-stimulated luminescence suggest that the later Holocene was drier than the early and middle Holocene and year-to-year variations were more marked. We interpret these changes as being partly due to the onset of more prominent ENSO conditions in the Eastern Pacific around 4 ka. This study demonstrates a successful application of the vertical core-drilling approach to stalagmite research. If this approach is widely adopted by the scientific community, it should be possible to obtain long, high-resolution climate records from many regions of the world without significantly damaging cave environments.

Keywords: Southeastern USA, Holocene, stalagmite, climate change

Shunlin Liang, University Of Maryland. Email: sliang@geog.umd.edu; Tao Zheng, University of Maryland. Email: tzheng@geog.umd.edu; Kaicun Wang, University of Maryland. Email: kcwang@umd.edu; Hye-yun Kim, University of Maryland. Email: kimhy@umd.edu; Dongdong Wang, University of Maryland. Email: ddwang@umd.edu; John Townshend, University of Maryland. Email: jtowshe@umd.edu; Steve Running, University of Montana. Email: swr@ntsg.umt.edu; Si-Chee Tsay, NASA. Email: tsay@climate.gsfc.nasa.gov; *Mapping high-resolution surface radiation budget from satellite observations*

The spatial and temporal distribution of solar radiation is a primary variable for important atmospheric and vegetation systems. The surface net radiation is required by many land surface process models. Estimating the surface radiation budget using satellite data has proven to be a promising avenue for research in recent years. We will describe the methodologies for estimating surface radiation budget components from Moderate-Resolution Imaging Spectroradiometer (MODIS) and Geostationary Operational Environmental Satellite (GOES) data, including total shortwave net radiation, incident total shortwave radiation (insolation) and photosynthetically active radiation (PAR), surface broadband albedos, and total longwave net radiation. There are two algorithms for estimating all-sky shortwave net radiation: direct estimation from top-of-atmosphere radiance and calculation from insolation and surface broadband albedo. There are two corresponding algorithms for calculating longwave net radiation only for clear-sky conditions. The MODIS standard products of albedo and skin temperature are used in this study and the spectral emissivities of land surfaces are converted to broadband emissivity. The results from different algorithms are compared, validated with ground measurements from FLUXNET and other networks, and also compared with other satellite products. The temporal scaling from instantaneous estimates to daily average will also be discussed.

Keywords: remote sensing, radiation budget

Wei Liang, Louisiana State University. Email: wliang1@lsu.edu; Xiaojun Qin, Louisiana State University. Email: xqin2@lsu.edu; *Integrating Remote Sensing with Areal Interpolation to Improve the Spatial Filter*

When using spatial filter to get the population inside the surrounding area, we always use the number of census block group centroids fall inside the circle, and add all the populations of these centroids together to represent the population of this given point. However, the centroid is too coarse and inaccurate to represent the residents living location in the census block group. The improved method will use the remote sensing images to get the resident and nonresident

areas. Create evenly distributed points above the resident area to substitute the centroid, and each point has the population attribute. The remote sensing classified image may misclassified the whole area of some census blockgroups as nonresident area, the centroid may still be used to maintain the data integrity. Using these substitute points to do the spatial filter can certainly improve the result accuracy. Using this improved method, this paper will try to find out the hot spot of the death location caused by Hurricane Katrina in New Orleans.

Keywords: remote sensing, GIS, spatial filter, areal interpolation

Ke Liao, University of South Carolina. Email: liao.keke@gmail.com; *Location-Allocation-Optimization with Constrained K-Means Clustering*

The allocation of facilities with capacity constraints is a spatial decision problem and has many different applications. This research develops a constrained K-means clustering method to solve a special type of capacitated facility location problems, which is to find an approximation of optimal locations of a finite set of facilities to satisfy the demands of a large set of fixed locations. The allocation is constrained by facility capacities, which limit the total demands (and thus the number of fixed locations) that each facility can serve. Different facilities may have different capacities and one demand point can only be served by one facility. The proposed constrained K-means clustering method uses unique similarity measures to indirectly optimize the allocation quality and considers capacity constraints during the cluster refining process. The objective function to minimize is the demand-weighted distance from point locations to their assigned facilities. The proposed method can deal with two different situations: (1) the total capacity of all facilities is sufficient to meet all demands; and (2) the total capacity is insufficient (thus there are uncovered regions). This clustering-based location-allocation method is evaluated against a Genetic Algorithm (GA) with a variety of different data distributions and capacity constraints. The overall allocation quality is measured using the demand-weighted distance from point locations to their assigned facilities. The computational efficiency is evaluated based on the actual running time. Evaluation results show that the clustering-based method achieves more satisfactory allocation results with much less running time than the GA method.

Keywords: Capacitated facility location problem, location-allocation, clustering, K-means, Genetic Algorithm (GA)

Johan Liebens, University of West Florida. Email: liebens@uwf.edu; Kristal Flanders, University of West Florida. Email: Kwalsh@uwf.edu; *Associations between spatial patterns of air emissions and morbidity*

The incidence of some health outcomes is statistically significantly higher in NW Florida than in demographically, economically, and socially similar areas elsewhere in the state. Northwest Florida also has high rates of water and air pollution. Health outcomes have been shown elsewhere to be affected by environmental factors. This study examined if the spatial patterns of some of the health outcomes with high incidence in NW Florida are spatially associated with patterns of air emissions. The study also assessed the sensitivity of the results to the inclusion in the analysis of various types of air emission sources. Emission patterns were linked to the health outcomes with an index for the proximity of census blocks to emission sources. The proximity index was used unweighted, weighted with total source strength emission data, and with benzene equivalent emissions for Toxic Release Inventory (TRI) sites. The resulting three indexes for the census blocks were summarized by census tract or ZIP code as required by the pre-existing health data. Results show that various national and state government emission databases are inconsistent and have spatial information of greatly varying quality. Morbidity for specific respiratory illnesses such as pneumonia and asthma are associated with patterns of air emissions for some of the emission database/proximity index combinations. Cancer morbidity shows little influence from emissions. Racial inequity in exposure to air emissions is very small in the study area and does not affect health outcomes appreciably.

Keywords: air pollution, GIS, morbidity

Ingo Liefner, Leibniz University of Hanover. Email: liefner@wigeo.uni-hannover.de; *Innovative linkages of high-tech firms in Shanghai and Beijing*

During their innovation process, high-tech enterprises depend on interaction with other companies and public research organizations to get access to new knowledge. The exchange of tacit knowledge requires direct communication between people and is, thus, much easier to facilitate through local interaction. Therefore, the set of cooperation partners that is available at the local level determines a company's potential for intensive cooperation. This presentation concentrates on Beijing and Shanghai, two of China's leading cities as far as knowledge and technology-driven economic development is concerned. It discusses the results of a quantitative survey of 489 high-tech companies in Pudong (Shanghai) and Zhongguancun (Beijing). The investigation has been carried out in 2003 and 2004 as a joint effort of the Department of Economic Geography, Hannover, Germany, the East China Normal University, Shanghai, China, and the Chinese Academy of Sciences, Beijing. Results show that regional

differences affect the cooperation patterns of high-tech companies in both cities: High-tech firms in Beijing cooperate more frequently with universities and public research institutes whereas high-tech firms in Shanghai cooperate more frequently with foreign-invested and foreign enterprises, thereby reflecting the strengths of both cities.

Keywords: High-tech, Cooperation, China

David Christoffer Lier, Geography, School of Environment and Development, University of Manchester. Email:

david.lier@postgrad.manchester.ac.uk; *Resistance in Neoliberal State Spaces in the Global South: Municipal Workers in Cape Town, South Africa*

A striking manifestation of neoliberalism in Africa has been the drive to make states reduce their social spending, followed by the introduction of cost-recovery principles in public sectors such as water, electricity and waste removal. By putting services out to tender, establishing public-private partnerships and opening for wholesale privatisation, countries have allowed market forces to make heavy inroads into the sphere of service delivery. The outcome of these policies remains a hotly contested issue on the ground. In particular, grievances have been articulated from two quarters: municipal workers defending their jobs and communities fighting for accessible and affordable basic services. This paper examines the politics of municipal services in Cape Town, South Africa. In spite of a pronounced commitment to redistribution before the 1994 democratic elections, the African National Congress (ANC) has favoured growth-centred macroeconomic policies since they swept into office. At a local level, processes of deracialisation and development have been accompanied by (and are sometimes hard to separate from) the unfavourable effects a neoliberal model of growth. The public sector unions have participated in the local state restructuring, but have also been the sharpest critic when New Public Management reforms have been followed by job losses, reduced job security and aggravated working conditions. By using the case of the metropolitan branch of the South African Municipal Workers Union, this paper examines how organised workers juggle their opposition to privatisation of service delivery, on the one hand, and their political solidarity to community members, on the other.

Keywords: Neoliberalism, New Public Management, local state restructuring, public sector workers, community unionism

Matthew Liesch, University of Wisconsin-Madison. Email:

mliesch@wisc.edu; *Late Nineteenth Century Panoramic Maps of the Gogebic Iron Range Landscape*

Situated on the southern shore of Lake Superior, the Gogebic Iron Range of Michigan and Wisconsin was home to a mining boom. During a few frenzied years, 1884-1887, people, ideas, and money rushed to the Gogebic and fundamentally reworked its landscape. Hope and optimism reigned throughout these fledgling communities until numerous mining scams were uncovered. Representations of place influence human behavior. Panoramic maps, also known as "bird's-eye view" lithographs, were one popular way of representing places and landscapes during the late 1800s. Created during 1886, maps of three mining towns, Hurley, Ironwood, and Bessemer, capture a snapshot of the Gogebic Range landscape. By comparing these representations to archival evidence, we can uncover discrepancies between the lithographs and reality. Newspaper accounts, fire insurance maps, and historic photographs may be used to reveal the myriad of ways in which panoramic map representations are deceiving. Overall, architectural details are fairly accurate, whereas other elements of the built environment are misleading: for example, the quantity and quality of roads are exaggerated. Gogebic Range landscapes have been portrayed to give a narrative of industrial progress and display a sense of sophisticated community. The idea that panoramic maps could foster images of a civilized, economically vibrant town, that might enhance its reputation in the eyes of residents and outsiders alike, is not a new concept. However, the importance of the mining economy makes lithographs of mining towns far different than views of port cities and agricultural centers, even by the same lithographers.

Keywords: industrial landscape, panoramic map, mining, landscape, Michigan-Upper Peninsula, Wisconsin

Robin J. Liffmann, Ph.D., San Francisco State University. Email:

liffmann@sfsu.edu; *Food Insecurity among the Bedouin in the Negev Region, Israel*

Food insecurity, defined as a periodic or chronic deficiency of calories or nutrients that leads to hunger and malnutrition, is a major concern in areas of the world and most prominently found in marginalized or disenfranchised communities. The growing pervasiveness of this problem is often tied to changing environmental, socio-economic and political conditions that displaces traditional agriculturalists from the land or curtails access to resources necessary for food production. Markets may disappear or become inaccessible to food producers and purchasers alike in an increasingly cash driven economy. This study explores food insecurity among the Bedouin population in the Negev region of Israel.

Researchers examining food security among school children around the city of Be'er Sheva revealed concerns over caloric and nutritional deficiencies within the Bedouin community (Segal and Kaufman 2002, 2004). Traditionally the Bedouin engaged in crop agriculture and pastoralism, living a semi-nomadic lifestyle dictated by water and forage availability as well as cultural norms. Today most Bedouin are sedentary, relying on a shrinking land base with limited access to grazing areas, cropland and water. In addition, the primary trading and selling markets in Gaza and the West Bank have been cut-off since the Palestinian uprising or Intifada of 2000. Lack of jobs and cash to purchase food, and inadequate means to produce their own crops, exacerbates food insecurity among the Bedouin population of this region. This on-going research examines the underlying conditions leading to food insecurity, as well as viable options to address this growing concern.

Keywords: agriculture, food security, Bedouin, Israel, Negev

Dale R. Lightfoot, Oklahoma State University. Email:

d.lightfoot@okstate.edu; Nariman Mavlyanov, Institute of Hydrogeology and Engineering Geology, Uzbekistan. Email: hydrouz@rambler.ru;

Dilshod Begimkulov, Tashkent State Technical University. Email: ;

Jonathan C. Comer, Oklahoma State University. Email:

jon.comer@okstate.edu; *Reliability of Interview Data for Monitoring and Mapping Groundwater*

Groundwater levels are falling in many areas of the world, though we often lack data showing where the decline is slight and where the problem is severe. Monitoring wells may keep track of these changes but are not always available where needed. Users of traditional wells are familiar with local aquifers and can provide details where monitoring data are absent, but are these data reliable for groundwater assessment? In this research, the accuracy of interview data is assessed by comparing details reported by users of traditional wells to data recorded independently by hydrogeologists using nearby monitoring wells. Uzbekistan was selected for testing the program because of the ubiquity of traditional wells, paired with a good network of hydrological monitoring wells installed during the Soviet era. Seventy-five sample sites included a variety of aquifer types and depths spread across three oblasts in central Uzbekistan. Details recorded at each site included well location (using GPS) and depth to the water table for 1985, 1995, 2000, and 2005. Statistical analysis included correlation and regression. In all cases, the correlation between well water depths is at least 0.9 and the regression coefficient is between 0.797 and 0.867, indicating that estimation of depths to the water table can be reliably made based on reporting from traditional wells in the absence of scientific, hydrological well monitoring. With confidence in the accuracy of interview-derived data, we can employ these data to monitor groundwater resources in regions which lack the immediate capacity to implement a monitoring well network.

Keywords: groundwater, water resources, Central Asia

Victoria Lightfoot, Oklahoma State University. Email:

lightfeet1@cox.net; *Creating School Bus Routes: Integrating GIS into the Public School Classroom*

Growth in GIS programs has revolutionized the university curriculum in geography and science but has mostly bypassed the secondary schools, and is rarely employed in rural school districts. The Rural Alliance for Improving Science Education (RAISE), funded by the National Science Foundation through its Graduate Fellows in K-12 Education (GK-12) program, offers educational outreach to help rectify this situation. The RAISE program goals are to enrich the 6th-12th grade learning environment for both teachers and students, to improve science and math test scores, and to disseminate model curricula to teachers in schools throughout the U.S. This study reports on a bus route project, undertaken by 10th-12th grade students at Morrison High School, a small school in north central Oklahoma. Until this project was undertaken, bus route information was contained in the form of lists on hand-written sheets of paper, and there were no maps of school bus routes. At the request of the school superintendent and the High School Principal, students were tasked with entering the school's bus route information (including bus stop addresses) into a GIS, creating maps of the various bus routes, and finally, analyzing the 6 different routes for routing efficiency. Students created a project in ArcGIS 9.1, geocoded bus stop addresses, created maps of each route, and made suggestions for improving bus routing.

Keywords: GK-12, geographic education, GIS, Oklahoma

Arika Ligmann-Zielinska, San Diego State University. Email: ligmannz@rohan.sdsu.edu; *The impact of risk-taking attitudes on urban land-use pattern: results from an experiment*

Agents act upon environment on the basis of limited, partial knowledge, where the perception of spatial alternatives varies from individual to individual. Hence, one of the biggest challenges in modeling residential development is a theory-driven representation of human behavior. We report on an agent-based modeling experiment which tests different conceptions of risky decision making motivated by prospect theory from the psychology of choice. The decision rules used in the model are representative of risk-taking and risk-averse attitudes. The goal of this experiment is to assess spatial consequences of employing different attitude utility functions. These nonlinear functions reflect people's simplified psychological frames of reference for land use decision-making. The experiments are performed on an artificial landscape, which is being developed by competing agents equipped with several land-related objectives and utilizing a number of configurations of risk-taking attitudes. The subsequent land arrangements of abstract townships are compared based on land use contiguity and compactness principles. The results of the presented research suggest that attitude to risk taking may significantly influence the sustainability of landscape patterns. We argue for further investigation of psychological drivers that stand behind land development decisions affecting land use change. Such knowledge is the first step towards gaining higher social and economic acceptance of anti-sprawl land use arrangements.

Keywords: agent-based modeling, spatial decision making, GIS

Eunjung Lim, Department of Geography, State University of New York at Buffalo. Email: elim3@buffalo.edu; Peter Rogerson, Department of Geography, State University of New York at Buffalo. Email: rogerson@buffalo.edu; Rajan Batta, Department of Industrial and System Engineering, State University of New York at Buffalo. Email: batta@eng.buffalo.edu; *Emergency Vehicle Relocation Planning with Dynamic Spatial Demand Patterns*

Emergency service location problems are generally solved for a stationary set of demands, but this has a limitation in that it does not consider dynamic change of demands. This paper focuses on emergency vehicle relocation planning with time varying spatial demand patterns. To find appropriate times for relocation, significant change points of spatial patterns of demands are detected by using a method combining network nearest neighbor statistics with a cumulative sum statistic. Each of the periods divided by change points is defined as a scene object, with multiple attributes such as global spatial pattern values, a number of local clusters, and so on. The K-means algorithm is applied to divide all scene objects into groups of similar objects. The elements of each group are analyzed to determine whether a similar spatial pattern for a certain same time period is observed over the entire set of tested years. If a significantly representative spatial pattern is detected for a specific time period, emergency vehicles are re-located by solving the static mathematical model for this time period. This research evaluates the performance of the suggested relocation solution by comparing it with a stationary location solution through the simulation program that assesses emergency response time.

Keywords: relocation planning, spatial pattern, change point analysis, K-mean algorithm

Hyunwoo Lim, University at Buffalo. Email: hwlim@buffalo.edu; *The Impact of Sales Demand on the Structure of Physical Distribution Network for Business-to-Consumer On-line Shopping*

Success in on-line shopping business depends on the seamless performance of the physical distribution network including central warehouse, terminals, and distribution centers. On the other hand, accomplishing economies of scale by having enough customer demand around destinations is critical for less-than-truckload (LTL) and parcel carriers to reduce logistics costs and to make enough profits to maintain their business. This paper suggests a near optimal strategy for designing physical distribution network for a carrier serving a fixed region with increasing customer demand density, and how the performance of the network would be reflected on the overall logistics cost and output service level. Innovative reduction in overall physical distribution cost of on-line shopping is expected to vitalize B2C E-commerce, which would contribute to the local economies by connecting on-line shopping customers and vendors distributed over space.

Keywords: B2C E-commerce, logistics, physical distribution

Christopher J Limburg, MS, University of Wisconsin-Madison. Email: cjlimburg@wisc.edu; *Place, Nature, and Knowledge: Towards a Spiritual Ecology of the Kathmandu Valley*

This paper will propose a methodology for understanding the way that naga serpent spirits mediate the relationship between people and environment in Nepal. From ancient aquifers and the texts that mythologize their history to contemporary debates on health, pollution, and falling water tables, people in Nepal have looked to nagas to represent their environment. Today, what was once thought of as a stable and spiritually endowed ecosystem is faced with increasing pressures from rural-urban migration, international refugees, and foreign tourism. Different emerging notions of nature, place, and spirituality interact, coexist, and occasionally conflict. My research will explore these relationships, their effects on the religious and ecological networks in Nepal, and the spiritual ecologies they produce. My primary question is: How are people's ways of knowing the world materially emplaced in the world? Further, how do knowledge systems, as materialities in the world, interact with natural processes? Specifically, do Buddhist beliefs in nonhuman spirits and meditative mind training affect people's interaction with the natural world? How does this relationship manifest itself in the Himalaya where traditional and modern ways of knowing the world are in sharp relief? Furthermore, if we look at Nepal's variety of Buddhist knowledge systems as modern ways of knowing, what kind of natures will these ways of knowing reveal to us?

Keywords: Spiritual Ecology, Place, Nature, Knowledge, South Asia, Buddhism

Ester Limonad, Prof. Dr., Universidade Federal Fluminense. Email: ester_limonad@yahoo.com; *Nothing's gonna change my world? Far beyond the big agglomerations, across the Brazilian cities universe*

In opposition to the famous Beatles lyrics, the world is changing faster and faster. In addition to altering the organization of production, the III Industrial Revolution produced a new social space in order to satisfy the needs yet imposed by the different spheres of social reproduction (family, labor force and means of production). Not only are contemporary cities qualitatively different from former ones, urbanization forms have changed in ways that give new shape to urban agglomerations. Decreasing demographic growth rates, migration shifts and variations in Brazil's cities' participation in the GNP are strong indications that something changed in the country's regions, outside its metropolitan areas and huge urban agglomerations. Against the embedded belief that urban metropolitan areas would grow endlessly and continuously, medium cities have presented the highest demographic growth rates in the last twenty years. Another kind of urbanization has flourished, featured by scattered and dispersed agglomerations in agricultural regions. For instance, this extensive form of urbanization includes almost a million inhabitants clustered in the northeast of Santa Catarina State, and almost five million in a hundred mile radius around Brasilia in central Brazil. The goal of this paper is to look beyond metropolitan areas to verify what is going on in Brazil's medium and small cities, and why. Regional maps, social and economic data as well as census data will be analyzed to demonstrate that there are two prevailing complementary urbanization patterns: a metropolitan concentration and territorial dispersion and diffusion.

Keywords: medium cities, urbanization, dispersion, regional geography, Brazil

George C S Lin, University of Hong Kong. Email: gcslin@hkucc.hku.hk; *Scaling Up Regional Development in the Pearl River Delta: Local Capital Accumulation, Land-Centered Politics, and Reproduction of Space*

The resurgence of regionalism after the globalization fever has shifted attention to some regionally specific relational assets as the sources of dynamic, innovative, and competitive regional development. Recent research has suggested, however, that extra-regional linkages have played a role as important as, if not greater than, that of internal relations. This article critically evaluates the perennial debate over endogenism or exogenism in the study of regional development. It draws on theoretical insights from political economy and Third World political ecology to analyze the causes and consequences of recent regional development in China's Pearl River Delta. A study of the cases of Guangzhou, Foshan, and Dongguan has identified a common process in which municipalities engaged in a forceful annexation of rural counties and expulsion of peasants as a means for capitalization. Intrusion of global capitalism and reshuffling of the socialist political economy have given rise to the adoption of a local strategy to scale up the urban region and reproduce the needed space for locally controlled development. The subsequent gain in regional developmental capacity and competitiveness has been accompanied by widespread social discontents, increased inequality, and environmental degradation. The study closes with a plea to take more seriously the social and political origins of regional development apart from the economic and technological sources that have attracted so overwhelmingly the attention of regional development specialists.

Keywords: Regional Development, Political Economy, Third World Political Ecology, Land Development, China, Pearl River Delta

Jen-Miau Lin, University of Iowa. Email: jen-miau-lin@uiowa.edu;
From Social Spatial Dialectics to Object-oriented GIS Research

This paper attempts to bridge GIS research and social spatial dialectics in critical geography. To do this, I examine how the idea of the social is encapsulated into the spatial as exemplified in object-oriented GIS research. Yet, the idea that the social is contained in space presumes an absolute view of space. Furthermore, I compare the treatment of error in GIS and ideology in social spatial dialectics.

Keywords: social spatial dialectics, ideology, error

Shing Lin, Department of Geography, Texas State University. Email: slin@txstate.edu;
The Health Disparity of Childhood Respiratory Diseases in Houston

Exploratory and confirmatory data analysis were used to investigate the spatial distribution of childhood respiratory diseases in urban Houston from June to September 2001. The spatial pattern of local hot spots statistics Z(Gi) was hypothesized to be associated with independent variables of socio-economic status (SES) and ozone exceedances at the unit of census block group. SES variables include African American percentage, Hispanic percentage, median income level, and population density. Descriptive statistics, map overlay, and multivariate regression analyses were employed to explore the spatial association. The ordinary least square (OLS) and the spatial regression model were used to conduct global modeling, and Geographical Weighted Regression (GWR) was used to examine local modeling. Map overlay shows that about half of the disease hot spots fall into low-income and high African American percentage areas, and less than half fall into low medium-income Hispanic percentage areas. Results of global OLS and spatial lag model show the impacts of African American percentage, Hispanic percentage, and income level disease patterns. Local association of GWR shows the existence of non-stationarity among all five independent variables. However, median income level dominates west Houston and African American percentage dictates east Houston. Results of all analyses point out that the health disparity of childhood respiratory diseases are prevalent among low-income African American and medium-low income Hispanic populations along the intersections of major highways within the inner city. The locations of hot spots and the results of spatial association can guide the policy makers for mediating the most affected communities.

Keywords: childhood respiratory diseases, health disparity, hot spots, spatial regression

Wen Lin, University of Wisconsin-Milwaukee. Email: wenlin@uwm.edu;
Fieldwork: Making Sense of GIS Construction in a Non-Western World

Critical GIS research calls for GIS practitioners' critical examination of GIS-related practices in a reflexive way, constantly challenging the practitioners' presuppositions. In light of such discussions, my paper attempts to explore the methodological challenges of conducting critical GIS research in a non-Western setting, particularly through my investigation of GIS practices in local government of urban China. This investigation intends to critically examine the complex interrelations and interactions between GIS practice and local urban governance in China through an in-depth case study that is underpinned by Burawoy's extended case method. In Burawoy's view, fieldwork is not a mere process of collecting data, but consists of a continuous process of reconstructing pre-supposed theories with observations and information from the field. More specifically, three qualitative methods (in-depth individual interviewing, document analysis, and participant observation) are utilized to investigate GIS construction in China's urban governance. Qualitative methods are suitable in examining the relatively unknown evolution process of GIS construction in China. Moreover, employing multiple methods provides an opportunity for data triangulation, as well as unraveling multi-facet perspectives and forces in shaping GIS practices. Meanwhile, there are always struggles, negotiations, and compromises both within the field and in analyzing the data in order to better understand situated GIS practices and their implications. Thus in this paper, drawing upon my fieldwork experiences in China, I will discuss the benefits and challenges in incorporating multiple methods in my research, which attempts to make sense of GIS construction in a non-Western setting.

Keywords: Critical GIS, methodology, fieldwork, China

Pollyanna Lind, University of Oregon. Email: plind@uoregon.edu; Pat McDowell, PhD, University of Oregon. Email: pmcd@uoregon.edu; Jim O'Connor, PhD, USGS. Email: oonconnor@usgs.gov;
Geomorphic and hydrologic connections between floodplain springs and the Sprague River, Oregon.

The Sprague River is important spawning and rearing habitat for two species of sucker listed under the Endangered Species Act, as well as other aquatic and terrestrial species. While the river does not meet state water quality standards, artesian springs within the floodplain provide an important influx of cool water

that supply critical spawning habitat and thermal refugia. Most of the springs are connected to the river channel by a spring brook even at low flow, so access to the springs is viable. Understanding how these connections are created and maintained, and the relative roles of spring flow and river flow, is important for habitat restoration. All springs are inundated by the river at bankfull flow or lower. Spring pools either create their own complex network of brooks to the river channel or they are set in abandoned meander channels that control the form of the connective brook. For some, the abandoned channel and the spring remain influenced by fluvial river inflow. For others, the upstream portion of the meander scar has been filled by deposition such that inundation occurs only during over-bank events or seasonal high water back-flow. Discharge from the springs is substantial enough in all but one spring to flush out fine deposits and maintain a medium-to-coarse sand and gravel substrate in the pools and brooks. There is concern about river migration away from some springs and some active restoration projects have been done to maintain spring-river connections.

Keywords: springs, floodplain, Sprague River, sucker, habitat

William Lindeke, University of Minnesota. Email: blindeke@gmail.com;
Screening the City: TV, Mediation, and Public Space

New technologies are driving rapid change in the traditional broadcast media model. As proliferating cable and digital formats enable consumers to bypass advertising, advertisers and media companies are increasingly turning to cities as spaces for media. At the same time, revenue-challenged city governments are seeking to raise their profile through images of vitality and public engagement. This paper will look at ways that local news organizations are incorporating the urban into their broadcasts by examining why a Twin Cities news station has opened their newsroom onto a public mall. While the mediation of urban space has often been viewed as commodification or privatization, I will ask whether there are ways in which mediated urban space opens up a dialogue for traditionally voiceless media consumers by reviewing how avenues of criticism and control have developed within this relationship. Finally, I will examine the implications for urbanism as consumer culture becomes more reliant on the mediated public event, and look at how investment in modes of urban spectacle will be crucial for future urban development.

Keywords: Media geography, urbanism, journalism, information culture

John Lindenbaum, University of California - Berkeley. Email: lindenba@berkeley.edu;
The Geography of Contemporary Christian Music

Contemporary Christian Music (CCM) comprises popular styles of music such as alternative rock, singer-songwriter, R&B and hip-hop that feature evangelical Christian lyrics. CCM is one of the fastest growing forms of popular music in the U.S., and is quietly converging with the parallel 'mainstream' music industry. In the past decade, CCM sales increased 80%, and sales at non-Christian outlets doubled. The astonishing growth of the CCM industry has coincided with the rise of megachurches, the emergence of nondenominational evangelical Christianity as a force in U.S. electoral politics, and popular music's simultaneous concentration through media conglomeration and democratization through new technologies. I examine the record companies, radio stations, Christian bookstores, grassroots political organizations, audiences, and live venues that are crucial to the growth of this burgeoning market in the U.S. I investigate Christian niche marketing, challenging the notion of 'independent' and 'sacred' companies by explicating various organizational relationships. I explicate the geographical pattern of CCM record companies, record sales, concert venues, summer festivals and radio stations. I also analyze notions of 'Christian,' 'mainstream,' 'CCM' and other taken-for-granted distinctions that are discursively produced and reinforced through musical practices. Most of the research done on CCM has been in the popular press or from within the industry itself; its geographies, contradictions, and political subjectivities have been largely neglected until recently.

Keywords: popular music, Christian, cultural geography

Keith Lindner, Colorado State University. Email: keith.lindner@gmail.com;
Biopolitical Ecuador: Race and Nature in the Formation of Nation

A growing body of literature explores the ways in which nation and national identity are constructed and produced, and the inclusions, exclusions, and violence these processes inevitably entail. While categories such as race, ethnicity and gender have been central to such analyses, nature - surprisingly? - has remained relatively unmarked. This paper argues, to the contrary, that nature is fundamental to productions of nation. Drawing primarily from Michel Foucault's notion of biopolitics and Giorgio Agamben's notion of the biopolitical fracture, the paper explores the ways in which geographies of nature are deeply implicated in the production of nation in Ecuador, and argues that nature is both constitutive of, and constituted through, these contested processes. The paper maps techniques of state biopolitics, aimed at bringing the biological under state control, in contemporary Ecuador. The case illustrates the ways in which the state, in its projects of nation building, has sought to transform and control

nature just as much as populations and national identities. In struggle over the nation, the state and Ecuador's indigenous populations mobilize competing geographies of nature and modes of political qualification in complex and mutually constitutive ways. For each, nature is a fundamental element in nationality and political existence, though for different reasons and in different ways. In turn, nature is produced in and through these contested processes in ways that render it inextricable from struggles over biopolitical order and productions of nation.

Keywords: Nature, Latin America-Ecuador, National Identity, Biopolitics

Peter S. Lindquist, University of Toledo. Email: plindqu@utnet.utoledo.edu; The Great Lakes Maritime Information Delivery System

The Great Lakes Maritime Information Delivery System is a comprehensive data repository and information clearinghouse for the maritime industry in the Great Lakes. The system is designed to serve as a centralized resource for diverse interests within the industry in support of promoting sustainable maritime transportation in the region. The system was developed to facilitate the acquisition, storage, management, analysis and exchange of data between research analysts and decisionmakers within the industry. The main features of the system include: 1) A detailed data repository for vessel movements, port functions, commodity flows, economic activity and environmental impacts, etc.; 2) A GIS data viewer for advanced users to view and analyze a variety of data; 3) An information delivery site for maps, tables, graphics, text and other features; 4) A data exchange to support user inquiries and furnish information on demand; and 5) An information clearinghouse for the industry that provides links to government agencies, trade organizations and firms operating in the region. Maritime industry officials' response to the project thus far have largely focused on the use of this system as a resource for public policy and for providing the means to document the link between the maritime industry and the economic viability and environmental quality of the region.

Keywords: Transportation, GIS, Applied Geography

Francis E Lindsay, NASA. Email: francis.lindsay-1@nasa.gov; Martha E Maiden, NASA. Email: martha.e.maiden@nasa.gov; NASA's Strategy for Enabling the Discovery, Access, and Use of Earth Science Data for Land Science Research

The National Aeronautics and Space Administration (NASA) routinely receives large volumes of key Earth science data from its satellite instruments, along with airborne, and in-situ-based sensors, deployed by the NASA Earth Science programs program. Data and information products developed and produced by experts in the NASA community via grants and contracts continues to populate an active archive containing many petabytes of science-quality data readily used by our research communities and a broad range of other users. The collection of these data has been achieved in parallel with the development of information technologies that have made formerly difficult tasks of data storage and management increasingly easier. NASA's observation assets and their attendant distributed and heterogeneous data systems have been a key resource for the diverse land science research and user communities. We provide information on how to access and use these resources for land science research. The presentation highlights some of the near-term technical goals for our science data systems and how these improvements will further aid the multiple research communities. The relationship and organization of both NASA's core data system components with those deployed by Earth science communities of practice is a key piece to this overall data system strategy. We also provide highlights of pertinent information system research for the land sciences research communities resulting from NASA's information system programs. Improvements to these data systems will enable easier access to key land observation data and land cover research products and provide needed data services specific to this research community.

Keywords: NASA, land science, data systems

Morag Lindsay, Oxford Brookes University. Email: dmlindsay@brookes.ac.uk; Katie Williams, Dr, Oxford Brookes University. Email: kwilliams@brookes.ac.uk; Does shared outdoor space contribute to neighbourliness?

This paper presents the results from a three year research project investigating the influence of outdoor space on privacy and neighbourliness in sustainable housing developments in England. Neighbourliness is one of many factors said to contribute towards a sense of community and cohesiveness in sustainable communities. Increasing the amount of shared space within housing developments is thought to increase positive interactions between neighbours. However, little is known about how successful this relationship is and whether privacy is affected. The home is a private space, coveted by occupants as an alternative to public space. A decrease in the amount of external space in the home may have a detrimental effect on the occupants' privacy. This could lead

to a negative effect on neighbourliness, the exact opposite of the design intentions. Twelve case studies of new developments in England, including flagship projects such as the Greenwich Millennium Village, were surveyed to determine the relationship between space, privacy and neighbourliness. Different types of outdoor spaces are represented in the case studies. These include private gardens and balconies, communal gardens and play areas, and public parks. A site survey checklist (one for each case study) and a household questionnaire (over 680 responses) were used to gather data on the outdoor space and real and perceived privacy. The data has been analysed to establish the effect of outdoor space on privacy and neighbourliness. It suggests that shared outdoor space can lead to higher levels of neighbourliness if it is provided alongside private outdoor space.

Keywords: neighbourliness; privacy; sustainable housing; communal gardens

Betty Lininger, University of Florida. Email: lininger@ufl.edu; Religious Practices Before and After Migration: A Case Study of Female Somali Muslims

The increasing numbers of Muslim refugees and immigrants into Western nations has brought many Islamic cultures into greater contact with secular Judeo-Christian societies. This has caused some groups to reinterpret or intensify their practice of the Muslim religion within these new and often hostile landscapes. One group, the Somalis, primarily composed of refugees, have been arriving in Western countries since the early 1990s and are creating communities within major cities such as London, Toronto, and Minneapolis, Minnesota. These refugees experience adaptation to their new environments in varying ways in relationship to their Islamic practice. This can include a greater determination to adhere to Islamic practices (such as covering and prayer), yet also result in a discarding of some perceived Islamic requirements (such as female genital mutilation). Somali religious and cultural traditions have increasingly come under this process by migrants in response to difficult host environments as well as the use of traditions to maintain both identity and as a comfort being a minority in a foreign society. This paper examines the reinterpretation of Islamic practices of Somali females residing in the United States as contrasted to those practiced before the resettlement experience.

Keywords: migration, religions, Africa

Dave Linthicum, US Dept. of State Office of the Geographer and Global Issues (INR/GGI). Email: linthicumdh@state.gov; Boundary Recovery: Use of Colonial and Treaty Maps, Imagery, and Elevation Data in a GIS Environment

"Recovery" of international boundary lines to accurately align with their treaty-specified features remains a challenge for USG cartographers. "Boundary recovery" methodologies have been developed in the U.S. State Department's Office of the Geographer and Global Issues (INR/GGI), which works with colleagues at the National Geospatial-Intelligence Agency (NGA.) The application of GIS tools has been paramount in refining these methods and incorporating imagery and elevation data in an effective manner. Findings include ° discovering that boundary misalignment in the range of hundreds of meters to several kilometers is the norm for most lines worldwide on even the best USG maps and datasets; ° realization of the utility of old treaty, colonial, and Russian maps: their detailed topographic and planimetric mapping overcomes outdated geodetic control; ° awareness of how cartographic atrophy over decades and recent examples of cartographic aggression must both be considered in the boundary recovery process; ° awareness of problems presented by arbitral rulings which in some cases are arguably constructed within a vacuum of international boundary geographic expertise. Several case studies will be presented.

Keywords: Boundary, GIS, treaty, imagery, elevation data

Jamie Linton, Ph. D., . Email: jlinton@ca.inter.net; Water as a Geographical Solution

In 1931, Sir Halford Mackinder proposed "the hydrosphere to be considered as the central theme of geography." As a physical process relating geological, biological and social phenomena, Mackinder saw water as an ideal means of articulating his overarching vision for geography as a discipline bridging the natural and the social sciences. "It is in the water", he asserted, "rather than in the rocks that we must look for salvation." Although this proposal was almost completely ignored by contemporary and subsequent geographers, the disciplinary ideal of holding nature and society under one conceptual umbrella has persisted — albeit not without controversy — in what David Livingstone calls "the geographical experiment." In this paper, I argue that recent theoretical developments in both human and physical geography compel a renewed and positive interest in the geographical experiment. With this interest in mind, the paper critically re-examines Mackinder's idea of water as a unifying geographical theme. Mackinder's proposal, I argue, was doomed to founder on a dualistic view of the nature of water and society. Recent efforts by geographers to rethink the nature-society dualism however suggest the possibility of experimenting with the idea of water as something whose nature changes in relation to its social

engagements. Such a relational understanding of water provides a novel means of conducting the geographical experiment; one that I believe suggests further possibilities for an undivided geography.

Keywords: geographical thought, nature, water

Nenad Lipovac, Professor, University of Zagreb. Email: nlipovac@posluh.hr; *Historic Maps and their Importance in City and Regional Planning*

In City and Regional planning process an accurate topographic map of the region or the town is very important. It should provide a planner with most important infos upon existing environmental conditions: topographic and natural features. Although contemporary maps are very accurate, they cannot display something that is of a great value for preserving the Identity of Place: historic, cultural and built elements that serve as the source of Identity. That's why it is necessary to capture urban story revealed by proper reading of archive graphics, plans and maps representing the Place appearance through Space and Time, something known as urban cartography. The hand drawn maps produced by European military cartographers in situ in the second half of the 18th century, are undoubtedly a masterpiece of human perception of Space in Time, and are best examples of "maps from the head", as for most of the time it was dangerous and technically impossible to draw a map on a site. They could do only several sketches, while the final map was done somewhere in safety. These maps had to provide solid information about terrain and easy to recognize landmarks - they were results not only of perception but of cognition and scientific knowledge of that time. This paper is here to draw the planners' and architects' attention to understanding the need for proper professional and scientific reading and evaluating of historic graphic and cartographic documents relevant for urban history of several Places in Croatia that should be used in contemporary planning.

Keywords: historic topographic maps, historic city maps, identity

Christopher D Lippitt, San Diego State University/University of California Santa Barbara. Email: lippitt@rohan.sdsu.edu; John Rogan, PhD, Clark University. Email: jrogan@clarku.edu; *Machine Learning for Subtle Forest Change Mapping*

Forest-cover monitoring programs are currently being established in an effort to better understand multitemporal conversions and modifications over large areas. Large area programs use complex change mapping techniques and require processing and interpretation of large volumes of remote sensing and ancillary data. Machine Learning Algorithms (MLAs) offer the potential to process large volumes of data with minimal human intervention and reduced processing time when compared to conventional methods. The recent development of MLAs for remote sensing applications, and the transparent (i.e. non-black-box) manner in which many of them have been identified to operate, necessitates investigation into their operational characteristics and capabilities. This study utilizes multitemporal Landsat TM/ETM+ imagery of a forest reserve in western Massachusetts to assess the performance of three Artificial Neural Networks for mapping selective timber harvest: Multi-Layer Perceptrons (MLP) network using back propagation (BP) algorithm, Fuzzy ARTMAP, and Self-Organizing Map. Comparisons are based on the following evaluation metrics: (1) impact of training set size, (2) sensitivity to noise and outliers (3) map accuracy, and (4) relative transparency of the classification process. Results indicate that Self-Organizing Map is less sensitive to the presence of noise and to variations in training data than Fuzzy ARTMAP and Backpropagation Neural Network, producing timber harvest maps of 5-19% higher map accuracy. SOM produced change-map accuracies of 81%, while Fuzzy ARTMAP and Backpropagation Neural Network produce slightly lower accuracies (75% and 64% respectively); a significant difference in overall map accuracy. The combined three algorithms produced an average map accuracy of 65%.

Keywords: Machine Learning, Neural Networks, Decision Trees, Subtle change, Change Detection

Jennifer Lipton, Central Washington University-Ellensburg. Email: liptonj@cwu.edu; *Conservation with Climate Change: Patterns and Process of Change at Huascarán National Park, Peru*

The amount of area contained within Peru's Protected Area system increased dramatically over the past 10 years. While areas recently put under some form of environmental protection are predominantly located in the Amazonian lowlands, a few locations are in the densely populated Andean highlands, such as the Cordillera Huayhuash, adjacent to the existing boundaries of Huascarán National Park (HNP). Located in the central Andes of Peru, Huascarán National Park is undergoing land use and land cover change (LULCC) at a steady pace in both the core of the National Park and within the Buffer Zone. Using geospatial techniques that combine detailed field data with satellite imagery and aerial photographs, the LULCC of this montane national park reveals a trend of socio-economic land use change coupled with the consequences

of climate change. Integrating historical accounts provided by informants with resulting land cover data, specific elevation zones are demonstrating greater land cover change. With the trajectory of climate change affecting tropical mountain regions, HNP and the Cordillera Huayhuash are subject to long-term impacts. The use of geospatial techniques may be useful for examining the potential of conservation corridors for specific land cover communities and to foster social-environmental networks intent on conservation between HNP and the Cordillera Huayhuash.

Keywords: People and Parks, Huascarán National Park, Peru, Remote Sensing, LULCC, Climate Change

Jane E. Lister, University of British Columbia. Email: jlister@telus.net; *The Role of Private Environmental Governance in Emergent Sustainability Mechanisms*

Voluntary corporate sustainability efforts are becoming increasingly institutionalized through global private environmental governance standards. These private standards encourage the improvement and harmonization of sustainability performance by leveraging global market forces - in particular the procurement and investment practices of multinational corporations through their global supply chains. Although these private standards have been labeled "non-state mechanisms" or a form of "governance without government", in fact, governments are actively engaged and in some instances even mandating these private codes. The distinction between public versus private governance is not black and white but blurred. Through an examination of government response to the most well developed private code - forest certification, this paper argues that emergent co-regulatory arrangements are fundamental to our sustainable future. Firstly, these private-public arrangements encourage greater street-level multi-stakeholder discourse and secondly, by embedding a tension between dynamic private innovation and stabilizing public regulation, they are resulting in adaptive governance approaches that encourage the emergence of responsive and hopefully effective global sustainability solutions.

Keywords: sustainability, emergence, networks, environmental governance, corporate responsibility, co-regulation

Ashley Littell, Western Kentucky University. Email: litteae@wku.edu; Rezaul Mahmood, Western Kentucky University. Email: rezaul.mahmood@wku.edu; Jun Yan, Western Kentucky University. Email: jun.yan@wku.edu; Kenneth Hubbard, University of Nebraska-Lincoln. Email: khubbard1@unl.edu; Jinsheng You, University of Nebraska-Lincoln. Email: jyou2@unl.edu; *Spatio-Temporal Variations of Observed Soil Moisture in Nebraska During the Warm Season*

Soil moisture is a measure of the water content in a soil that is dependent upon precipitation, evapotranspiration, runoff, drainage, and irrigation. Nebraska is one of the few states in the country that maintains a weather data network that measures soil moisture. Daily soil moisture observations from depths of 10, 25, 50, and 100 centimeters were analyzed from May through October of 2005, after being grouped into datasets of weekly, bi-weekly, and monthly observations. These datasets were imported into a Geographic Information System (GIS) and the Ordinary Kriging method was applied for spatial interpolation. The interpolation parameters were set to create output surfaces of 4 x 4, 16 x 16, 32 x 32, and 64 x 64 kilometer grids for analysis of their variations. As expected, it is found that soil moisture content is higher in southeastern Nebraska and lower in the northwest. Changes in the grid size render small scale variations, however, the general pattern of estimated soil moisture distribution does not change.

Keywords: soil moisture, hydroclimatology, interpolation

Jani S Little, University Of Colorado. Email: jani.little@colorado.edu; Andrei Rogers, University of Colorado. Email: andrei.rogers@colorado.edu; *Age-Specific Migration: Methods for Enhancing the American Community Survey*

Age-specific population estimates at the state level are quite accurate in the ACS, as are the measures of total immigration, outmigration, and immigration. However, ACS estimates of the age structures of these migrating populations are generally unstable with large standard errors. Previous findings show that age-specific profiles of outmigrants can be inferred from the age composition of the population (Little, Rogers, 2006). The earlier findings are based on the Census 2000 long-form survey and the migrating population over a five-year interval. This paper makes use of the same relationship, but infers age profiles of state outmigrants over a one-year interval, 2003-2004, and the results improve the ACS estimates of age-specific state outmigration for the same period. The proposed methods rely initially on the regularities of migration age profiles, which are captured by the Rogers-Castro model migration schedule (Rogers, Castro, 1983). In addition, the paper establishes that there is an inherently strong association between the age compositions of in and out migrants. Therefore, a well estimated age profile of outmigrants can be used to estimate the age profile of immigrants. Finally, the paper demonstrates how the proposed

methods generate smoother, more stable, and more probable in-migration and out-migration profiles than those obtained from the observed ACS data.

Keywords: ACS, immigration, outmigration, age profile, model schedule

Jo Little, University Of Exeter, Dept. Of Geography. Email: j.k.little@exeter.ac.uk; 'Plastic Fantastic': cosmetic surgery, biotechnology and the natural body

In 2005 something in the order of 75,000 cosmetic surgery operations were undertaken in the UK and so widespread is the interest in such surgery that the Department of Health has issued guidelines for patients considering cosmetic operations. Face lifts, breast enlargements, nose reduction and fat removal, once the preserve of the rich and famous are now considered part of normal, everyday beauty procedures for a large section of society. This paper briefly details the extent and nature of the commercialisation of the body surgery through the cosmetic industry. It then goes on to explore the role of cosmetic surgeries in opening up questions about body parts and the transformational possibilities of new technologies. It argues that an examination of cosmetic surgery can make an important contribution to theoretical and empirical work in Geography on subjectivity and the body, destabilising boundaries between the body and the self and repositioning ideas of nature and the biological body in questioning the logic of identity. The paper also notes the ways in which particular assemblages of body parts retain such power within fluid and discursive forms of gender identity.

Keywords: plastic surgery, body, technology, natural

Cheng Liu, Ph.D., Oak Ridge National Laboratory. Email: uil@ornl.gov; James J Nutaro, Ph.D., Oak Ridge National Laboratory. Email: 1qn@ornl.gov; Budhendra L Bhaduri, Ph.D., Oak Ridge National Laboratory. Email: bhaduribl@ornl.gov; Building a Spatial-Temporal Geographic Information System/Transportation (GIS/T) Test Bed from Open Source Library

GIS/T researchers use commercial GIS/T software to test their concepts for many years. Occasionally available commercial GIS/T software is not suitable for their needs especially in the field of spatial-temporal transportation research. The spatial-temporal transportation research topic is a cutting edge subject and widely accepted and fully tested standards are not yet available. Most researchers overcome this deficiency by trial and error practice. The commercial software companies are also waiting for the standards or can not maintain pace with the research efforts. Therefore, many spatial-temporal GIS/T functionalities are missing in the software. GIS/T researchers spend significant time to solve fundamental problems such as incompatible data structures. This severely limits the time that can be devoted to developing analytical tools appropriate for spatial temporal transportation research. The available commercial software is designed to be as flexible as possible so the researcher can customize their application under its development environment. However, under certain situations, advanced research topics require a more flexible development environment than the commercial software to test their assumptions. A test bed built on open source library is useful for this purpose. It is flexible, powerful and also accessible. There are many open source GIS applications and libraries on the internet. This presentation will review a few packages which are used to build the GIS/T test bed. The libraries include QT, GDAL, CGAL, GEOS, BOOTS, PROJ, and NETWORK. This presentation also includes a live demo of the Spatial-Temporal GIS/T build from open source libraries.

Keywords: gis, transportation, open source

Desheng Liu, The Ohio State University. Email: liu.738@osu.edu; Maggi Kelly, University of California, Berkeley. Email: mkelly@nature.berkeley.edu; Peng Gong, University of California, Berkeley. Email: gong@nature.berkeley.edu; A new simulation approach to testing independence between non-stationary spatial point patterns

In detecting attraction and repulsion between spatial point patterns, a random toroidal shift is often applied to simulate independence between point processes. However, the random toroidal shifting test for independence is not applicable to non-stationary spatial point processes because the random toroidal shifting method assumes stationarity for the underlying sub-processes. In this paper, we present a new simulation approach to testing the independence of the non-stationary spatial point process. This approach can preserve the original structures of sub-processes and yield independent joint realizations of the marginal non-stationary processes. Both simulated and real non-stationary spatial point data were used with this approach for independence test. The results showed that the new approach was very effective and robust in detecting both attraction and repulsion between non-stationary point processes.

Keywords: Independence, Spatial Point Patterns, Stationarity

Gilbert C Liu, MD, MS, Indiana University. Email: gcliu@iupui.edu; Jeffery S Wilson, PhD, Indiana University. Email: jeswilso@iupui.edu; Shawn C Hoch, Indiana University. Email: shoch@iupui.edu; Travel patterns and physical activity in adolescents

Modifying the built environment may increase opportunities for physical activity, promote nutritious diet, reduce caloric intake, and reduce sedentary lifestyle. We present results of a pilot study examining interplay between the built environment, space-time activity patterns, and potential effects on physical activity and obesity. The project approaches behavioral and clinical data with innovative methods of geospatial analysis and spatial statistics, at scales ranging from the individual through the neighborhood to the metropolis. The research aims are: (1) Test methods for continuous GPS tracking of travel behaviors for youth ages 10 to 11 and, (2) Use GPS tracking to identify, measure, and explore environmental exposures as mediators for sex and race differences in physical activity and overweight. Aim 1 will be accomplished by using GPS and GIS to collect (via inobtrusive direct observation) and assess large amounts of human exposure data. Aim 2 will be achieved by conducting multilevel modeling and spatial analysis of the relation between built environment, socioeconomic status, obesity-related behavior, and obesity-related outcomes. The analysis will focus on frequently observed, but inadequately understood, sex and race differences in physical activity and childhood overweight. Clearly obesity is determined by a complex interaction between genetic, cultural, and environmental factors. We speculate that cultural and environmental exposures affect diet and activity levels, increasing risk of obesity, but these mechanisms are not proven. In order to develop effective interventions, we need a better understanding of how exposure to factors such the built environment or neighborhood poverty mediate physical activity and dietary behavior.

Keywords: gps, travel patterns, physical activity, accelerometer

Hongxing Liu, Texas A&M University. Email: liu@geog.tamu.edu; Lei Wang, Texas A&M University. Email: wanglei@geog.tamu.edu; Deriving morphological information of stream channel network from LIDAR DEMs

With the advent of high resolution topographical information acquired by airborne LIDAR and InSAR system, it has become possible to detect and delineate subtle micro terrain features through numerical processing of digital elevation data. In this paper, we present an innovative method to extract the geometric information of river channels from Airborne LIDAR data. The continuous, connected stream network is first derived, and the geometric properties, including channel width, depth, cross-section area, and central line, have been numerically derived for each section of river channels. The method has been successfully applied to a number of regions of Harris County watersheds in Texas.

Keywords: remote sensing, LiDAR, hydrology, channel geometry

Hua Liu, Indiana State University. Email: hliu5@mymail.indstate.edu; Qihao Weng, Indiana State University. Email: qweng@indstate.edu; Scaling-up Effect on Examination of Seasonal Variations in the Relationship between Landscape Pattern and Land Surface Temperature in Indianapolis, U.S.A.

The goal of this study was to examine the scaling-up effect on examination of seasonal variations in the relationship between landscape pattern and land surface temperature based on a case study of Indianapolis, United States. The integration of remote sensing, GIS, and landscape ecology methods was used in this study. Four Terra's ASTER images were used to derive the landscape patterns and land surface temperatures in four seasons in the study area. The original images were resampled to total eight spatial resolutions: 15m, 30m, 60m, 90m, 120m, 250m, 500m, and 1000m. The variances of spatial and ecological characteristics of landscape patterns and LSTs across the scales were examined by the use of landscape metrics. The best level of equalization between land use and land cover map and corresponding land surface temperature map was determined on the basis of a minimum distance in the landscape metric space. The distances were measured by a standardized Euclidean distance and computed at all levels of spatial resolutions. Current result shows that the patch percentages of different land surface temperature zones in four dates were not apparently affected by scaling-up process. Their patch numbers and shape indices remain constant when spatial resolutions are less than 90m, and then, starting from 90m, decrease as the increase of cell sizes without distinct seasonal changes. Fractal dimension, aggregation, and connectivity show sensitivity to scaling-up process. The research is of benefit to the study of regional land surface temperatures and the relationship with landscape pattern in situ area.

Keywords: Scaling-up, landscape pattern, land surface temperatures, landscape metrics

Huiping Liu, School of Geography, Research Center for Remote Sensing and GIS, State key Laboratory of Remote Sensing Science, Beijing Normal University, Beijing, 100875, China. Email: hpliu@bnu.edu.cn; Dong Yun Lin, School of Geography, Beijing Normal University. Email: lindy@bnu.edu.cn; Jiashi Wang, School of Geography, Beijing Normal University. Email: wangjiashi1984@126.com; Zhiqi Shen, School of Geography, Beijing Normal University. Email: flyfreely628@163.com; Using *Spatial Clustering Method Analysis Point Distributed Data*

Spatial data mining is the most important method in finding the distribution characteristics of large amount of data. GIS is one of the essential ways in spatial data mining. This article use spatial clustering method to analysis the distribution of over 200,000 corporations in the suburb of Beijing, China. First, we located the position of each corporation in GIS by its address and got over 200,000 location points. The attributes of points include economical information of corporations, such as industry; income lever, amount lever of employee, type of investor, and so on. The points got together and no characteristics of distribution could be found. The spatial clustering method was performed. There were two parts of cluster. One was to cluster points by positional distance to get cluster regions. Quantitative measured the regions by corporation attributes and clustered regions by the attributes. The distribution analysis of regions was followed. Three clustered distribution areas were divided, named region 1(close to center of city), region 2(in middle) and region 3(far from center of city). Industry of corporations' distribution showed that the percentage of service corporations in region 1 was 17.17% higher than in region 3, and the percentage of manufacturing in region 1 was 28.39% lower than in region 3. The results indicate that the spatial clustering is an effective method in studying the distribution of large amount of point data.

Keywords: data mining, spatial cluster, corporations distribution, Geographical Information System

Jian-Yi Liu, Montana State University. Email: jliu@montana.edu; Urban Development in China: The Changing Landscape, 1985-2005

Since the early 1980s, China has been in the rapid transformation from a poor agricultural society to a strong industrial country. One of the results of the rapid national economic growth is the great urban development and urban landscape change. In 1985, the urbanization level of China is only 32 percent, but the number is jumped to 54 percent in 2005. In the same period, the number of officially defined cities has increased from 263 in 1985 to 686 in 2005. Along with the rapid increase, the physical changes of all Chinese cities are dramatic. In 1985, the majority of the houses and buildings in Chinese cities were old and poor, with dark colors, urban streets were narrow and crowded by bicycles and people with uniform blue/grey colors. In 2005, however, the image was replaced by a different landscape, dominated by new, high, colorful and beautiful architectures, wide city streets filled with diversified automobiles, and beautiful green landscaped spaces. To illustrate the rapid urban development and urban landscape changes, Shanghai and Guiyang of Guizhou Province are selected as samples and some photos from 1985 and 2005 are used for comparison.

Keywords: China, Urban Landscape

Kam-biu Liu, Louisiana State University. Email: kliu1@lsu.edu; James B. Elsner, Florida State University. Email: jelsner@garnet.acns.fsu.edu; Thomas A. Bianchette, Louisiana State University. Email: tbianc1@lsu.edu; Thomas H. Jagger, Florida State University. Email: jagger@stat.fsu.edu; Using Hurricane Ivan as a Modern Analog to Calibrate Paleohurricane Intensity Estimates in the Proxy Record

The catastrophic landfall of Hurricane Ivan in September 2004 at Gulf Shores on the Alabama coast offers an extraordinary opportunity for paleotempestology research. We re-cored the Shelby lakes and used Ivan's sedimentary signature as a modern analog to calibrate the intensity estimates of paleohurricanes derived from the proxy record. Stratigraphic data from 52 new cores collected in 2005 and 2006 show that Ivan, a cat 3 hurricane at landfall, left a distinct sand layer in Little Lake and Middle Lake but not in Lake Shelby. Thus the three Shelby lakes have different paleotempestological sensitivities. Accordingly, proxy data from Little Lake and Middle Lake can record hurricanes of cat 3, 4, and 5 intensities, whereas those from Lake Shelby are sensitive to cat 4 and 5 hurricanes only. These new findings support proxy evidence showing 7 events (sand layers) in Little Lake during the past 1200 years, compared with only 2 events in Lake Shelby during the same period. The proxy estimates are consistent with results from a hurricane risk model developed from historical data that relates hurricane return levels (intensity) with return periods (frequency) for the coastal segment within a 25 nm (45 km) radius from Lake Shelby. The model results suggest that the return period of 318 years estimated from the Lake Shelby proxy record corresponds to direct hit by a hurricane with 139 kt winds [95% CI (124 kt, 151 kt)], or a high cat 4-5 hurricane according to the Saffir-

Simpson scale.

Keywords: paleotempestology, Hurricane Ivan, hurricane risk model

Weidong Liu, Chinese Academy of Sciences. Email: liuwd@igsrr.ac.cn; Patterns and Dynamics of Town Development in China: A case study of two towns in Sichuan Province

In the 1980s and 1990s, one eye-catching economic phenomenon in China was the fast development of rural industries (i.e. township and village enterprises, TVEs). The TVE sector was developed mainly based on local resources and rural labors, i.e., it represents a bottom-up model of development. Since TVEs absorbed a lot of rural surplus labor and stimulated the "birth" and growth of many towns, the bottom-up TVE-driven model of town development has been believed to be the right track to solving the problem of huge rural surplus labor and transfer the rural into urban. Since the late-1990s, however, the circumstance of rural industrial development has changed markedly. This indicates that the sustainability of the bottom-up TVE-driven model of urbanization needs to be carefully examined. This paper, based on in-depth investigation of two towns in Sichuan Province, will examine the new patterns and dynamics of town development in China. In the paper, I would argue that the bottom-up model has lost its value as a strategic pathway to town development in China, and a new a top-down model is becoming the main dynamics.

Keywords: China, town development, bottom-up model, top-down model

Weiguo Liu, Department of Geography and Planning, The University of Toledo, Toledo, OH 43606. Email: dliu@utnet.utoledo.edu; Conghe Song, Department of Geography, CB# 3220, 205 Saunders Hall, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599. Email: ; Todd Schroeder, Department of Forest Science, Oregon State University, Corvallis, OR 97331. Email: ; Warren Cohen, Forestry Sciences Laboratory, Pacific Northwest Research Station, USDA Forest. Email: ; Predicting Forest Successional Stages with Multitemporal Landsat Imagery and Forest Inventory and Analysis Data

Forest succession is a critical ecological process that has profound biophysical, biological and biogeochemical implications in terrestrial ecosystems. Therefore, information on forest successional stages over an extensive forested landscape is critical for us to understand ecosystem processes, such as carbon assimilation and energy interception. This study explores the potential of using FIA plot data to extract forest successional stage information from remotely sensed imagery with three widely used predictive models, linear regression, decision trees and neural networks. The predictive results in this study agree with previous finding that multitemporal Landsat TM imagery can improve the accuracy of forest successional stage prediction compared to models using a single image. However, due to the overlap of spectral signatures of forests in different successional stages, it is difficult to accurately separate forest successional stages into more than three broad age classes (young, mature and old) with reasonable accuracy based on the age information of FIA plots and the spectral data of the plots from Landsat TM imagery. Given the mixed spectral response of forest age classes, new approaches need to be explored in order to improve the prediction of forest successional stages using the FIA data.

Keywords: forest Successional Stages; predictive models; neural network; Landsat imagery; multitemporal

XiaoHeng Liu, San Francisco State University. Email: xhliu@sfsu.edu; Geodetic distance transformation and its application in ocean boundary delimitation

Current implementation of distance analysis in GIS is mainly based on Euclidean geometry despite geographical features are located on ellipsoidal earth. This paper uses international maritime boundary delimitation as an example to illustrate the limitations imposed by this strategy and offers a solution based on geodetic distance transformation. An algorithm which enables buffering and Voronoi diagram generation on the ellipsoidal surface of the earth is presented, which has the following characteristics: (1) distance is computed on geodetic reference ellipsoid instead of maps, thus avoids the distortions imposed by map projections; (2) buffer generator and Voronoi generators can take any arbitrary shape and varying weights; (3) error is bounded and the computational cost is relatively low. The application of the algorithm on ocean boundary delimitation such as Economic Exclusive Zone (EEZ) and median line is illustrated. Its implication on some of the principals in the current international maritime boundary law is also discussed.

Keywords: geodetic distance, Voronoi diagram, GIS, spatial analysis

Zhi-Jun Liu, University of North Carolina at Greensboro. Email: z_liu@uncg.edu; Dan Royall, University of North Carolina at Greensboro. Email: pdroyall@uncg.edu; Anita Henderson, University of North Carolina at Greensboro. Email: aahender@uncg.edu; Long-term Dynamics and Downstream Propagation of Urban Influences on Hydrologic Regime

The purpose of this study is to investigate the long-term influences of urbanization on hydrologic regime and their downstream propagation by analyzing and comparing the patterns of streamflow of an urban stream in the city of Greensboro, NC and downstream rural areas. This is a pilot study for a larger project that aims to understand the dissipation of urbanization impact on a stream after a certain distance removed from an urbanized area and the lag between the time of urban development and the time when the urban influences appear in streamflow and channel morphology. Three U.S. Geological Survey stations on this stream and one station on a nearby rural stream (as control station) provide flow data for analysis. Daily streamflow data from the four stations are analyzed for hydrological effects of urbanization using (1) annual maximum discharge adjusted for watershed size (discharge per unit area), (2) flow duration curves, and (3) the fraction of a year that daily mean discharge exceeds the annual mean discharge. Annual maximum discharge increases in response to urban development in a watershed. The variation of flow duration curve increases with increasing intensity of urbanization. The percentage of days in a year that daily mean discharge exceeds the annual mean flow decreases with increased urban development. Both annual maximum discharge and the variation of flow duration curve decrease downstream of the urbanized area, while the fraction of a year that the annual mean discharge is exceeded increases downstream.

Keywords: urban hydrology, streamflow analysis, trend analysis

Zhilin Liu, Cornell University. Email: zl44@cornell.edu; Low-income housing policy in a marketization context of urban China: The case of the economical and suitable housing program (ESHP) from a principal-agent perspective

This paper adopts the principal-agent framework to examine the political economy of a major affordable housing policy in China, i.e. the economical and suitable housing program (ESHP, or in Chinese, jingji shiyong zhufang zhengce). I argue that issues of housing affordability and low-income housing policy in China must be understood within the context of marketization. This not only involves the creation of market institutions, but also a project state building, through which the state needs to transform itself into a regulatory state, as well as to restructure the inter-governmental relationship. Yet decentralization often creates a principal-agent relationship between central and local governments especially when implementing certain social policies. In this paper I argue that the ESHP, initiated by the central government and implemented by local governments, possesses a typical weak principal-strong agent dynamic, which contributes to many of its unintended consequences. In particular, conflicts of economic and political interests of the principal, as well as the incomplete process of marketization, create a certain level of institutional ambiguity. This leads to a more powerful position of the agent, i.e. local governments, who pursue their own interests often at odds with the principal. Research for this paper combines qualitative analysis with game-theoretical modeling, aiming to advance the understanding of the complex dynamic among key stakeholders in the process of housing marketization in China. First and second-hand data sources include field observations, interview notes, official statistical data, and archival materials, collected during multiple field trips in various Chinese cities during 2004 and 2005.

Keywords: Principal-agent, marketization, low-income housing policy, China

Kari Liuheto, Pan-European Institute. Email: kari.liuheto@tse.fi; Attracting Foreign Investment into the Russian Enclave with Administrative Benefits: The Special Economic Zones in the Kaliningrad region

The foreign investment inflow into Kaliningrad has been modest. By the beginning of 2006, the accumulated foreign investment stock amounted to some USD 160 million. Kaliningrad's FDI stock per capita is seven times higher in the Russian Federation on average than in Kaliningrad. The difference becomes even more visible when comparing Kaliningrad with the nearby countries. The FDI stock per capita, for instance in Sweden, is nearly 200 times higher than that of Kaliningrad. The difference between Kaliningrad and Estonia is close to 80-fold. Here, one should not forget that some 15 years ago both Kaliningrad and Estonia belonged into the same country, i.e. their starting point for the economic reform was not so dramatically different. When analysing the FDI performance of Kaliningrad, one should not forget that at least a third of the FDI in Kaliningrad is Russian by origin, which makes Kaliningrad's FDI performance even less flattering. In order to attract more foreign investment into the Kaliningrad region, a new federal law on foreign direct investment was passed in the spring 2006, and therefore, at the moment, two special economic zone regimes exist in Kaliningrad. This paper aims at studying what is the impact of these SEZs on the

foreign investment inflows to the economy of the Kaliningrad region?

Keywords: Kaliningrad, foreign investments, FDI, special economic zones, SEZ

Diana M. Liverman, University Of Oxford. Email: diana.liverman@eci.ox.ac.uk; Politics, the new carbon economy and post 2012 negotiations

As capital flows into the new markets for carbon established by the international climate regime the politics of the post-2012 are becoming more complex and contentious. This paper will focus on the politics of developing country involvement in the climate regime, especially the status and future options for the Clean Development Mechanism. The options include avoided deforestation, clustered and sectoral projects, and the alternatives offered by voluntary offset markets. I will examine the debates such as those over additionality, transaction costs, 'gold standards' and monitoring and identify the various interests in rewriting the regulations that govern the emerging rules of the carbon economy. The paper will illustrate the politics of post 2012 negotiations through a particular focus on the roles of non state actors and on Latin American countries and will draw on theoretical frameworks developed by my collaborators in the Tyndall Centre (www.tyndall.co.uk) and James Martin 21st century school at Oxford University and on case studies undertaken by postgraduate students.

Keywords: Kyoto, CDM, carbon trading, developing countries

David Michael Livingston, Indiana State University. Email: dlivingston@indstate.edu; Basil Gomez, Indiana State University. Email: bgomez@indstate.edu; Controls on Longitudinal Profiles: Waipaoa River Basin, New Zealand

Rivers adjust their gradient to discharge and the character of the rock or sediment that forms the channel boundary. Accordingly, as J.T. Hack demonstrated, rivers of similar size flowing across comparable substrates tend to have similar profiles. The neighboring 222 km² Mangatu and 239 km² Upper Waipaoa catchments of the Waipaoa River basin, New Zealand, offer an ideal setting to examine the interaction of these and other variables on river profiles. These catchments are under laid by similar lithologies, have been subjected to a similar climatic regime and have experienced a similar rate of uplift during the past ~15 kyr. There is little difference in total-relief, drainage density and distribution of slope angles, or in the median size of sediment present along the main stream channels. Despite the similar conditions, the profiles of the Mangatu and Upper Waipaoa rivers are quite different. The Upper Waipaoa has a gentler gradient and the upper reaches of the stream are ~80-m lower than adjacent reaches of the Mangatu River. These differences are attributed to how discharge increases in a downstream direction along the two rivers which serves to emphasize that the distribution of energy in the stream-channel system is dependent on the structure of the drainage network, and that an orderly empirical relationship between drainage basin area and main channel length may not always apply.

Keywords: fluvial geomorphology, hydrology, gis, landscape evolution

Steven Livingston, PhD, The George Washington University. Email: sliv@gwu.edu; NGOs As Intelligence Agencies: The Empowerment Of Civil Society By Commercial Remote Sensing

In 2002, as the Bush administration strained to draw world attention to Iraq's alleged WMD programs, the Institute for Science and International Security (ISIS) in Washington announced that it had detected two nuclear processing facilities in Iran. They were located following the release of information in August 2002 by an Iranian opposition group called the National Council of Resistance of Iran. Relying on information provided by this group, ISIS purchased Digital Globe satellite images of the two sites. ISIS's disclosure forced the Bush administration to acknowledge the Iranian program, something it did not want to do while it focused attention on Iraq. This and other similar cases will be explored to illustrate the democratization of epistemic power in international affairs. As intelligence agencies have faltered, CRS has strengthened NGOs ability to offer countervailing technical analyses. CRS imagery supplements the NGO's more common moralistic rhetoric of ought with a technical analyses of is. This constitutes a major shift in the epistemic balance of power between civil society and the state. This in turn affects the nature of democratic accountability in foreign policy. These considerations are explored in this paper.

Keywords: GIS, Remote Sensing, Iran, Nuclear Processing Facilities

Emily Thomas Livingstone, UNC Charlotte. Email: lululivingstone@hotmail.com; *An Examination of Contemporary Gentrification Processes in Charlotte, North Carolina*

After years of a "theoretical logjam," Loretta Lees (2000) proposed that gentrification scholars examine contemporary aspects of the process in order to propel the debate and our understanding of the complexity of the process forward. One avenue deemed worthy of study was the presence of 'supergentrification' in London and New York City, two quintessential, top tier global cities. This paper explores the applicability of 'supergentrification' down the urban hierarchy in Charlotte, North Carolina, a mid-sized globalizing city that has not experienced gentrification in the "traditional" manner. Indeed, Charlotte's 'first stage' gentrifier was a bank, NCNB now Bank of America. As headquarter home to two of the nation's largest banks, Bank of America and Wachovia, Charlotte stands only second to New York in terms of financial strength. In this context, 'supergentrification' appears to be occurring in Charlotte's city core. Wealthy global financiers are engaging in "intense investment and conspicuous consumption" (Lees 2003, p. 2487) as they regentify the urban core in ways suggesting luxury and exclusivity, as well as initiating 'new-build' gentrification, reminiscent of Lees' work in New York City and London. Using statistical, survey and field site data, this paper offers a pilot study of a process that has previously been examined in elite global cities. As such, it offers further evidence of contemporary aspects of the process that will add to the 'geography of gentrification,' and will position Charlotte as an appropriate lens through which to learn more about the role of globalizing cities in gentrification research.

Keywords: 'supergentrification', 'new-build gentrification', 'geography of gentrification'

Christopher A Lizotte, Middlebury College. Email: chrislizotte@gmail.com; *Rural Mental Health and "Mezzo-Scale" Rural Space: Resituating Societal Constructions of Deviance*

Policymakers are taking a closer look at mental health service provision in the rural United States based on a closer understanding of changing demographic and economic circumstances. Elsewhere, Wolch and Philo (2000) have documented the approaches that geographers have taken towards examining the spaces of mental health and ill-health, noting that a certain disconnect exists between theory and practice; in the rural context, for example, while it is understood how the large-scale changes occurring in contemporary rural space might affect mental health service provision and utilization, local ethnographies of mental ill-health tend to limit themselves to the immediate community setting. This paper begins to answer Wolch and Philo's call for a "third wave" of mental health geography by synthesizing a theoretical framework for examining the presence of mental ill-health in the rural context. Drawing on existing literature, it theorizes that the rural landscape forms an especially powerful backdrop for marginalizing mental health consumers and providers because norms of acceptable behavior are constructed within a "mezzo-scale" rural space; notions of community care and responsibility are thus undermined by concerns for conforming to larger ideas of what rural places should be like - safe havens from urban stresses, repositories of enduring values, or sites of recreation. The final section of the paper provides several recent examples of such contradictions in communities' attitudes towards mental health, and outlines a possible methodology for a future in-depth study linking one of these cases to the phenomenon of the mezzo-scale rural.

Keywords: mental health, deviance, rural change, health facilities

C P. Lo, University of Georgia. Email: chpanglo@uga.edu; *Geographically Weighted Regression Approach to Population Estimation*

Land use information derived from satellite images has often been used to estimate population in a city. A common approach is to use the global regression model or ordinary linear regression (OLS) to relate residential land use area with population size. Research has revealed the spatial variability in the relationship between population and land use so that the global regression approach is not appropriate, and a regional regression approach may be more suitable. This paper reports a research to apply geographically weighted regression analysis, which can deal with the problem of spatial non-stationarity, to population estimation in Atlanta at the census tract level. Because of possible errors in computer-assisted classification, residential land use may not be completely and correctly identified. A four-variable model consisting of high-density urban use, low-density urban use, cropland, and forest is adopted to evaluate the suitability of the GWR for population estimation. Initial results reveal that low-density urban use, cropland, and forest exhibit significant spatial variability while high-density urban use does not. The coefficient of determination of the GWR model using the four variables is 0.77 compared with 0.61 for the global regression model. The accuracy of population estimated using the GWR model gives a RMSE of ± 1484.46 or a mean relative error of -10.67% compared with a RMSE of ± 2302.13 or a mean relative error of ?18.12% for the global model. This represents an improvement of 36%.

The GWR model produces parameters that can help in dasymetric mapping application in areal interpolation.

Keywords: geographically weighted regression, population estimation, urban land use, Atlanta

Lucia Lo, York University. Email: lucialo@yorku.ca; *Does Ethnicity Matter In The Geography Of Consumption?*

Intense waves of international migration in the last two to three decades are rewriting our cities and economies. Two trends are notable especially in immigrant gateway cities: the growth of immigrant-owned businesses and the diversified structure of some ethnic economies, and the accelerated ethnic marketing efforts of mainstream firms. They raise an interesting research question. Specifically, how do urban consumers choose between businesses owned and operated by ethnic minorities and those in the mass market? More generally, how does ethnicity interplay with accessibility in the geography of consumption? This question is intriguing given many of today's immigrants are socio-economically different from their predecessors, and that little differentiation can occur between an ethnic business and its mass counterpart in terms of their size and product/service variety. This paper explores this question with a case study of grocery shopping behavior. Revealed preference data were obtained from a questionnaire survey administered to residents in two study areas in the suburbs of Toronto, Canada. These two study areas are similar in that they house a sizable Chinese immigrant population. Yet one contains a large number of Chinese supermarkets (note: not grocery stores) while the other has only one. The consumption behavior of the Chinese is compared to that of the non-Chinese population. The results have implications on the geography of consumption.

Keywords: consumption, ethnicity

Linda Lobao, The Ohio State University. Email: lobao.1@osu.edu; *Neoliberalism at the Subnational Scale: Local Governments' Growth and Redistribution Policy in An Era of Decentralization*

This paper examines decentralization of welfare reform, public provision, and economic development activities under the unfolding of neo-liberalism. I focus on variations in response to neo-liberalism at the subnational scale, using the case of county governments. I question the degree to which state processes characterized as the "roll-out of neo-liberalism" have emerged and affected county governments and citizens' well-being. The paper addresses three questions. 1) To what degree do counties' economic development and social service responses correspond with theories about the neo-liberal drift? 2) Are counties racing to the bottom in social service responses and community well-being? 3) To what extent is inequality among local governments arising? To ground these answers theoretically, I situate them within three contrasting perspectives, neo-liberal, radical political economic, and a more spatially sensitive approach. Data are from a unique survey of county governments. Analysts widely assume that communities are pursuing a trade-off course between redistribution and growth activities: cutting back social services while increasing private sector business development. I found little evidence of a trade-off course: county governments report increasing both social service and business development activities. Decentralization is occurring but communities bear the cost through increased financial pressure on local governments. Devolution also has a spatially uneven effect, with poorer and rural communities falling further behind. The findings support both the radical political economy framework and the spatially sensitive approach that locally provided social services and economic development activities create no gain for populations and reinforces past spatial inequalities in social service provision.

Keywords: neo-liberalism, local governments, social welfare, growth policy, subnational scale

David Lobell, Lawrence Livermore National Lab. Email: dlobell@stanfordalumni.org; *Multi-year crop yield mapping at high spatial resolutions*

Advances in global agricultural monitoring will likely someday result in accurate maps of crop yields at high spatial resolutions for all major growing regions. While such information is motivated in large part by the need for real-time crop production forecasts to guide food trade and aid decisions, there are many other potential applications of these datasets in the research and policy community. This presentation will discuss applications of ~30m resolution crop yield maps derived from remote sensing over multiple (5+) growing seasons, drawing on experience from research in Mexican wheat systems. Specifically, multi-year yield maps can be used to identify regionally important constraints to crop yields, to better quantify the risks of yield loss faced by farmers, and to target extension efforts and soil degradation assessments. These likely represent only a subset of the potential value of repeated monitoring and analysis of the spatial distribution of crop types and productivity.

Keywords: remote sensing, agriculture, GIS

Angela L. Loder, University of Toronto. Email: loder.angela@gmail.com; *Shifting edges and Moving Up: Green Roofs and the Nature/City Divide*

The green city movement has seen a gradual shift from only minimizing harm to ecosystems to increasingly trying to harmonize urban and natural processes. Part of this process has seen city planners, the green building industry, and activists argue for the re-greening of the densely-built downtown cores of cities. Though adding greenspace to cities has been a common, and often desirable, feature of the Anglo-American urban landscape since Frederick Law Olmstead's urban park movement, recent movements in urban greening projects have seen cities begin to add vegetation to hard urban landscapes in previously unused spaces. Green roofs, living vertical walls, and roof gardens, often part of green buildings, are re-defining the traditional edges and boundaries between 'nature' and the city. Underlying their implementation, however, are narratives and values on what kind of 'nature', and what kind of green roof, is desirable and appropriate in the city. Both Chicago and London are currently embarking on significant green roof implementation, and they are using very different justifications, narratives, and policy tools to achieve their goals. Using these two cities as case studies, this paper explores the intersection of the discourses surrounding the implementation of green roofs and their contextualization within the sustainable city and Anglo-American narratives on nature and the city.

Keywords: green roofs, landscape, city, nature, values, policy, Chicago, London

Mahtab A. Lodhi, University of New Orleans, Department of Geography. Email: mloaddi@uno.edu; *An Interaction Between Religion and Politics: A Case of North Western Frontier Province of Pakistan.*

Islam has always played a major role in the governance of Pakistani society. In recent years, however, Pakistan has become a major center of radical fundamentalist Islamic political parties and ideas, especially in the North Western Frontier Province (NWFP), the Federally Administered Tribal Areas (FATA) and the province of Baluchistan. This is largely because of the policies of successive military, as well as civilian, governments toward Afghanistan and the disputed region of Kashmir. The Islamic fundamentalist alliance known as Muttahida Majlis-e-Amal (MMA) that won the legislative elections in 2002 is now the ruling party in NWFP and Baluchistan. In the federal parliament, the MMA forms a coalition opposition. Ideologically the MMA, especially its major member party, the Jamiat Ulema-e-Islam (JUI), is regarded as the ultra fundamentalist party insisting on the enforcement of strict Islamic Sharia law and has aspirations to establish a complete theocracy in the country. The rise of radical religio-political parties and the impact they are having on Pakistani society in some areas of the country is the prime focus of this paper. The author's recent travel to northern Pakistan is the basis of this paper. He photographed smiling faces of women and men on billboards in Rawalpindi and the capital city of Islamabad, but found defaced faces of women on billboards or 'male-only' billboards in Peshawar, the capital of NWFP.

Keywords: Pakistan, Peshawar, Politics, Islam

Alex Loftus, Royal Holloway, University of London. Email: alex.loftus@rhul.ac.uk; Michael Ekers, Oxford University. Email: michael.ekers@ouce.ox.ac.uk; *The Power of Water: Developing dialogues between Gramsci and Foucault*

Recent work on the politics of water poses fundamental challenges to our understandings of the production of space and nature. Whilst taking us to the cusp of a consideration of the reproduction of social formations and the production of subjectivities, such work has not yet dealt with these themes explicitly. We mobilize insights from, and generative tensions between, Antonio Gramsci and Michel Foucault in order to take this research agenda forward. In turn, we contribute to an emerging debate about the compatibility of these wide-ranging theorists. Work on the politics of water provides fertile terrain for exploring this debate.

Keywords: water, urban political ecology, power

John Logan, Brown University. Email: john_logan@brown.edu; *Access to Housing in Urban China*

People are connected to their communities in urban China in two ways that have been strongly affected by state policy. The first is their housing tenure. Do they obtain shelter in family households or in collective settings, and on what terms do they procure housing? The second is their residence status, which involves not only their nativity (whether they live in the place where they were born or, if they are migrants, how long they have lived there) but also their legal position (how they are classified in China's household registration system). Using data from the Chinese census of 2000 this study analyzes the relationship between these two dimensions of incorporation in eight large cities, taking into account also people's class position and life cycle position. It documents the marginal housing situation of the "floating population" that has been given much attention in research conducted during the current period of market reform. It

also evaluates what characteristic of this particular social category, comprised of recent migrants with a rural registration status, is most determining of their disadvantage, and it identifies substantial differences among people with other combinations of nativity and registration status.

Keywords: Housing tenure, residence status, multinomial regression

Jerome L. Lohry, University of Nevada - Reno. Email: jlohry@yahoo.com; *The View from Here: The Missouri Frontier Perception of the California Emigrant Trail*

After stalling at the Missouri frontier for over twenty years, the building of the western American empire began anew in the 1840s. This buildup at the eastern edge of the Great Plains created a specific launching point for those headed west to the new Pacific Arcadia, a place where supplies and information could be acquired before heading into the interior of the continent. The information gained about the trail ahead helped shape the emigrants' geographic perception of the interior West, which would have been used to make important decisions such as the route to be taken, mode of travel, and supplies needed. This perception was, in fact, more important than the reality of the trail for the purposes of planning the journey ahead; the reality would not be known until the crossing was finished. As the portion of the California Emigrant Trail through the Great Basin could also be the most difficult, it is important to understand the factors that caused the emigrants to approach this region as they did between 1840 and 1850. Many 1840s frontier sources, both formal and informal, would have played a role in creating an image of the road ahead. Through an analysis of maps, emigrant guides, newspaper articles, and other sources of period information, we can reconstruct a portion of this historic perception, so that we may better understand the decisions made on this empire-building migration.

Keywords: Environmental Perception, American West, California, Emigrant Trail

Keith J. Lombardo, University of Arizona, Laboratory of Tree-Ring Research. Email: lombardo@email.arizona.edu; Thomas W. Swetnam, University of Arizona, Laboratory of Tree-Ring Research. Email: tswetnam@ltrr.arizona.edu; Christopher H. Baisan, University of Arizona, Laboratory of Tree-Ring Research. Email: cbaisan@ltrr.arizona.edu; *Multi-century reconstruction of chaparral fire history in three southern California National Forests: Preliminary results and future directions.*

Fire management plans require a full understanding of fire regime variability and the ability to assess current departures from "natural" conditions. Despite recent advances in southern California chaparral fire ecology, temporal perspectives on fire regime variations and changes in this type are relatively short. Most chaparral fire history research spans only portions of the 20th century when documentary records are available. Unlike many other woody species of the semi-arid western United States, chaparral is usually not directly suitable for traditional dendrochronology. Thus, a set of novel dendrochronology approaches is needed. We hypothesize that fire primarily spreads between patches of bigcone Douglas-fir (*Pseudotsuga macrocarpa*) via the surrounding chaparral and that synchrony of fire events between these patches would support this premise. Using *P. macrocarpa* stands that exist as scattered islands of forest in a chaparral matrix across the southern California landscape, our goals include the evaluation of fire regime changes, and the effects of climate on these fire regimes — particularly foehn winds and inter-annual to decadal-scale climate variations. Replication of our sampling plan at multiple scales will allow us to create a regional fire-scar network that can be compared with known fire events derived independently from the 20th century fire atlas maintained by the three National Forests. Analysis of preliminary data suggests that there is an abundance of fire scarred *P. macrocarpa* dead standing trees and downed logs. The sampled trees contained 5-600 year records and had evidence of five to ten fires during their lifespan, including recent documented fires.

Keywords: chaparral, fire history, dendrochronology, fire ecology

Jonathan K. London, Ph.D., UC Davis, Department of Human and Community Development. Email: jklondon@ucdavis.edu; *Towards a Rural Pattern Language*

For those who care about rural places the inadequacy of analytical frameworks for understanding and therefore intervening in rural change is troubling. Alternately framed as an immaterial anachronism in an increasingly dominant metroscape; a victim of over-determined and extractive structures of modernity, capitalism, and globalization; a romanticized lost agrarian world, or an uncritical site of local progress, the dominant rural discourses provide little basis for satisfying intellectual or political projects. Nearly all of the available discourses locate rural in a marginal, peripheral and/or residual category of the urban, the regional, the national, or the global. The space allowed by any of these discourses is so narrow as to make rural studies, as a field, nearly as marginal as the rural places it studies. Such limitations have stunted both the field of rural studies and

the practices of rural change. This is unfortunate and unnecessary as the possibilities for rural community change and, likewise, its scholarly analysis are profound and compelling. Rural places and their change dynamics represent critical components of larger economic, political, cultural and social systems and are therefore important and vital subjects of study and action. Communities of practice are themselves reframing and reshaping rural realities through innovative community and regional development strategies. Theories of rural development, by largely focusing on deficits, have at best missed, and at worst masked, the possibilities for positive rural transformation. This paper provides for needed progress in rural studies by helping theory "catch up" with the frontiers of rural practice.

Keywords: Rural studies, community change, critical human geography

Colin Long, University of Wisconsin Oshkosh. Email: longco@uwosh.edu; Alisa Hass, University of Tennessee. Email: ; Patrick Bartlein, University of Oregon. Email: bartlein@uoregon.edu; The response of forest vegetation to multiple disturbance agents in the Central Cascades Oregon

This study presents evidence of the effects of volcanic activity (e.g. tephra deposition) and fire on two watersheds in the Central Cascade Range in Oregon. We used pollen analysis of lake sediment cores to reconstruct the long-term vegetation history and examine the effects of tephra deposition on forest composition at Tumalo Lake, located at the upper limits of the Ponderosa pine vegetation zone of the central Cascade Mountains of Oregon. We also used macroscopic charcoal analysis of lake sediment cores from Tumalo Lake and Three Creeks Lake, approximately 10 km northwest of Tumalo Lake in the Mountain Hemlock vegetation zone, to reconstruct the fire history for both locations for the last ca. 12,000 years. Tumalo Lake pollen data show a shift in forest composition ca. 4600 year ago from a pine dominated forest to one with a greater presence of fir and spruce. Pollen data also show a repeated decline in non-arboreal taxa immediately after tephra deposition with recovery to pre-deposition levels in ca. 40-70 years throughout the record. Charcoal data indicates changes in long-term fire history but no consistent relation between shifts in fire frequency and tephra deposition. These findings suggest that these disturbance agents have different impacts on forest vegetation and imply that, despite dramatic short-term variations in forest stand structure, long-term regional climate has been a major factor controlling forest composition.

Keywords: volcanoes, fire, Pacific Northwest

Esther G. Long, Morehead State University. Email: e.long@moreheadstate.edu; Civic Education in Post-Taliban Afghanistan: A Case Study of Nation-building at Work

Prior to the 2005 parliamentary election in Afghanistan, the international community and the new Afghan government engaged in widespread civic education campaigns to prepare the population for voting. One of these civic education efforts was an outreach campaign funded by the United States government in which 41,000 digital audio players with pro-democracy messages were distributed in rural areas to inform potential voters about the election and encourage them to vote. The project was evaluated several weeks after the election using surveys, focus group discussions, and individual interviews, and results suggest that this novel approach to civic education could also have other productive applications. This paper examines civic education - and the audio player project in particular - in the larger context of nation building that was being engaged in during the post-Taliban era in Afghanistan, and shows how civic education was used to consolidate the power of the central state.

Keywords: Afghanistan, elections, communication, political geography

Joanna C Long, Queen Mary, University of London. Email: j.c.long@qmul.ac.uk; A 'particularly political diaspora': Palestinian students in the UK

This paper discusses political identities and activities among Palestinian students in a diaspora context. Drawing on interviews and focus groups conducted with fifteen undergraduates and postgraduates in England, I discuss how students' identities as Palestinians interact with the social and political context of the UK, increasing their knowledge about the 'homeland' and heightening their sense of being Palestinian. I also discuss how, for some students, the freedom to be Palestinian carries a moral burden to be a 'good Palestinian', to perform an idealised image of themselves in order to combat negative stereotypes of Palestinians within persistent orientalist discourses. As such, students' personal commitments, to their family and their research, often coincide with their political commitments to Palestine, meaning that their family life is political life and their academic work is their political work.

Keywords: Palestinians, diaspora, student politics, identity

Joshua Long, University of Kansas. Email: joshlong@ku.edu; The Coffee Ritual: From Ancient Ceremony to Contemporary Consumer Fetish.

Throughout history coffee has been revered as a social enabler, physical stimulant, and at times, spiritual conduit. This piece examines the historical significance of coffee and the coffee bean in ritual, ceremony, and society, focusing on coffee's changing role from sacred object to ritualized stimulant. This essay briefly traces the changing role of coffee in society from its origins in Ethiopia, to its diffusion throughout the Ottoman Empire and Europe, to the contemporary American coffeehouse. Particular attention is paid to the secularized?but still venerated?role that coffee plays in today's society as an object of consumer fetishism. Finally, this paper will draw similarities between the historical veneration of coffee and contemporary fetishism of coffee and coffeehouses. Keywords: coffee, coffeehouse, ritual, consumer fetishism.

Keywords: Coffee, Coffeehouse, Ritual, Consumer Fetishism

Michael W. Longan, Valparaiso University. Email: Mike.Longan@valpo.edu; Centrality and Diversity in Online Representations of Northwest Indiana

This paper explores the dynamic tension among political, economic, and cultural forces at work in the representation of places in Northwest Indiana on the World Wide Web. Interviews with governmental, chamber of commerce, organizational, and independent web designers reveal information about intended audiences as well as motivations for constructing place-related web sites. Some designers hope to use the global reach of the web to attract new businesses and tourists to their cities while others address resident citizens in order to increase government efficiency, express pride in local culture and history, or strengthen local democracy. Site designers who understand the web primarily as a marketing tool sometimes express frustration with the mosaic nature of the web that allows for multiple representations of place. Competing representations potentially threaten carefully constructed civic branding campaigns. These designers succeed in controlling and centralizing the representation of place to the extent that few alternative representations of place exist on the web. Other site authors welcome and even seek to exploit diverse representations of place. This later group expresses an ethical commitment to creating accurate place representations through public discourse about place. Overall, the interviews reveal the ways that respondents negotiate the potential contradictions involved in producing web sites that simultaneously express local culture, support local democracy, and commodify place.

Keywords: communication geography, place representation, Northwest Indiana

Robyn Longhurst, Professor, University Of Waikato. Email: robynL@waikato.ac.nz; 'Mum's the word': coming out as pregnant at work

This paper addresses some of issues surrounding women 'announcing' to co-workers and/or their employer that they are pregnant. Interviews with 19 first-time pregnant women conducted in Hamilton, New Zealand in 2002/2003 indicated that it can be difficult negotiating the subject position of Pregnant Woman at work. I use the metaphor of 'coming out of the closet' to discuss this issue. Initially, the closet might seem like an unusual, and perhaps even inappropriate, choice of spatial metaphors to use to discuss the experiences of pregnant women. After all, when women become pregnant they are doing the very thing that (heterosexual) women are so often revered for - performing the 'sacred duty of motherhood'. And yet, for some women, in some spatial contexts such as the workplace, announcing their pregnancy can feel painful, risky and even shameful. Fears of co-workers' and/or their employer's response to the news, of having to disclose intimate bodily details to co-workers and/or their employer, and of their bodies 'sexualising' the workplace can lead pregnant women to remain in the closet at work for as long as possible even though they may be 'out' in other places. For some women at work 'Mum's the word', that is, they keep their pregnancy secret for as long as possible.

Keywords: pregnancy, workplace, closet, secret, fear

Maarten Petrus Julia Loopmans, Institute for Social and Economic Geography, Catholic University of Leuven. Email: maarten.loopmans@geo.kuleuven.be; Urban development between the local and the global: exploring spaces of relevance for gentrification researchers

This paper applies a state-theoretical perspective to a historical analysis of gentrification and urban policies in Antwerp, Belgium. In the 1950s and 1960s the city was called the 'modernist mecca of the low countries', with a hegemonic social-democratic government pursuing urban development policies characterised by slum clearing, peripheral high-rise social housing construction and inner-city office development. After moving through a period of non-hegemony from the 1970s through the 1980s, with intense debate and struggle about urban development, the city is now referred to as the 'Barcelona of the north'. Gentrification (in a somewhat revanchist guise) has become the centrepiece of a new hegemonic discourse on cities in Antwerp, Belgium. A historical state-theoretical approach

shows how this move has been the consequence not solely of global market pressures, but also of local institutionalisation and political conflicts (not least the political reactions to attempts by the extreme-right populist party Vlaams Belang to seize City Hall). The recent surprising electoral victory of a social-democrat mayor (nicknamed the 'brick mayor' because not since the modernist period has there been so much building activity in the city) furnishes evidence of the new hegemony gaining ground. The analysis of local political and institutional mediation of what appears a global tidewave of gentrification policies can serve to detect 'entrance points' and 'spaces of manoeuvre' to enhance relevance for public policy research(ers).

Keywords: relevance, gentrification, urban policy, urban politics, Belgium, Antwerp

Anna Carla Lopez, San Diego State University. Email: ac_lopez2002@yahoo.com; John R. Weeks, Ph.D., San Diego State University. Email: john.weeks@sdsu.edu; David L. Carr, Ph.D., University of California, Santa Barbara. Email: carr@geog.ucsb.edu; Using a political ecology framework to understand socio-economic and environmental spatial inequalities in urban areas of developing countries.

Political ecology is a broad term often invoked by geographers studying human-environment relationships. Its use has been applied to a wide variety of studies with emphasis ranging anywhere between the political to the almost purely ecological. Despite the plethora of applications, political ecology has overwhelmingly remained rural, leaving urban ecologies nearly untouched. Political ecology has ignored one of the most blatant human imprints on our landscapes: urban areas. Nowhere else can the effects of human natural resource use and environmental manipulation be so strikingly seen as in our cities. High rates of urbanization across the globe (but more particularly in developing countries where urban growth has occurred unplanned and unevenly) have created a need to better understand urban systems and the populations which exist within these "concrete" environments under the context of political ecology. The political ecology framework can be a powerful one to explain the geographical distributions of different socio-economic groups and their resource use. Themes regarding inequality, health, and sustainable development, which are already strong in the political ecology literature, can take fresh applications within the urban sphere. Using data from diverse resources such as census, survey and remote sensing imagery, I explore the ecological and socio-economic spatial variability in the urban landscape using Accra, Ghana as my case study. A political ecology framework will be applied to identify and understand visible patterns of environmental and economic inequality among the urban population.

Keywords: political ecology, urban, sustainable development, population, remote sensing

Santiago Lopez, University Of Texas at Austin. Email: santilopez@mail.utexas.edu; Rodrigo Sierra, University of Texas at Austin. Email: rsierra@mail.utexas.edu; Land use and land cover in indigenous territories: the Shiwiar and the Achuar groups of the Ecuadorian Amazon

Much of the theory on land use/land cover change in tropical rainforests has been drawn from the analysis of external or non-indigenous agents (e.g. colonists). In contrast, despite their growing populations and extensive territories, less research exists on the nature and magnitude of land use/land cover change associated with indigenous resource management. In an attempt to understand how different indigenous groups modify forest cover and use land, this paper compares land use between Shiwiar and Achuar indigenous territories of the Ecuadorian Amazon. Quantitative, qualitative, and geospatial methods were used to obtain information on resource use, land use and land cover, hunting zones, and infrastructure development. Digital photomosaics and mobile geographic information systems allowed detailed mapping of land uses. Based on this information, t-student tests use a sixty household sample to test the hypothesis that there is no significant difference between how the Achuar and Shiwiar people allocate land. Regression analysis analyze the relationship between land use characteristics and the spatial context (e.g. soils, slope) at the household management unit level. This project is part of a larger conservation initiative funded by the Gordon and Betty Moore Foundation, with additional support of a National Science Foundation Dissertation Improvement Grant.

Keywords: tropical rainforest, Ecuadorian Amazon, mapping, land use, indigenous

Tania Lopez, PSU. Email: tdl131@psu.edu; Vulnerability, local understandings, and flood management in eastern Puerto Rico

The risk and vulnerability reduction literature emphasizes the importance of increasing the resilience and adaptive capacity to natural hazards of exposed groups. In Puerto Rico, floods are the most recurrent natural hazard and are responsible for the greatest loss of property and economic damages. Nevertheless, there are few studies that address what are the factors that influence people's vulnerability and adaptability to floods. This paper compares community and risk managers' perceptions of floods and how these perceptions influence adaptive capacities and risk management in two exposed communities in eastern Puerto Rico. Concept maps were used to elicit perceptions of floods as related to their causes and effects. Participatory mapping, pairwise matrices, and semi-structured interviews identified factors that influenced their capacity to adapt to floods and to discuss possible flood management practices. The analysis revealed many similarities between community members and risk managers in how they conceptualized the causes and effects of floods, but there was less agreement on the factors that influenced vulnerability to floods. There were also differences in their suggestions on actions to increase adaptive capacity. Although such disagreement could negatively affect the generation of more resilient and less vulnerable communities, the results provide the basis for discussion and dialogue among stakeholders. Incorporating different views and understanding differences in flood perceptions and management is an important step towards searching for common strategies to enhance communities' adaptive capacity and resilience.

Keywords: Vulnerability, adaptive capacity, floods, floods management, Puerto Rico

Michael M Loranty, SUNY at Buffalo. Email: mloranty@buffalo.edu; D. Scott Mackay, SUNY at Buffalo. Email: dsmackay@buffalo.edu; Brent E Ewers, University of Wyoming. Email: beewers@uwyo.edu; Elizabeth Traver, University of Wyoming. Email: traver@uwyo.edu; Eric L Kruger, University of Wisconsin - Madison. Email: elkruger@facstaff.wisc.edu; Using geostatistics to compare spatial patterns of transpiration across forest transitions

Using geostatistics we have shown that whole tree transpiration for aspen (*Populus tremuloides*), and alder (*Alnus incana*) varies spatially across a transition from forested wetland to upland characterized by a gradient in soil moisture. Measures of sapwood area used to scale sap flux to whole tree transpiration have been identified as the primary driver of the spatial variability. The aim of this paper is to determine whether similar spatial variability exists at transitions between stands of sugar maple (*Acer saccharum*) and red pine (*Pinus resinosa*), two other dominant species in the region. Sap flux data was collected using a cyclic sampling design in 2005 at two 1.5 ha sites near the WLEF AmeriFlux tower in the Chequamegon National Forest near Park Falls, Wisconsin. A forested upland-wetland transition dominated by aspen and alder was sampled for 30 days from late May to early June, and an upland transition dominated by sugar maple and red pine was sampled for 30 days from late July to early August. Preliminary analyses revealed less total variation in soil moisture, and no spatial variation in sapwood area. Therefore we hypothesize that there will be no spatial variation in whole tree transpiration across a sugar maple-red pine transition. Typical approaches for scaling up transpiration estimates ignore potential differences in plant functionality at the edges of ecosystems, assuming a crisp boundary exists at these interfaces. Differences in spatial variability of transpiration have broader implications with regard to scaling transpiration estimates to the stand and landscape level.

Keywords: Geostatistics, Transpiration, Ecohydrology

Brett K Lord-Castillo, Department of Geosciences, Oregon State University. Email: lordcasb@onid.orst.edu; Bruce R. Mate, Ph.D., Hatfield Marine Science Center, Oregon State University. Email: bruce.mate@oregonstate.edu; Tomas Follett, Hatfield Marine Science Center, Oregon State University. Email: tomas.follett@oregonstate.edu; Dawn J. Wright, Ph.D., Department of Geosciences, Oregon State University. Email: dawn@dusk.geo.orst.edu; Marine GIScience for satellite telemetry tracking: Analyzing the individual animal

Current marine management practices focus on the designation of static marine protected areas. While such a model is appropriate for regions of historical or cultural significance or for the protection of sessile species, pelagic species continue to rely on more mobile protection such as the Marine Mammal Protection Act or the Endangered Species Act. For these animals, critical habitat is a moving target; a target that will be even more variable with climate change. Fed by years of systematic survey data, the concepts of home range and and bioclimate envelopes draw probable boundaries around these species. Yet, the movements of individual macroinvertebrates can range beyond these lines in the water and outside of management and protection. An understanding of the decision processes of individual animals can aid in spatially dynamic management of large marine predators. Satellite telemetry provides a wealth of information to

explore these decision processes and the environmental preferences of individuals. This study demonstrates methods for the interpolation of individual movement paths from ARGOS satellite telemetry and for the aggregate analysis of these individual paths to find mesoscale environmental factors in the movement walks of marine animals. To focus on the individual, spatial database structures are adapted to relate each individual animal to field observations, telemetry, and remote sensing. Time-sequence is maintained to reconstruct The marine manager is enabled to apply seasonal or daily information to direct current economic activity or disturbance mitigation to best protect vulnerable populations in their current likely locations rather than in their historical home range.

Keywords: satellite telemetry, GIScience, marine, wildlife management, biogeography

Mark Lorenzen, Copenhagen Business School. Email: mark@cbs.dk; Florian Taeube, Imperial College London. Email: ; A tale of Two Film Cities: Urbanization Economies in the Hollywood and Bollywood Film Industries

The paper promotes our knowledge of the nature and interdependencies of localization and urbanization, through carrying out a comparative study of the world's largest two film clusters: Hollywood in Los Angeles (USA) and Bollywood in Mumbai (India). Since Marshall's early focus on economic externalities, economic geographers have frequently, in order to account for geographical clustering of economic activity, referred to localization and urbanization as two basic types of positive externalities. Generally defined as externalities arising from regional specialization (co-location of related economic activity), and diversity (co-location of non-related activity) respectively, the two analytical categories remain relatively opaque. In order to help overcoming this problem, the empirical analysis presented in the paper seeks to open the black box of externalities arising from co-location, carrying out a systematic mapping and comparison of the effects of regional specialization and diversity in Bollywood and Hollywood. Presenting original and novel data on Bollywood, the paper demonstrates how this film cluster relies significantly more on urbanization than Hollywood, and how localization economies in the two clusters are very different.

Keywords: clusters, agglomeration, urbanization, localization, specialization, diversity, externalities, film, India, Hollywood, Bollywood

Hayden Lorimer, University of Glasgow. Email: hayden.lorimer@ges.gla.ac.uk; Eric Laurier, University of Edinburgh. Email: Eric.Laurier@ed.ac.uk; Barry Brown, University of Glasgow. Email: Barry@dca.gla.ac.uk; Moving memories: things people share in cars

Personal pasts contribute to the rich social life of car travel: whether as very recent or most distant events, whether dredged up as hazy memories or recounted as stories for dramatic effect. Drawing on film footage documenting the ordinary circumstances of journeys made by car, this paper considers the shared phenomenon of remembering past events aloud. We will examine the properties of recollection in conversation among different combinations of drivers and passengers, and talkers and listeners. More specifically, parents driving their young children home from school instruct them in how to recall the day's events, car pooling colleagues tell institutional histories, and runners recollect competing in past races as they travel toward future ones. Remembering can be occasioned by the changing view visible from the car, and focus on the familiarity or peculiarity of topical resources available along a regular route. And recollection is bound up with other conversational practices in the enclosed setting of the car: reflection, reminiscence, confession, joking and more. Finally, collective remembering shows a mutual attunement to narrative forms and emplotments, where descriptions of previous events are arranged episodically, or anecdotes shaped to fit features of the journey. In the collection of clips on show, the sharing of memories reveals how the car is produced as a meaningful place to dwell on the road.

Keywords: Memory, Cars, Travel, Past, Ethnography

Jamie Lorimer, University of Oxford. Email: jamie.lorimer@ouce.ox.ac.uk; Encountering elephants: tracing the ethics of (post)colonial British visitors to Sri Lanka 1850-2007

This paper reports some early findings from ongoing research into the persistence of (post)colonial modes of encountering elephants in Sri Lanka. It traces the changing character of the embodied practices and affective ethics that surround encounters between British visitors and elephants, from the mid-nineteenth century to the present day. It compares the results of two analyses: i) close and in situ readings of the diaries and archived accounts of elephant hunters in Ceylon in the 1850s; and ii) a series of in-depth interviews with and participant observations of contemporary 'scientific ecotourists' working as volunteers on elephant conservation projects in Sri Lanka. The paper concludes by identifying some striking continuities, as well as obvious differences, and makes some more general observations about the potential of such embodied historical geographies.

Keywords: Cultural/historical geography, nature conservation, Sri Lanka

Julia Lossau, Humboldt University Berlin. Email: julia.lossau@geo.hu-berlin.de; Creativity in the public realm: lessons from a furniture recycling workshop

In the last decades, pieces of 'flagship' public art have become instrumental in politics of urban regeneration and place marketing. At the same time, there is a variety of less prestigious artistic practices in the public realm. Often related to everyday, unaware or unprofessional forms of creativity, such 'ordinary' art projects usually work on a small scale. Nevertheless, they can matter greatly in terms of their intended, or indeed non-intended, outcomes. Taking an artist-run workshop based in Edinburgh as a case study, the present paper aims at discussing the difference that (supposedly) vernacular forms of creativity make. In the workshop, artists seek to involve young ex-homeless people in the artistic construction of furniture from otherwise useless and discarded materials. The project is intended to provide a supportive place where the participants can meet in a both relaxing and creative atmosphere. Drawing on narrative interviews with one of the artists involved, the paper proceeds in two steps. First, the cultural and social politics of the workshop will be examined. Secondly, and departing from the specific conditions of the workshop, more general aspects of the relationship between (different forms of) creativity and (alternative forms of) cultural policy will be discussed.

Keywords: creativity, public art, cultural policy

Colby Loucks, World Wildlife Fund. Email: colby.loucks@wwfus.org; Eric Dinerstein, World Wildlife Fund. Email: ; Eric Sanderson, Wildlife Conservation Society. Email: ; Joshua Ginsberg, Wildlife Conservation Society. Email: ; John Seidensticker, Smithsonian National Zoological Park. Email: ; Jessica Forrest, Wildlife Conservation Society. Email: ; Andrea Heydlauff, Wildlife Conservation Society. Email: ; Eric Wikramanayake, World Wildlife Fund. Email: ; Peter Leimgruber, Smithsonian National Zoological Park. Email: ; Sybille Klenzendorf, World Wildlife Fund. Email: ; Melissa Songer, Smithsonian National Zoological Park. Email: ; Gosia Bryja, Wildlife Conservation Society. Email: ; Tim O'Brien, Wildlife Conservation Society. Email: ; Setting Priorities for the Conservation and Recovery of Wild Tigers

The tiger is the world's largest terrestrial predator, but rapid habitat loss and intense poaching jeopardizes its survival. We analyze the tiger's range contraction over the past decade to identify landscapes where tigers still have a chance to persist. Our analysis synthesizes a unique data set built upon the best land cover data available and more than 3,000 tiger point locations collected by 163 researchers over the past 10 years. These data layers are then combined with threat assessments such as the human footprint that represent how human influence constrains potentially usable tiger habitat to identify the extent of potential tiger habitat. The resulting synthesis is then compared with a previous range-wide tiger habitat analysis, and with estimates of the historic range, to detect changes in the extent of tiger occurrence. We estimate that tigers use 41% less area today than what was estimated 10 years ago, and they now survive in a mere 7% of their historical area. We identify and prioritize 76 landscapes where tigers still have a chance of survival, but to maintain the tiger's presence within these landscapes, high level government commitments for in-situ habitat protection and control of the illegal trade in tiger parts are urgently needed.

Keywords: tigers, landscapes, Asia, conservation, habitat

Renee Pualani Louis, University of Hawai'i. Email: mapdr@earthlink.net; Margaret Wickens Pearce, Ohio University. Email: pearce@ohio.edu; *Incorporating depth of place in Indigenous cartographies*

Indigenous communities have successfully used geospatial information technologies since the 1970s to protect tribal resources, document territorial sovereignty, create tribal utility databases, and manage watersheds. The use of these same technologies to represent place-based cultural knowledge, including storied place names, has proved more challenging because of differing ontologies and epistemologies. While Indigenous concepts of place are best represented by traditional Indigenous cartographic practices, the adaptation of Western mapping techniques has proven to be a critical step for protecting the cultural sovereignty of these places by communicating their importance to people outside the community. We assert that the inappropriate use of Western geospatial techniques and technologies for the representation of Indigenous place and storied place names is a key barrier to the expression and preservation of cultural heritage and cultural survival. This is not to imply that these techniques and technologies are inherently inappropriate for Indigenous cartographic representation; rather, we perceive them as flexible and capable of being adapted to suit traditional Indigenous cultural geographies if used in an informed and appropriate way. This paper explores that potential and provides insight to the future possibilities geospatial technologies possess to represent Indigenous cartographies.

Keywords: Indigenous mapping, cartography, place

W. George Lovell, Queen's University. Email: lovellg@post.queensu.ca; *Translation and Transformation: Creating an English-Language Edition of Severo Martínez Peláez's 'La patria del criollo'*

First published in 1970 and reprinted in scores of editions since, Severo Martínez Peláez's 'La patria del criollo: Ensayo de interpretación de la realidad colonial guatemalteca' has served legions of students throughout Central America, but especially in Guatemala, as the bedrock text upon which to base an understanding of the nature of the colonial experience. Vast, sprawling, and unapologetically Marxist in its analysis, 'La patria del criollo' is as polemical in its treatment of "colonial Guatemalan reality" as it is idiosyncratic, presenting a formidable challenge to rendering the book of utility and use for an English-reading audience. Work to date on translating 'La patria del criollo' is reviewed, with an attempt made to situate Martínez Peláez's magnum opus not only in the context of his life and times but in the schema of recent research findings, particularly those of interest to historical geographers.

Keywords: translation, Martínez Peláez, Guatemala, colonialism

Nichola Lowe, University of North Carolina-Chapel Hill. Email: nlowe@email.unc.edu; Maryann Feldman, University of Georgia. Email: mfeldman@uga.edu; *"The Eggplant that Ate Chicago": Translating Technology Fear into Regional Entrepreneurial Advantage*

In 1976, Cambridge Massachusetts and Berkeley California responded to growing community concerns about the environmental and health effects of 'genetic engineering' by adopting identical ordinances to regulate recombinant DNA research. Scientists and entrepreneurs in both cities came to view these regulatory interventions in distinct ways. While the East Bay biotechnology community considered adoption of the ordinance by Berkeley as proof of the city's "technology ignorance" and "political arrogance," their counterparts in Cambridge embraced this regulation which entailed a community review process and frequent facility inspections as a mechanism for reducing industry risk and uncertainty and as a source of regional entrepreneurial advantage. How similar regulatory actions came to be perceived differently by the scientific community subsequently affected the course of entrepreneurial growth and development in these regions. This paper uses semi-structured interviews and documentary analysis to explore the mediating factors that explain these different outcomes. Three inter-related factors are central to the story: structural differences in regional university governance and regulatory lines of authority; cross regional differences in the initial move towards entrepreneurship and thus, distinct regional learning periods; differences in the role and professional credibility of technology "translators" for mediating exchanges between and training members of the local scientific and activist communities. This paper concludes by drawing lessons for other regions that are seeking to use legal mechanisms to regulate today's unproven or controversial technologies. It suggests ways that contemporary regulatory responses can result in a constructive and deliberative (rather than combative) approach to promoting entrepreneurial and scientific accountability.

Keywords: biotechnology, regulation, entrepreneurship, economic development, urban policy

James Daniel Lowry, University of New Orleans. Email: jlowry@uno.edu; *Perceptual Regions of the United States*

Results from four surveys of the perception of major US culture/perceptual regions conducted over the past two decades will be presented. The perceptual South, Southwest, Midwest, and Northwest will be presented in terms of their space and place. These four regions include thirty-four of the lower forty-eight states. Defining characteristics and places and symbols will be presented.

Keywords: perception, region, culture

Sarah Marie Lowry, University of Denver. Email: slowry@du.edu; *"Ground-penetrating Radar for Stratigraphic Mapping Lake and Fen sediments, Grand Mesa, Colorado"*

Ground-penetrating radar antennas placed in a fiberglass canoe and on top of the frozen lake ice were used to collect reflection profiles of the lake bottom and sedimentary sequences up to 5 meters thick at South Mesa lake and also on marshy sediments at Kannah Creek fen in western Colorado. These GPR reflections differ in amplitude and geometry depending on changes within the physical and chemical constituents of preserved sedimentary units. In collecting stratigraphic data it is possible to determine the past fluctuations in lake and fen position. Reflection profiles show a detailed map of the lake bottom and changes in sedimentary levels. These profiles, when sedimentary units can be tied to core and auger data, are useful for paleoclimatic research by producing three-dimensional control of sedimentary sequences. The ground penetrating radar data provide unique and valuable information that can be used by researchers to determine optimal locations in fens and lakes for coring obtaining sediment cores.

Keywords: ground penetrating radar, climate, lakes, fens, Grand Mesa, Colorado, United States

Jenna M. Loyd, Syracuse University. Email: jloyd@maxwell.syr.edu; *Slow Death Comic: Militarism, Popular Critique, and the Limits of 'Health' Geography*

In opposition to the Vietnam War, Another Mother for Peace coined the compellingly simple slogan, 'War is not healthy for children and other living things.' This statement is an apparent truism, but even the act of counting war dead is politically contentious. Beyond the battlefield, how does one account for premature deaths that result from preparations for war-making? The manufacture and testing of weaponry creates toxic hazards for workers and local residents, while military spending could be diverted to infrastructural investments that enable healthy living. The afflictions of war-making are not evenly shared. Antiracist and feminist activists and scholars the world over have shown that communities of color suffer from the use of their lands as testing grounds as well as the structural violence perpetuated by militarism whereby inner city neighborhoods have been abandoned through economic disinvestment and destruction of the welfare state alike. Medical and public health professionals have also researched the fatalities of war and war-making, but such subjects have rarely caught the attention of health geographers. Why is this so? I argue that despite health geography's growing attention to the social production of health inequities and the dialectical connections between bodily well-being and broader scale places, 'health' remains an excessively individualized and biomedical conception that is abstracted from material violence. To illustrate, I analyze an underground comic series, entitled *Slow Death*, which offers a popular critique of the embodied effects of militarism and an alternative way of understanding how premature death is produced.

Keywords: political geographies of health, militarism, premature death, violence

Tanja Löytynoja, Department of Geography, University of Oulu. Email: tanja.loytynoja@oulu.fi; *Tourism development in the national periphery: Discourses of the Finnish-Russian border in the process of region-building*

Border areas are often characterized by remoteness, sparse population, and economic underdevelopment. However, this traditional conceptualization of borderlands is challenged by a new regional structure where many borders have become zones for active cross-border cooperation. In northern Europe, the Finnish-Russian border is an example of both these functions. It has been a relatively closed border but, in the post-Cold War period, the border has opened up for economic and socio-cultural cooperation. In many cases, tourism has been used as a tool for development. Especially since Finland's entry into the European Union and the border becoming an external border of the EU, a number of development plans and projects have been established on various spatial scales. In this paper, different manifestations and meanings of the Finnish-Russian border in the context of tourism and regional development are discussed. The border is examined as a socio-spatial construction, which is historically produced, discontinuous and represented through different practices and discourses. Because of its specific location between East and West, the Finnish-Russian border has strongly affected tourism and regional development. The border has transformed

the regionalization of tourism in eastern Finland, and as a result of development projects, even new administrative structures and tourism regions have emerged. This can be understood as the manifestation of new regionalization. By using institutional documents like tourism development plans, project reports, brochures and interviews of regional tourism developers as material, this study focuses on analyzing the region-building processes on the Finnish side of the border.

Keywords: tourism development, regional development, border areas, region-building, new regionalization, the Finnish-Russian border

Kang Shou Lu, Ph.D, Towson University. Email: kshoulu@towson.edu; Jeffery S Allen, Ph.D, Strom Thurmond Institute. Email: jeff@strom.clemson.edu; Thomas Potts, Ph.D, Clemson University. Email: tpotts@clemson.edu; Integrating GIS with Database Systems to Identify and Analyze Feeder Market Places of Second-Home Based Tourism

This study proposes a framework that integrates GIS and database techniques to identify temporal segments, geographic origins, typological association, and spatial determinants of the feeder markets of second-second homes in a coastal tourist destination area in South Carolina. The feeder markets are classified based on the types of second-home owners: (1) historic owners who have been residentialized; (2) existing owners who each currently own a second home; (3) committed owners who each own a parcel yet to be built; and (4) prospective owners who have sent queries about the housing information. The feeder market places are measured using the origins of the second-home owners. Their spatial distributions are mapped in the 5-digit zip code based on the address information derived from a cadastral file, census data, and a query database. Both autocorrelation and Spearman rank correlation are used to respectively examine the spatial patterns of the distribution and typological associations among the four feeder markets aggregated at three different geographic units. A multiple regression model is used to determine the relationship between total numbers of second-home owners and spatial predictors. The results indicate that there are strong statistical correlations in number of second-home owners among the four different market segments. Spatially, they are concentrated around major urban centers in the host state, adjacent states, and Northeastern and Great Lake industrial regions. Travel distance, urban origins, snowbird migration, and coastal orientation were identified as the major geographic factors that determine the locations of the feeder markets.

Keywords: tourism, second home, gis, spatial analysis

Max Lu, Kansas State University. Email: maxlu@ksu.edu; One Hundred Years of Population Distribution Change in the United States

In 1890, the U.S. Census Bureau announced the closing of the American frontier. The event marked the end of the westward expansion in the United States, but not changes in population distribution. The population geography of the United States has been changing continuously as a result of internal migration, uneven settlement patterns of immigrants, and, to a lesser extent, spatially differential fertility and mortality rates. This study examines the changes in the U.S. population distribution at the county level in the last 100 years using the historical decennial census data and GIS. It identifies different trajectories of change and discusses the social and political implications of such changes, especially with regard to population vulnerability.

Keywords: Population distribution, Census, United States

Yongmei Lu, Texas State University - San Marcos. Email: yl10@txstate.edu; Learning by Doing: Teaching a Group Project Based Undergraduate GIS Course

This paper reports on the observations the instructor gained through teaching a capstone undergraduate GIS course in the past few years at the Texas State University - San Marcos. This is the 4th undergraduate GIS course required for the undergraduate students in Geographic Information Science BS program. It is also the last required course for the GIS certificate program. After finishing the other three required GIS courses, the students taking this course work as groups throughout a whole semester on real-world projects. The projects are selected for various geographical and related applications; common to these projects is the effective application of GIS techniques and team work skills to solve the real world problems. By taking this course, students learn / enhance both their specific GIS techniques and the general transferable skills that are significant for them to develop their GIS careers. This paper will summarize the observations as related to the teaching and learning process and effectiveness of such a GIS course.

Keywords: GIS education, Problem-based Learning, Active Learning, Undergraduate Education

Kelly L Lucas, University of Southern Mississippi, Gulf Coast Geospatial Center. Email: kelly.lucas@usm.edu; Greg A Carter, University of Southern Mississippi, Gulf Coast Geospatial Center. Email: greg.carter@usm.edu; The use of remote sensing to assess plant species richness on Horn Island, Mississippi

Mississippi's barrier islands are protected from development but remain vulnerable to pollution, species invasions and the impacts of climate change. These influences may be linked with an apparent decadal-scale decline in plant species diversity. Consequently, there is a pressing need to develop methods for rapidly assessing island biodiversity. This study determined the extent to which plant species richness on Horn Island, Mississippi, might be estimated using hyperspectral (airborne HyMap) and multispectral (Landsat TM5) remote sensing. Image data from both sensors were acquired in October, 2003. HyMap provided coverage throughout the 450-2500 nm spectrum at a ground sample distance (GSD) of 3 m and spectral resolution of approximately 15 nm. GSD of the TM5 data was 30 m. To correspond with the image data, plant species richness was sampled for 95, 15-m transects established at random locations. Mean spectral reflectance of each transect was computed along with, for the hyperspectral data, a spatial coefficient of variation (CV) per band. Richness within each of several habitat-types was significantly ($p = 0.05$) related to hyperspectral reflectance band ratios and CV, as well as some first and second spectral derivative band ratios, when near- and mid-infrared bands were incorporated. In contrast, richness correlated significantly with TM5 data only in marsh habitat. Results indicate a clear advantage of high spectral and spatial resolution and a predominant importance of the near- to mid-infrared spectrum in assessing plant species diversity on Horn Island.

Keywords: Species richness, remote sensing, barrier islands

Susan Lucas, Edinboro University of Pennsylvania. Email: slucas@edinboro.edu; Patrick Patrick Heidkamp, University of Connecticut. Email: Christian.Heidkamp@huskymail.uconn.edu; Lattes, Croissants and Gourmet Dog Treat Stores: Landscapes of Consumption and Gentrification in New England Port Cities

Waterfront revitalization is a process in which the port-city interface, formerly a space of production, is transformed from a dilapidated, largely neglected industrial area to a space focused on consumption. As a space of consumption revitalized waterfronts are built upon the commodification and selective re-creation of maritime culture and heritage through references to specific historical events, people, and places (Hewison, 1987; Goss, 1996; Norcliffe et al. 1996). Such revitalization, like gentrification rests on both the consumer preferences of the middle-class and the reinvestment of capital in the built environment. Heidkamp and Lucas (2007) show that waterfront revitalization often causes the gentrification of nearby residential areas. The purpose of this paper is examine the evolution of the transformation of New England's smaller port cities form landscapes of production, through a period of crisis and underutilization, to landscapes of consumption. Through a number of case studies (Portland, ME; Portsmouth, NH; Newburyport, MA; Newport, RI, and New London, CT) we outline some of the spatial manifestations related to this transformation and try to (re-)establish the link between waterfront revitalization and gentrification.

Keywords: Waterfront revitalization, Gentrification, Consumption

Candice R. Luebbering, Virginia Tech. Email: candice@vt.edu; Laurence W. Carstensen, Jr., Virginia Tech. Email: carstens@vt.edu; Geospatial Analysis by Experts: High-Resolution Monitors and Improved Performance

Multiple monitor configurations provide an attainable, low cost way for individuals to create large, high-resolution desktop displays. While this increased screen real estate is useful for many different applications, it should be of particular utility for viewing and interpreting rich and complex geospatial datasets. Map context and amount of detail can be simultaneously increased, reducing reliance on virtual navigation such as panning and zooming. Our experiment involved 57 subjects completing a map reading test incorporating both raster and vector data on three different monitor configurations: one monitor, four monitors, and nine monitors. A computer program monitored subjects' performance by: capturing mouse click locations, viewing areas, tool usage, and elapsed time, writing shapefiles, and storing question responses. A questionnaire obtained subjects' feedback about the displays and experiment in general. Overall, the results showed that subjects do perform more efficiently under larger monitor conditions (four and nine) as shown by a reduction in elapsed time to complete the test and in the number of mouse clicks used. Tool usage also differed among monitor conditions with navigation tools dominating on the single monitor while selecting tools (tools used to provide answers) dominated on the nine monitor setup. While these overall results pointed towards the effectiveness of the larger displays, analyses conducted at the task level showed that the larger displays were not better for all tasks. Instead, they were most useful with more complex maps and imagery, while the single monitor

display was sufficient for more basic map reading tasks.

Keywords: map, visualization, resolution

Isaac N. Luginaah, University of Western Ontario. Email: iluginaa@uwo.ca; Tony Weis, The University of Western Ontario. Email: aweis@uwo.ca; Rachel Bezner Kerr, The University of Western Ontario. Email: ; Sylvester Galaa, The University of Development Studies, Tamale, Ghana. Email: ; Matthew Nkrumah, The University of Development Studies, Tamale, Ghana. Email: ; Daniel Bagah, The University of Development Studies, Tamale, Ghana. Email: ; *Environment, Migration, Health and Food Security in the Upper West Region of Ghana*

The key objective of this study is to examine the linkages among migration, gender, health and household food security in the Upper West Region of Ghana. The Upper West is the poorest region of Ghana and has long served as a cheap reservoir of labour for the fertile farmlands of the Brong-Ahafo Region, the main food producing region in Ghana, and to mining towns. In recent years, these migration patterns appear to be both intensifying and changing due to a combination of forces which include: environmental degradation made worse by protracted declines in annual rainfall, failed economic recovery programs, and a declining mining sector. Preliminary research conducted in 2006 suggests that the deepening impoverishment and food insecurity in the Upper West urgently requires attention. This study presents the findings of interviews and group discussions that were conducted with farmers in the Brong-Ahafo. One of the main challenges faced by newly arriving migrants to the Brong-Ahafo is how to raise the initial capital to lease fertile farmlands. The farmers are also confronted with poor storage and transportation facilities, which frequently results in the loss of sizable portions of their foodstuffs. Many of the migrants send back food to their families in the Upper West, and have effectively become the life-lines of their families back home. With declining environmental conditions and the rising migration of young people, this study has implications for policy interventions as well as for regional initiatives such as the creation of farmers' cooperatives and networks.

Keywords: Environment, Migration, Health, Food Security, Upper West Region, Ghana.

April Luginbuhl, The Ohio State University. Email: luginbuhl.6@osu.edu; *The Carbon Economy in the United States: Theoretical implications from multiple carbon reduction programs*

The initiation of multiple programs and policies concerning greenhouse gas reduction throughout the United States provides an opportunity to examine the construction of the carbon economy. All of these efforts in the US are developing without the leadership of the federal government, resulting instead from individual states' efforts and initiatives within the business community. The result is diverse attempts by private industry and state governments to define the rules of the carbon economy as well as exert power in the ultimate policy formation expected at the federal level. The array of programs provides an opportunity to see the inner workings of the carbon economy and allows for an examination of the relationships between economics, the environment, power, and science. The trend in carbon programs across the US appears to focus more on economic, rather than environmental, policy. The type of policy chosen has implications for incorporating physical science into the carbon economy. Additionally, the discourses provided by these groups, and the statements from individual participants allow for the examination of economic motivation for the creation of regional emission reduction mechanisms. This paper will address the implications carbon reduction programs in the US have for the commodification of nature, the circulation of capital, and the creation of power differentials between scales of government for both the economic and environmental policy that is the carbon economy in the US.

Keywords: Carbon markets, US climate change policy, environment and economics

Oleg Lugovoi, . Email: lugovoy@iet.ru; Oleg Lugovoi, IET. Email: lugovoy@iet.ru; *Determinants of Economic Growth of Russian Regions*

The paper has two general objectives. First, to consider the 'deep determinants' of economic growth of Russian regions. Here, we test the role of geography, infrastructure and institutions in regional growth and regional disparities. For this purpose, we develop econometric simultaneous equations model of regional growth. Empirical results suggest importance of climate and geography as an important factor of regional growth and regional disparities. In addition, such factors as quality of infrastructure, agglomeration and institutions seem to be significant. Second, we investigate convergence process across Russian regions using spatial econometrics methods. The supplementary objective of the study was to test whether models that take account of geographical connectivity of different locations are adequate for determination of growth factors in Russian regions. Our results suggest weak sigma convergence and weak unconditional beta convergence, and strong, about two percent a year, conditional beta convergence

across 77 Russian regions. Spatial correlation between regions seems to be statistically significant.

Keywords: Economic development, regional growth factors, regression model, Russian regions

Nik Luka, School of Architecture / School of Urban Planning, McGill University. Email: nik.luka@mcgill.ca; *Embedding urban agriculture within (and through) urban design and planning*

Urban agriculture (UA)—the growing of food within cities and metropolitan areas—is increasingly occurring in the US and Canada as city residents of all stripes self-organize to counteract food insecurity and/or to reclaim control over the quality of their food intake and local environments. Montréal, for instance, counts thousands of allotment gardens along with farmer's markets and community-driven soil remediation initiatives. In these respects UA offers great hope for 'sustainability' writ large (e.g., what the 'end of cheap oil' may mean for food security in energy-hungry North America). Nevertheless, municipal authorities are prone to discourage it for reasons—or 'hangups'—that are deeply rooted in Anglo-American culture. This presentation explores how these hangups are telling of an irony-fraught worldview placing human activity 'in here' (within urban areas) while 'nature'—including food production—is 'out there' (presumably beyond some imagined edge). Examining why UA tends to be viewed with suspicion, skepticism, or at best mild curiosity, I suggest that our hangups about it owe much to the ways in which it defies 'natural' Anglo-American categorizations of landscape and urban form. Against this critical backdrop is then presented the notion of 'embedding' UA within and through planning and design orthodoxies, reporting on a multi-year research-action project based at McGill University: 'Making Edible Landscapes'. Its core premise is that if UA is to succeed on a large scale it must be embraced by planners, engineers, and architects, who play instrumental (if not necessarily powerful) roles in the management and (re)building of cities.

Keywords: nature/culture, social construction of nature, urban agriculture, urban design, landscape

Timothy W. Luke, Virginia Tech. Email: twluke@vt.edu; *"Not to be Missed" Weapons of Mass Destruction: Displaying the Enola Gay*

In this piece, I can discuss the representations of power, geopolitics, and nuclear WMD in the USA grounded on the 1940s paleo-technics of the Manhattan Project in the contemporary American context (1994 to 2006), which focuses on the 1995 controversial showings at the NASM on the Mall and the more low-key rollout of the restored B-29 bomber at the new NASM Annex out by Dulles International Airport during December 2003. Both of these events would be contextualized against the backdrop of current representations of hidden, and then partially discovered, indirectly detected or still missing WMDs in the new axis of evil states during the Bush (43) administration. How does that work for both activities as cultural and political geography?

Keywords: political geography, geopolitics, cultural representation

Chris Lukinbeal, PhD, Arizona State University - Department of Geography. Email: lukinbeal@asu.edu; *Mapping Segregation in Three Latino Neighborhoods: A Comparative Analysis*

With this presentation I perform a comparative analysis of Latino segregation in Chicago, Miami and Phoenix. I argue that a robust understanding of segregation requires the use of multiple segregation indexes across racial and ethnic groups, as well as within ethnic groups. Employing multiple indexes can highlight different types of segregation, like spatial evenness and spatial exposure. Furthermore, the socio-spatial dialectic must be extended onto segregation: segregation produces and reproduces space and scale, and is produced by space and scale. By spatializing and visualizing indexes through the use of GIS, segregation can be mapped within cities highlighting neighborhood differences and power relations. A comparison of segregation between Latinos and Non-Latinos in Chicago, Miami and Phoenix shows how using a single index leads to an incomplete picture of segregation. I show that for two indexes segregation is highest in Chicago, but for other indexes Miami is the most segregated. This research is part of the larger Human and Social Dynamics, National Science Foundation project, "Comparative Civic and Place Engagement in Three Latino Enclave Neighborhoods in Transition."

Keywords: Segregation Indexes, Latino Neighborhoods, GIS, Mapping Segregation

Anna L. Lumsden, Syracuse University. Email: allumsde@syr.edu; T Katherine McLeod, Wilfrid Laurier University. Email: kmcleod@wlu.ca; Ring Width Sensitivity of White Spruce in the High Subarctic Forest-Tundra of Northwest Canada

Dendroclimatologists use ring width chronologies to produce reconstructions of past climate. Ring width sensitivity, that is, year to year variability between ring widths, is thought to increase with latitude. Data for *Picea glauca* (Moench) Voss from the High Subarctic Forest-Tundra of the Anderson River Valley, in northwest Canada do not fit this generalization. I analyzed ninety-three cores from two sites with a 12 minute latitudinal difference. Two sensitivity measures are calculated for each site: (1) "Site Sensitivity," the mean of the sensitivity values for each core; and (2) "Chronology Sensitivity," for which ring width indices for each year are averaged, and sensitivity is calculated for the resulting single chronology. Chronology length of the northern site was 468 years (1527-1994), and for the southern site 200 years (1723-1994). After removal of the age related growth trend, site sensitivity calculations indicate that the north site has higher overall mean sensitivity than the south site, but chronology sensitivity for the same time period is reversed. The contradictory nature of these measures indicates an ambiguity in the interpretation of the mean sensitivity statistic. Or, it may reflect the effect of statistical procedures which emphasize within - site variation in the compilation of the site mean statistic, versus the smoothing of these within ? site effects during chronology compilation. In either event the results indicate that latitude may be less important than stand age in determining ring width sensitivity.

Keywords: Tree-ring sensitivity, subarctic forest tundra, white spruce, picea glauca

Ronald W. Luna, M.A., University Of Maryland. Email: ronaldi@umd.edu; Salvadoran Ethnic Churches

The Salvadoran Evangelical Protestant Churches (SEPC) has become a "transnational institution" in the United States. SEPC have become cultural spaces created by the process of transnationalism. SEPC became transnational institutions in the early 1900 as American Protestant missionaries began arriving to El Salvador, they became transnational agent or transmigrants as they created networks between the United States and Central America. During the 1980s as the civil war broke out in El Salvador and hundred of thousands of Salvadorans fled their homes to the United States, so did the SEPC traveled with them. This presentation will examine the linkages that helped make the SEPC a transnational institution in the Washington D.C. Metropolitan area.

Keywords: Transnationalism, ethnic churches, El Salvador, and Washington D.C.

Linda J.T. Lundmark, Umea University, Sweden. Email: linda.lundmark@geography.umu.se; Nature based tourism - some economic linkages revisited

The development of commercial tourist services is usually considered to improve the economic multiplier effect in the local community and thus stimulate employment development. The purpose of this study is to revisit some of the economic issues touched upon in the body of literature regarding the connections between outdoor recreation and nature based tourism as well as the connections that have been made between nature based tourism and local and regional development. Many have concluded that different types of tourism give different impact on the local and regional context. Among the positive impacts identified are that tourism might help alleviate problems of unemployment and out-migration caused by general restructuring and globalization and also introduce positive images of the rural. The negative impacts are often associated with leakage caused by external ownership and non-local supplies, as well as seasonality and non-local labour. Preliminary conclusions are that although the institutional and geographical settings are identified as factors for successful nature based tourism and local and regional development the implications have so far been neglected.

Keywords: Outdoor recreation, nature based tourism, local and regional development

Elizabeth Lunstrum, University Of Minnesota. Email: luns0026@umn.edu; State Making, State Unmaking, and Landscapes of Borderland Violence: Apartheid South Africa's War of Destabilization in Rural Mozambique

This paper examines the politics of state-making in borderlands in the context of war. By turning to Apartheid South Africa's war of destabilization of Mozambique in the 1980s and 1990s, I examine how South Africa worked to maintain its own state power and economic privilege by helping to destabilize and literally deterritorialize Mozambique, its newly-independent and resolutely anti-apartheid neighbor. Such deterritorialization was accomplished through systematic and highly symbolic social and ecological violence which shut down government and forced people to flee entire villages throughout rural

Mozambique. This, I argue, is an example of one country's state-making through the territorial unmaking of another. I focus in particular on the effects of this type of state making (through deterritorialization) on Mozambique's Massingir District. The district is located along the South African border and lies primarily within what is today the Great Limpopo Transfrontier Park (GLTP), a tri-national park shared by Mozambique, South Africa, and Zimbabwe. As the GLTP was officially declared a "Peace Park" upon its creation in 2002, I examine the legacy of South Africa's war of destabilization in this borderland and its significance for establishing the GLTP as a transboundary Peace Park.

Keywords: Africa, Apartheid, war, territory, conservation

Jun Luo, Missouri State University. Email: junluo@missouristate.edu; Multiobjective land-use allocation using direct search

Land-use allocation problem may become very complex when multiple objectives and various constraints are involved. This research uses direct search optimization method to solve the multiobjective land-use allocation problem which usually requires high-dimensional spatial data. The research demonstrates that direct search has better performance than simulated annealing optimization method. Furthermore, the research experimentally implements the direct search optimization methods in a GIS through an object-oriented coupling scheme, which makes the land-use allocation model operational for planners and decision makers.

Keywords: Multiobjective; Land-allocation; Spatial Optimization; GIS

Lan Luo, Northern Illinois University. Email: lanluoniu@yahoo.com; The Geographic Distribution of Late-Stage Colorectal Cancer and Healthcare Access in Illinois, in Two Time Periods

This paper utilizes ArcGIS, SAS, Scale-Space Cluster and SaTScan together to prepare data and apply spatial statistic methods for describing the relationship of late-stage colorectal cancer and healthcare access. The tasks will be generally listed as follows: 1) Measure healthcare access, which consists of spatial factors and non-spatial factors, in 1990 and in 2000, respectively, by involving ArcGIS and SAS; 2) Build different study units, such as cluster1, cluster2, based on socioeconomic status by exploring Scale-Space Cluster; 3) Display the geographic distribution of late-stage colorectal cancer covering different time periods, from 1982 to 1992 and from 1996 to 2000 by using SaTScan and ArcGIS; 4) Capture the relationship between geographic characters of late-stage colorectal cancer and healthcare access by implementing SAS with distinguished study units, to reveal how healthcare access influences the late-stage colorectal cancer in Illinois, within the two time spans. The work performed will help organizations of healthcare planning find possible reasons to cause geographic clusters of late-stage colorectal cancer, and provide possible improvements in Illinois.

Keywords: colorectal cancer, late-stage, healthcare access

Xiaolong Luo, Needed, Nanjing Institute of Geography & Limnology, Chinese Academy of Sciences. Email: xluo@niglas.ac.cn; Jianfa SHEN, Dept. of Geography and Resources Management, the Chinese University of Hong Kong. Email: jianfa@cuhk.edu.hk; Zhendong LUO, Needed, Dept. of Urban and Regional Planning, Nanjing University. Email: zhendongl@sina.com; Inter-city Cooperation in the Yangtze River Delta Region: A Networking Perspective

Inter-city cooperation is a new phenomenon in today's globalizing world. Under the perspective of networking, this paper examines inter-city cooperation in the Yangtze River delta (YRD) region, using the case of Forum for the Coordination of Urban Economy of the YRD Region. After tracing the process of cooperation formation and actors' interaction, this study reveals that inter-city cooperation is a process from information exchange, thematic cooperation to the establishment of common market. In addition, based on empirical studies in the YRD region, five types of inter-city cooperation are identified in this study, including developmental cooperation, promotional cooperation, coordinate cooperation, resource-based cooperation, and strategic cooperation. Such inter-city cooperation is an outcome of governance realignment and a new mode of regional governance in China. The policy implications for regional planning and inter-city cooperation are discussed and some problems facing the inter-city cooperation in the YRD region are also highlighted.

Keywords: Inter-city cooperation, The Yangtze River Delta Region, Networking

Eric Lutz, Department of Earth Sciences, Montana State University. Email: elutz@montana.edu; Teresa Cohn, Department of Earth Sciences, Montana State University. Email: tcohn@montana.edu; Lisa J. Graulich, Big Sky Institute, Montana State University. Email: lisa@montana.edu; Science and Society Fellows: A GK-12 Program at Montana State University

Montana State University NSF GK-12 Fellows are engaged with research addressing the science underlying the complex trade-offs in managing the Greater Yellowstone Ecosystem. Yellowstone is the largest pristine ecosystem in the continental USA. As such, Yellowstone is a natural laboratory for the study of predator-prey interactions, invasive species, watershed processes and, the impacts of exurban development on ecosystem processes. In the lives of the rural communities surrounding Yellowstone, environmental and natural resource issues occupy center stage. Through the NSF-funded GK-12 Program, fellows work with rural teachers and students to capitalize on students' interest in nature to motivate scientific learning. In our poster, we describe two exemplary projects. Teresa Cohn collaborates with Mark Roy, Gene Meier and Ft. Washakie School on the Wind River Indian Reservation (WY) to better understand the complex cultural and ecological role of the Wind River watershed in the Greater Yellowstone Ecosystem. Eric Lutz collaborates with Jeremy Harder, Dave Neal, and Dr. Anne Marie Mistretta of Ophir School (Big Sky, MT) and with local ski areas to implement service learning projects that foster 1) an appreciation for the uniqueness of Big Sky's mountain environment and 2) a strong understanding of the complex interactions between the natural landscape and human activities. Through field and classroom activities the 4th grade is developing inquiry-based investigations of various themes in mountain geography and the 5th and 6th grades are developing and implementing a local avalanche awareness program.

Keywords: GK-12, education-graduate, place-based learning, inquiry-based learning, global change

John Lyman, Department of Geography, University of Missouri - Columbia. Email: jlddbd@mizzou.edu; Exurbanites vs. Ruralites: How mobility effects environmental perception and the sense of place that exists in Columbia County, WA

For many Americans, there is a stereotypical image of what it means to be "rural." Typically, this image is far from reality. An ever increasing awareness of rural life has made it important to understand just how rural communities think about their lives and their surrounding environment. Located in the Columbia River valley in southeastern Washington State, Columbia County is home to some 2500 residents, with the majority of that population centered around the county seat, Dayton. Predominantly a wheat farming community, Dayton and the surrounding areas in Columbia County exemplify what many Americans would consider to be the "rural lifestyle." This study used resident-employed photography to determine what residents of Columbia County thought of their lifestyle and how they viewed the rural landscape around them. A number of residents who left Columbia County for college or work have now returned; analysis of their photographs led to interesting results suggesting that, despite slow economic growth and associated rural problems, residents continue to find value in the region as they construct 'rurality' with reference to their past experiences in urban areas.

Keywords: resident-employed photography, inner-mountain West, urban-to-rural mobility, environmental perception, sense of place

Elizabeth A. Lyon, Member. Email: elizabeth.a.lyon@erdc.usace.army.mil; Christian Sandvig, PhD, University of Illinois Urbana-Champaign. Email: csandvig@uiuc.edu; "Wireless Networks Detected: Right-Click Here for More Options:" Predictable Clustering in Wi-Fi

"Wi-Fi" Wireless Internet devices are low-powered radios that anyone can buy without a government license. The literature on wireless communication assumes that the diffusion and use of unlicensed transmitters like these is unpredictable. In this thinking, a license is an agreement about what a user will do with a radio. Without such an agreement in advance there must be chaos, causing headaches for the regulation of the electromagnetic spectrum. While Wi-Fi use is a series of individual decisions, this study finds that overall use is predictable, and yet it differs in important ways from reasonable expectations. By constructing Wi-Fi data collection devices, researchers surveyed Wi-Fi networks in three Chicago neighborhoods over a period of three years (N = 851,939 observations). Spatial statistics, exploratory spatial data analytics, and Monte Carlo simulation indicate that there is significant local clustering of Wi-Fi activity. While the previous scholarship on unlicensed systems and Wi-Fi has worried about free riding and interference as major constraints for how the system grows, we find no support for these concerns. For instance, the existence of plentiful unencrypted Wi-Fi in urban areas has been forecast to suppress further deployment (if you can free ride on your neighbor's network, why buy your own?). At the same time, interference between Wi-Fi devices is an expected barrier to growth (above a

density threshold, it has been predicted that Wi-Fi should stop working due to congestion). We find neither of these effects, and we discuss the implications of this for public policy.

Keywords: community wireless, applied spatial statistics, communication geography

Sarah Wynard Lyon, Blenheim Palace. Email: flaw@flaw-lyon.freemove.co.uk; UNESCO's World Heritage Mission In Europe At The Beginning of The Twenty First Century.

In the thirty five years that have elapsed since the signing of the United Nations Convention on World Heritage the total number of World Heritage sites has risen inexorably to over eight hundred. The procedure for nomination and inscription has been refined. Attempts have also been made to rectify imbalances in the number of properties between developed and undeveloped countries. Above all there has been encouragement to ensure proper protection conservation and presentation of the sites. To this end UNESCO recommends the production of a management plan. However the varied nature of World Heritage sites precludes a standard set of recommendations from UNESCO for each site. UNESCO recommends sustainable management and needs scientific and cultural insights of practitioners and researchers. The purpose of the paper therefore is to provide insights relating to two European sites, one in England and one in France. Blenheim Palace and Fontainebleau were inscribed in the nineteen eighties. A comparative analysis is based not only on stakeholder involvement at each site but also on legislation in the two countries affecting the sites. The conclusions, which are qualified by the number and location of the sites provide a positive contribution to a twenty first century view of world heritage.

Keywords: World Heritage. Europe. UNESCO.

Michal Lyons, Prof., London South Bank University. Email: lyonsm@lsbu.ac.uk; Antonia Nossia, Dr., London South Bank University. Email: anoussia@lsbu.ac.uk; Maintaining boundaries: public space and the spatial integration of new migrants

The wide recognition in contemporary migration studies of a diversity of migrant cultures and practices suggests that analysis of difference among migrant groups in their appropriation and negotiation of public space is timely. Although migrants may appropriate space and manage social networks with similar ends in mind, culture is an important influence on modes of sociability and activities undertaken in the public domain. This is clearly reflected in the changing patterns of migration in Southern Europe, where relatively small cities, with a strong urbanistic tradition, have become the destination of a multiplicity of nationalities and types of migrants. Focusing on parts of the commercial centre of Athens, this paper seeks to explore the apparently harmonious coexistence of several migrant groups within a small radius in order to understand the location and importance of migrant territories and to explain the negotiation, definition and expression of territoriality and boundaries among migrant groups and between migrants and hosts. The research has provided qualitative evidence on the use of the area and has identified a series of locales, a 'chain' of spaces used by migrants as they gradually develop their ties with their local migrant groups. The different migrant groups maintain distinct spatial boundaries within overlapping areas through public behaviour and modes of socialisation; and access to distinct spaces is negotiated over time within those groups. It is suggested that the temporary-ness and transitory character of migrants' experience leads to the creation of liminal spaces, intimately associated with personal moments and movements of transformation.

Keywords: urban space, migration, integration, cultural geography

Michael M'Gonigle, JSD, University of Victoria. Email: mgonigle@uvic.ca; Academia that isn't merely academic: reflections of a scholarly activist

It is sometimes said that the commitment to "rationality" is a trait increasingly peculiar to the academy?the real world just doesn't work that way. If so, activism is a beneficial complement to scholarly work; active theory has much to teach passive theory. In this presentation, these themes will be discussed in light of the lessons learned from over two decades of activist/academic work. Drawing on extensive international and regional environmental campaigns and research, particular attention will be paid to the lessons learned from recent activism/research on the transformative potential of the "planetary university." Consciously shaping itself as a local model/catalyst of planetary sustainability, such a university would learn from and contribute to the geographer's research on space and place.

Keywords: activism, sustainable universities

Jianguo Ma, Ph.D., University of South Florida. Email: jm252@cornell.edu; Norman Scott, Prof., Cornell University. Email: nrs5@cornell.edu; Stephen DeGloria, Prof., Cornell University. Email: sdd4@cornell.edu; A Web-based Spatial Decision Support System for Utilizing Organic Wastes as Renewable Energy Resources in New York State

Recently there has been a renewed interest in farm-based anaerobic digestion using organic waste (animal manure and food waste) as feedstock. To date there are very limited data and tools available to help identify, locate and evaluate these resources. In addition, it is important to find a way to estimate food waste production from a variety of generating sources. Lastly, an economic model/tool is desirable to assess the costs and benefits of potential on-farm co-digestion projects. To address these issues, a web-based spatial decision support system (SDSS) is developed by integrating GIS, the Internet, and modeling. This system consists of three modules: (1) Dynamic Mapping and Querying; (2) Food Waste Estimator; and (3) Co-digestion Economic Analysis. Module 1 is designed to help users dynamically explore the map of resources by displaying, zooming in/out to any extent, and selecting any combination of information layers. Users can also create and print out customized maps. In addition, users can retrieve various data through queries that might be helpful in their decision making. Module 2 is designed to estimate food waste production from a variety of generating sources including: food processing facilities; supermarkets; fast food franchises; correctional facilities; restaurants; colleges / universities; K-12 public schools; hospitals; and nursing homes. Lastly, Module 3 is designed to provide a preliminary economic analysis for on-farm anaerobic digester systems, particularly using dairy manure and food waste for co-digestion. This paper provides a description about the framework, design procedures, features, and results of the web-based spatial decision support system.

Keywords: Anaerobic digestion; waste-to-energy; GIS; decision support system; environment

Jielai Ma, University of Texas at Dallas. Email: jxm034100@utdallas.edu; Vijverberg Wim, University of Texas at Dallas. Email: vijver@utdallas.edu; Space and Time autocorrelation: Forecasting U.S. Regional Unemployment Rate

Vector Autoregressive (VAR) modeling has been widely used in many time series studies. VAR model has a very flexible form which encompasses many familiar models in the literature. This paper augments the VAR model in a spatial dimension, namely where a vector y is observed across time and regions. We use spatial weight matrices to simplify the VAR parameter structure. A similar idea can be found in Giacomini & Granger (2004). We explore the model's characteristics of interaction between space and time with different Monte Carlo simulations. Impulse response functions of the models are described. The result is applied to forecasting U.S. regional unemployment rates. A comparison of the performance of the optimal ARIMA model and various VAR models is given for different regions.

Keywords: Spatial Autocorrelation, Spatial Analysis

John Zhongdong Ma, Hong Kong University of Science and Technology. Email: sojohnma@ust.hk; Recent Movements of Talented Chinese between Asia and North America

Regarding talented immigrants, Chinese societies are the largest source whereas North America is the largest receiver. In this paper, we will first integrate recent censuses of China/HK/TW/Canada/U.S. and then study the movements of talented Chinese between the two regions. Preliminary findings show the simultaneous surge of immigration to N. A. and that of return migration to Chinese societies. Immigrants and returnees are concentrated in large cities in respective regions. Onward migration from Canada to U.S. improves income of talented immigrants whereas return migration to HK improves both the income and odds to a managerial position of the returnees. Interesting, U-type return migration (to the Chinese mainland) via an entrepot city (HK) has become

increasingly popular. The return of talents is critical to economic and technological development of the region. Further study on factors of return and onward migration will help us better understand talents' international movements.

Keywords: Talent, immigration, return migration

Kin M. Ma, Grand Valley State University. Email: makinm@msu.edu; Classification Accuracy Analysis of selected Land Use and Land Cover Products in a portion of West-Central Lower Michigan

Humans in the 20th century have dramatically transformed the earth, by clearcutting forests for agriculture/housing. Satellite images have been used for land-cover mapping since 1970s. However, the spatial mis-registration of land cover maps can affect the true estimates of land use/land cover (LULC) changes. Michigan's Lower Peninsula has experienced LULC change, though what are the spatial patterns, magnitude, and cover-dependency of classification uncertainty associated with MI's LULC products? Two LULC products were compared: 2001 Integrated Forest Monitoring and Assessment Project (IFMAP) and a 1998 Muskegon River Watershed (MRW) Michigan Resource Info Systems LULC classification maps. The 2001 IFMAP was co-registered to 1998 MRW image. 2001 IFMAP and 1998 MRW-LULC maps had spatial accuracies of $\pm 12/\pm 12.19$ m. LULC classification codes were re-assigned to 12 Anderson I/II LULC codes. 826 stratified random Accuracy Assessment Points (AAPs) were generated in LULC codes of the 1998 MRW map for verifying accuracy of 2001 IFMAP, and classification accuracy (59.32%). Error matrices/distance function analyzed the classification inaccuracies. ArcGIS 'near' function calculated the distance of the misclassified IFMAP AAPs to the nearest polygon edges in the IFMAP and 1998 MRW maps. For the 2001 IFMAP analysis, 143 MRW AAPs (17.3%) and 245 IFMAP AAPs (29.7%) were located 30m or less from the closest 1998 MRW and 2001 IFMAP LULC polygons. The polygons surrounding these misclassified AAPs were within the 2001 IFMAP and 1998 MRW spatial accuracies of ± 12 and ± 12.19 m. When evaluating LULC classification maps, spatial mis-registration accuracies, partial kappa coefficients, distance of AAPs to polygon edges, and classification definitions are critical to interpreting uncertainty of classification maps in Michigan and elsewhere.

Keywords: remote sensing, classification accuracy, land use change-Michigan

Juliana A Maantay, Ph.D., M.U.P., Lehman College/CUNY. Email: maantay@lehman.cuny.edu; Andrew R Maroko, Lehman College/City University of New York. Email: armaroko@gmail.com; Perfecting the Denominator: Developing a Cadastral-based Expert Dasymetric System (CEDS) in New York City

This paper discusses the importance of determining an accurate depiction of population distribution for urban areas in order to develop an improved "denominator," allowing for more correct rates in GIS analyses involving public health, crime, and urban environmental planning. Rather than using data aggregated by arbitrary administrative boundaries such as census tracts, accuracy is improved by the use of dasymetric mapping, an areal interpolation method using ancillary information to delineate areas of homogeneous values. Specifically, a new methodology called the Cadastral-based Expert Dasymetric System (CEDS) was designed and implemented in order to provide vital population data at the tax-lot level, a geographic unit roughly 350-times smaller than the census tract in New York City. This model is particularly suitable for urban areas, using specific cadastral data, land use filters, modeling by expert system routines, and validation against various census enumeration units and other data. Previous and traditional disaggregation techniques are compared with CEDS to assess efficacy. The dasymetric mapping technique is presented through a case study of asthma hospitalizations in New York City, and shows the impact that a more accurate estimation of population distribution has on a current environmental justice and health disparities research project, and its potential for other GIS applications.

Keywords: Dasymetric, GIS, cadastral, expert systems, thematic maps, asthma, New York City

Jacob Andrew Maas, Texas State University-San Marcos. Email: jm1816@txstate.edu; Spatial Analysis of Nitrate Contamination of Groundwater in the Niagara Escarpment Region of Dodge County, Wisconsin

Nitrates are the most common groundwater contaminant in the United States. The Environmental Protection Agency's (EPA) maximum contaminant level (MCL) of nitrates in drinking water in the United States is 10 mg/L. Agriculture is the source of up to 90 percent of all nitrates found in Wisconsin's groundwater. Dodge County has over 2,200 farms totaling 428,000 acres and is one of the leading agricultural counties in Wisconsin. This research focuses on nitrate contamination of groundwater in the Niagara Escarpment region. The Niagara Escarpment region has soil to bedrock depths of less than 50 cm, with various land use and land cover overlying the region. Previous research at the county level has shown elevated nitrate levels in this region's groundwater. However, the research showed that the county wide model had underestimated nitrate contamination levels by as much as 24 mg/L in the Niagara Escarpment

region. The purpose of this research is to use multivariate statistical analysis and spatial statistical analysis tools to better understand nitrate contamination occurrences in the groundwater of the Niagara Escarpment region of Dodge County, Wisconsin.

Keywords: Spatial Analysis, Nitrate Contamination, Niagara Escarpment

Regan M. Maas, MA, PhD Student, University of California Los Angeles. Email: rmmaas@ucla.edu; *Adult-child to aging-parent proximity relationships: Recent trends and underlying mechanisms.*

Two main schools of thought have arisen from the discussions regarding family caregiving for older adults. The structural-functional argument essentially states that family members will inevitably become more isolated from one another in an economically developed society. Newer schools of thought support the idea of intergenerational cohesion. As opposed to a strictly economic framework, intergenerational cohesion emphasizes the social and cultural factors which bind family members together. The form of interactions between adult children and their parents becomes an important factor when considering the predicted growth of older adult populations in the years and decades to come. If the relationships between adult children and parents take on a more structural-functional form, significant affects may be felt by older adults, especially as they become ill. The goal of this investigation is to determine the change in proximity of adult children to their parents across the United States, using data from the National Survey of Families and Households between the sampling periods 1992 to 1994 and 1999 to 2000, in relation to the two proposed schools of thought. Conclusions from this analysis suggest that the processes behind adult child-parent proximity are not an either-or proposition. Both structural-functional and intergenerational cohesion influence proximity both coincidentally and individually at varying points across the life course. By understanding the motivations and mechanisms which create greater distance between adult children and their parents, we are better able to influence planning and policy to counteract this emergent trend.

Keywords: Healthcare, Proximity, Mobility, Aging, Parent-Child Relationships

Beau MacDonald, California State University Northridge. Email: beaumacdonald@sbcglobal.net; Travis Longcore, PhD, The Urban Wildlands Group. Email: longcore@urbanwildlands.org; Shawna Dark, PhD, California State University Northridge. Email: shawna.dark@csun.edu; *Inductive and Deductive Habitat Models Predict Historic Distribution of Western Snowy Plover on the Central Coast of California*

Biogeography provides essential guidance for biodiversity conservation and is a fundamental element of conservation biology. It acquires progressively more significance as statistical techniques and GIS tools become more powerful. Detailed ecological data analyses and syntheses over multiple spatial scales and models of actual and potential geographical distributions of species are critical components of the science of conservation biogeography. Species distribution models can inductively predict distribution based on known presences, or make deductions based on generalized habitat preferences. If currently occupied habitats are marginal compared to historic sites, inductive approaches may underpredict potential distribution. We developed deductive and inductive models for the California central coast distribution of federally listed Western Snowy Plover (*Charadrius alexandrinus nivosus*), a small shorebird restricted to a fraction of its former distribution. Niche-based deductive models based on recorded preferences of the species throughout its range described the habitat potential of a given location. GIS techniques incorporated suites of environmental variables with both ambiguous and absolute dimensions. When habitat suitability is modeled using optimal-state similarity, model theory and logic require non-stochastic uncertainty integration, thus fuzzy categories where gradients define species' response to variables logically represent traditional and modern niche concepts. A series of inductive models based on existing known presences was then developed using a series of statistical approaches. Each model generated a habitat suitability map. We compared inductive and deductive approaches and tested the ability of each model to describe known occupied habitats by comparing suitability scores of occupied areas against average suitability value for all habitats.

Keywords: conservation biogeography; ecological modeling; environmental geography; gis; habitat suitability; species distribution; western snowy plover; California central coast

Fraser MacDonald, Dr, University of Melbourne. Email: fraser.m@unimelb.edu.au; *Geopolitical Aesthetic: the photographic modernism of Paul Strand*

This paper is about the role of visual art - specifically American photographic modernism? as a domain of Cold War geopolitical contest. Critical geopolitics, I will argue, has been slow to think about art practice as an arena for the enactment and reproduction of geopolitical power. While this is not 'popular geopolitics' as it is conventionally understood, I aim to broaden this field of

scholarship by showing how one self-consciously 'high' modernist engaged with 'folk' culture as form of Cold War political dissidence. The paper attempts a close visual exegesis of the photography of Paul Strand (1890-1976), drawing a series of connections between Strand's 'dynamic realist' aesthetic, his Communist-aligned political allegiances and the geopolitics of his photographic practice. Moving away from 'art historical' readings of photography, I prefer instead to reflect upon the business of looking, or what we might call 'observant practice'.

Keywords: geopolitics; visual culture; photography; Cold War; observant practice

Glen M. MacDonald, UCLA. Email: macdonal@geog.ucla.edu; David W Beilman, UCLA. Email: dbeilman@ucla.edu; Yongwei Sheng, UCLA. Email: ysheng@geog.ucla.edu; Konstantine Kremenetski, UCLA. Email: costya@geog.ucla.edu; Laurence C Smith, UCLA. Email: lsmith@geog.ucla.edu; *Addressing Global Climate Change Questions Using Georeferenced Radiocarbon Databases from Northern Peatlands*

The northern peatlands contribute significantly to atmospheric variations in methane and carbon dioxide and will likely be sensitive to future global warming. The peatlands could provide both positive and negative feedbacks to warming. We have used georeferenced collections of radiocarbon dates on peatland development to examine their sensitivity to climate change and their role in past variations in atmospheric methane and carbon dioxide. An analysis of 1516 radiocarbon dates from the circumarctic indicates that northern peatlands expanded quickly in concert with warming at the close of the Younger Dryas (12,000 cal yr BP). This contributed to a sustained peak in atmospheric methane and drawdown of atmospheric carbon dioxide between 12,000 and 8000 cal yr BP. To understand the modern carbon status and climatic sensitivity of northern wetlands on a regional scale, we focused on carbon accumulation trends in the West Siberian Lowlands (WSL) over the last 2,000 years. Carbon assays and radiocarbon ages reveal that the peatland carbon sink over recent millennia has been strongest in the very large peatlands of the southern portion of the WSL. Spatial extrapolation of our point-data using GIS suggests that ~40% of West Siberia's peat carbon may be less than 2,000 years old. Because these southern peatlands have been a strong historic carbon sink, interruption of their carbon sequestration ability owing to ongoing climatic and hydrological change could have a critical influence on the net carbon status of one of the world's largest wetland region.

Keywords: Wetlands, Climate Change, Methane, Carbon, Radiocarbon, GIS

Alan M. MacEachren, Pennsylvania State University. Email: maceachren@psu.edu; *Collaborative Geovisual Analytics*

Visual analytics has been defined as the "science of analytical reasoning facilitated by interactive visual interfaces." Geovisual analytics focuses on analytical reasoning about geographic phenomena and processes and/or with geospatial information and technologies. Collaborative geovisual analytics (C-GA) targets support for groups carrying out geovisual analytics activities. This presentation will outline of the challenges that underlie development of both a conceptual framework through which to understand C-GA and the application of that framework to design, implementation, and assessment of C-GA.

Keywords: visual analytics, geovisualization, geocollaboration

Susan M. Macey, Texas State University. Email: sm07@txstate.edu; *Air Pollution and Aging: A Spatial Analysis of the Distribution of Emissions and the Elderly Population in Texas*

Several recent studies have noted that air pollution can have a significant impact on the health of older individuals, particularly related to respiratory and heart related problems. This study examines the spatial distribution of several subcategories of the elderly population in relation to air pollution emissions from various sources in Texas. Data on emissions including those from utility and nonutility point sources, as well as onroad, nonroad and area sources from the U.S. Environmental Protection Agency's National Emission Inventory were combined with block group level age category data from Landview using ArcView geographic information systems (GIS) software. Specific air pollutants discussed in this study include carbon monoxide, nitrogen oxides, particulate matter (PM10 and PM2.5), sulfur dioxide, and volatile organic compounds. Statistical analyses of the association between age classes from 55 years to 85 years plus, and both source and level of specific pollutants were conducted. Though weak in strength, significant associations were found between emissions from several sources and age category. Implications of these associations for elderly population subgroups will be presented.

Keywords: air pollution, elderly population, emissions

Erin Machell, University of Oregon. Email: emachell@uoregon.edu; NGO Development Landscapes in Contemporary Nicaragua

This paper examines the changing interactions between development NGOs, communities, and the state in Nicaragua. As government support for basic services such as adequate schools, roads, and potable water continues to diminish, Nicaraguans have increasingly turned to an array of mostly small nongovernmental organizations to fill these needs. NGO projects are invariably both needed and appreciated. However, the emerging NGO-based development landscape raises questions about the relationships and interactions between NGOs and communities in the development process, about dependence, and about what kind of long-term effectiveness a web of independent NGOs can provide as a solution to Nicaraguans' problems. This paper attempts to address these questions on the basis of interviews and participant observation conducted in urban and rural Nicaragua in the summer of 2006. Preliminary findings suggest that Nicaraguans are developing a new survival in response to the proliferation of development NGOs. They are organizing themselves into groups in the hope that they will attract NGOs and become a target community for projects and dollars. Though much literature has pointed to NGO failures, particularly in terms of participation and accountability to communities, I have found that, under some circumstances, NGO-community relationships can be strong and mostly positive, and they can include meaningful community participation. However, even in these positive cases, a deeper concern in thinking about real change in the context of development is the scale and the piecemeal nature of such interventions.

Keywords: development-participatory development, Latin America-Nicaragua, NGOs

Elizabeth Mack, Indiana University. Email: elmack@indiana.edu; Tony H. Grubestic, Ph.D, Indiana University. Email: tgrubesi@indiana.edu; Erin Kessler, Independent Researcher. Email: ernthms_17@yahoo.com; Indexing and Regional Competitiveness: A Comparative Analysis

Attempts to explain regional similarities and differences have led to the development of various indices to explain regional disparities in economic activity. Over the years a variety of indices have been developed to explain regional homogeneity and heterogeneity with a focus on regional industrial concentration and composition. This study will compare and contrast existing indices of regional activity, constructed from county level economic and infrastructure data for the coterminous United States. These data are offered as alternatives to industry or company level data, which are often suppressed and impede meaningful regional comparisons. Further, the use of infrastructure data in an index of regional homogeneity addresses the issue of accessibility which previous studies have failed to address. Each index will be analyzed in both a statistical and spatial context, with a focus on the utilization of both global and local indicators of spatial autocorrelation to evaluate significant spatial patterns in the indices. Results suggest the inclusion of infrastructure data is a necessary component of regional indices of economic activity. The spatial analysis of county level economic activity demonstrates these indices should not be considered in an aspatial context.

Keywords: regional competitiveness, indices, regional disparities, county economic activity, spatial autocorrelation

Taylor E. Mack, Louisiana Tech University. Email: tmack@latech.edu; Cultural Convergence Along Honduras' Caribbean Shore

Culture contact has been a prevalent theme in the historical geography of the eastern Caribbean Coast of Honduras, from Trujillo Bay into Mosquitia, including Cabo Camarón and the mouth of the Río Negro. This area with a diverse physical environment has a long history of cultural interaction and adaptation among many culture groups, creating a complex cultural landscape. Archival research based on contemporary documents and maps document the many culture groups that have converged in this region of Honduras. Pre-Columbian culture groups that met in the area included groups referred to as the Maia and Taia, plus the cultural contact between indigenous Honduran natives with a nearby city of Nahuatl speakers. The geographic conditions along this stretch of coast in Honduras has proven quite favorable for culture contact among a variety of groups since the arrival of Columbus to this shore in 1502. Groups that plied these waters included not only Spanish treasure fleets, but ships from England, France, and Holland, as well, many who were on privateering voyages. Settling along this shore were groups as diverse as the English and Spanish settlements at Black River/Río Tinto, the Garifuna and Miskito peoples, English mahogany cutters and Honduran Ladinos. Today this region is still experiencing ongoing cultural interaction as Ladino agricultural settlements push the frontier forward into indigenous lands.

Keywords: Honduras, historical geography

D. Scott Mackay, State University of New York at Buffalo. Email: dsmackay@buffalo.edu; Brent E. Ewers, University of Wyoming. Email: beewers@uwyo.edu; Eric L. Kruger, University of Wisconsin - Madison. Email: elkruger@wisc.edu; Correlation between leaf phenology and leaf physiology in northern temperate mixed forests

Phenological variations impact water and carbon fluxes, and are thus critical for understanding how vegetated land surfaces affect seasonal and interannual weather and climate. Correlations between flux rates and phenology are poorly understood and mechanistic connections are in their infancy. Some data suggest that stomatal conductance and photosynthesis increase through or beyond full leaf expansion. Moreover, in conifers, the interaction of phenology and physiology is more complicated than in deciduous trees because needles are retained for several years. Using continuous sap flux data and a coupled photosynthesis-transpiration model we estimated reference canopy stomatal conductance, G_{sref} , and leaf area index, L , for seven dominant tree species in the region, including red pine (*Pinus resinosa*) and trembling aspen (*Populus tremuloides*), spanning a period from just prior to the start of leaf expansion to just after leaf senescence. G_{sref} for red pine increased from 105 to 179 mmol m⁻² leaf s⁻¹, which represented a 37 to 50% increase in G_{sref} after accounting for maximum possible changes in L . After full leaf out, the trembling aspen were almost immediately defoliated, and then reflushed after three weeks. Model estimates of L reflected this pattern and were consistent with measurements. However, G_{sref} never exceeded 45 mmol m⁻² s⁻¹ prior to defoliation, but peaked at 112 mmol m⁻² s⁻¹ after reflushing. These results suggest that regional mapping of phenological changes using remote sensing should be augmented with improved models of physiology to accurately represent the vegetative boundary in hydrologic and atmospheric models.

Keywords: phenology, forests, water, carbon

Danny MacKinnon, Dr, Department of Geography & Environment, University of Aberdeen.. Email: danny.mackinnon@abdn.ac.uk; Jon Shaw, Dr, School of Geography, University of Plymouth. Email: jon.shaw@plymouth.ac.uk; Iain Docherty, Dr, School of Business and Management, University of Glasgow. Email: i.docherty@lbss.gla.ac.uk; Divergence or Convergence? Devolution and Transport Policy in the United Kingdom

UK devolution is characterised by its asymmetrical nature in terms of the different powers granted to the different devolved jurisdictions and the absence of an explicit constitutional framework to govern institutional relations. Transport provides an illustrative example of the difficulties of policy making under devolution, since here the transfer of powers from the UK government to the devolved assemblies has been especially partial and complex. Yet the powers of the devolved authorities, coupled with the different transport conditions and needs found in the different jurisdictions, gives considerable scope for policy divergence across them, although other factors may militate in favour of convergence. This paper assesses the extent of transport policy divergence, informed by extensive policy analysis and interviews with key actors. Outside of the radical experiments in road user charging undertaken in London, policy divergence has been rather limited in practice. Similar policies have been introduced in Scotland, Wales and Northern Ireland, reflecting the common adherence to an integrated transport agenda, the limited policy-making capacities of the devolved

Keywords: Devolution, Transport Policy, United Kingdom

Phillip Gordon Mackintosh, PhD, Brock University. Email: pmackintosh@brocku.ca; Imagining the Park: Bourgeois Expectations and Urban Green Space in Toronto, circa 1900

It is well known that urban reformers earnestly sought out parks and green space for the revivification and restoration of a street-weary citizenry in the modern cities of late Victorian and Edwardian northern North America. We are, however, learning that Victorians believed nature, and parks particularly, obtained aesthetic properties that like "Art" could alter the soul and "improve" behaviour. The park, when seen as a tutor of aesthetics, assumed a moralizing place in conceptions of public space at a time when bourgeois city people increasingly impressed their opinions on the urban landscape. This embrace of the nature-as-social-reformer ideal was so firm that some bourgeois reformers, park designers and builders, were regarded as "Municipal Artists" engaged in "Municipal Art." This paper links the bourgeois geographic assertion of Nature's morality to the beautification impulse in modern industrial Toronto. Concern for the slovenly condition of Toronto's Queen's Park reveals the presence of a powerful park ideology, marked by a simple environmental determinism that was not only accepted uncritically. It was advanced as an anodyne for the ills of a modern city, whose reformers saw only social disorder, bruised infrastructure and unruly public space.

Keywords: parks, bourgeois culture, urban reform, ideology, Victorian and Edwardian Toronto

Paul J. Mackun, U.S. Census Bureau. Email: paul.j.mackun@census.gov; *Guidance on Uses of Metropolitan and Micropolitan Statistical Areas*

In June 2003, the Office of Management and Budget (OMB) announced new metropolitan and micropolitan statistical area definitions and has issued subsequent updates in December 2003, November 2004, and December 2005. This paper offers guidance on the uses of these areas and discusses how selected federal statistical agencies are implementing the new definitions. The paper begins by briefly reviewing the OMB standards review process and defining the statistical area terminology associated with the standards. It then describes the building blocks, titling conventions, and recommended abbreviations for the new areas. The paper subsequently discusses the analysis and presentation of metropolitan and micropolitan statistical area and principal city data, update schedules and associated documents, current and historical definitional files, and relevant websites. It concludes by providing examples of how selected federal statistical agencies, such as the U.S. Census Bureau, employ the new definitions in their data products.

Keywords: metropolitan statistical areas, micropolitan statistical areas, guidance

Virginia W. Maclaren, University Of Toronto. Email: maclaren@geog.utoronto.ca; *Indicator Empires: Canadian Experiences with the Nationalization of Community Indicators*

Most of the research on community indicators to date has used local or regional case studies to investigate indicator contributions to learning, evaluation and decision-making. Less attention has been paid to national community indicator initiatives, which tend to place greater emphasis on decision-making rather than the other two functions of indicators. In Canada, two of the most notable attempts to nationalize community indicator movements are a top-down, quality-of-life indicators initiative sponsored by the Federation of Canadian Municipalities (FCM) and a new bottom-up initiative known as Vital Signs, sponsored by the Community Foundation of Canada. With contributions from 20 municipalities, the primary purpose of the FCM initiative is to influence urban public policy and government financing in critical areas. It is top-down because it originated with a national organization and imposes the same set of indicators on all municipalities. The primary purpose of Vital Signs is to assist in identifying funding priorities for Foundation expenditures. It is bottom-up because it started as a local indicator initiative in Toronto and has now expanded to three other cities, using a mixture of national and locally-derived indicators. Based on a series of key informant interviews with report authors and users, this paper explores how the two indicator initiatives evolved, their unique characteristics, to what extent they have impacted decision-making and whether they conflict with or complement existing stand-alone local indicator initiatives. The paper concludes with an assessment of the power of nationalized community indicator initiatives to effect change.

Keywords: indicators, Canada

Ken MacLean, Post-Doctoral Fellow, Emory University. Email: kmaclea@emory.edu; *Enclosure and the Emergence of Regulatory Authority Along Burma's Riverine Systems*

This paper explores how areas on the edges of conflict zones in eastern Pegu Division of Burma were rapidly transformed into sites of intensive resource extraction during the late 1990s and where regulated forms of violence have since largely replaced lethal ones. This transformation is all the more striking as counter-insurgency campaigns, which continue to use the brutal methods previously employed by the British in colonial Malaya and the United States in Republic of Viet Nam, have failed to bring the eastern part of the division fully under the military regime's control. The paper will examine on the division's waterways, which link the plains with the steep hills to the east, and then describe the ways these geographic features help shape struggles by different state and non-state actors to control access to timber, non-timber forest products, gold, and hydropower. Special attention will be focused on how military battalions and private business interests alternately compete and collude with one another to exert their authority in the effort produce a compliant labor force in and around areas where coveted resources are extracted. The data, drawn from research conducted in the area between 2001 and 2005, demonstrates how ethnic forms of identity are erased at some moments and re-inscribed at others. The findings also highlight some of the contradictions that have accompanied military efforts to consolidate centralized state control of Burma's more remote regions, even those spatially quite close to the capital such as eastern Pegu Division.

Keywords: Concessions, Violence, Governance, Asia

Julie MacLeavy, University of Bristol. Email: julie.macleavy@bristol.ac.uk; **Columba Peoples, Swansea University, Wales. Email:** C.Peoples@swansea.ac.uk; *Workfare-Warfare: Neoliberalism, 'Active' Welfare and the New American Way of War*

In recent decades, welfare reform in the United States has increasingly been based on a political imperative to reduce the number of people on welfare. This has in large part taken place through the establishment of a 'workfare' state, in which the receipt of state benefits requires a labour input. Designed to reduce expenditure on civil social services, welfare-to-work programmes have been introduced with this in mind. Simultaneously, the restructuring of US defense provision has seen the 'military-industrial complex' emerge as a key beneficiary of state expenditure. Both these trends can be characterised, the paper argues, as manifestations of neoliberal thinking - whether in the form of the 'workfarism' that is undertaken to bolster the U.S. economy, or the 'defense transformation' that has been intended to enhance U.S. war-making capacity. Whilst these two aspects have been analysed in detail independently, the aim of this paper is to probe the similarities, connections and overlaps between the workfare state and the new American emphasis on high technology warfare and precision weapons. It does so specifically by detailing the U.S. state's increased investment in private war-related industries, their increased role in public service provisions and, in particular, workfare state programmes. In doing so this paper attempts to bridge critical security studies and geographies of work-welfare by building an awareness of the social basis and impacts of US defense stratification.

Keywords: United States, Neoliberalism, Workfare, State Restructuring, Defense Transformation, Critical Security Studies

Gordon MacLeod, University Of Durham. Email: gordon.macleod@durham.ac.uk; *Gated Communities and the 'Securitization of the Habitat': Privatizing the Urban Political Realm?*

Ever more people are choosing to live in gated residential housing developments. Invariably these residents are literally buying into not just a customized portion of real estate but a relatively secluded 'lifestyle' premised upon physical enclosure, the privatization of what would ordinarily be public space, and the private provision of civic responsibilities like police protection and street maintenance. It seems that in these neighborhoods space is being deeply commodified in accordance with a neoliberal urbanism and everyday life increasingly insulated against a plethora of risks and anxieties ranging from the maintenance of property values to the assurance of personal safety. Nikolas Rose (1999) terms this the 'securitization of the habitat'. However, in practice this securitization of private 'gated communities' involves them being contractually governed through extraordinarily restrictive rules and regulations on personal behavior, thereby calling into question the extent to which they can be routinely interpreted as a product of unadulterated neo-liberalism. Furthermore, the very idea of a residential 'community' implies some degree of collective organization: albeit this is ordinarily quite removed from conventional understandings of 'collective action', often indeed being expressed through 'homeowners associations' whose objective is to secede from the collectivizing and socializing institutions of formally elected city government. All of which heralds some profound changes in the conduct of urban politics and the nature of the urban realm and, in turn, our very conceptualization of these processes. This paper examines these themes, drawing on evidence from a variety of places in the north of England.

Keywords: Urban Politics, Privatization, Neoliberalism

Roy Maconachie, Dr, The Institute of Development Studies, Sussex, UK. Email: Roymaconachie@hotmail.com; **Adrian Wood, Prof, Huddersfield University, UK. Email:** a.p.wood@hud.ac.uk; **Alan Dixon, Dr, Otago University, NZ. Email:** ; *Decentralization, institutions, and wetlands: New agricultural frontiers in Ethiopia and Sierra Leone?*

In many desperately poor countries in sub-Saharan Africa, the environmental and social significance of wetlands is increasingly being recognised in a development context. If managed sustainably, wetlands can produce large amounts of food and other commodities necessary to sustain rural livelihoods. A variety of economic and social development indicators suggest that Ethiopia and Sierra Leone are currently two of the poorest countries in the world, so rebuilding and maintaining food security and safeguarding livelihood portfolios are vital processes for alleviating poverty and achieving rural development in both countries. As both Ethiopia and Sierra Leone are currently undergoing profound social, political and environmental transformation, many households have responded by endeavouring to safeguard their livelihoods through the intensification of wetland use. At the same time, recent decentralization policies in both countries have seen the government strengthen its position at the local level, with new opportunities emerging for interaction between state and community institutions. Drawing upon recent field-based evidence from Ethiopia and Sierra Leone, this paper explores the dynamics and characteristics of community-based organisations, local government institutions and their interactions in the

development of management regimes for wetlands. The paper is concerned with community management of natural resources in the context of progressive decentralization and contributes to debates about the utilisation and conservation of wetlands.

Keywords: Decentralization, institutions, wetlands, Ethiopia, Sierra Leone

Alan D. MacPherson, SUNY at Buffalo. Email:

geoadm@acsu.buffalo.edu; *The recent growth performance of U.S. firms in the industrial design sector: an exploratory study.*

This paper assesses the competitive factors associated with company growth in the U.S. industrial design sector. This small but technologically advanced sector delivers critical innovation inputs to firms that produce durable goods. Evidence from a survey of 85 U.S. design companies suggests that competitive success hinges upon service diversity. Specifically, the most commercially buoyant companies have diversified their service offerings beyond product or component design. These firms have developed strategic competencies in fields such as contract research, prototype development, product testing, technological forecasting, market analysis, and even advertising. Although most U.S. design companies are small-to-medium sized enterprises (SMEs) that employ fewer than 20 workers, successful firms do not differ from their less successful counterparts in terms of employment size, occupational structure, age, regional location, or market focus (client sectors). Instead, the key differences lie in service diversity and the quality of human capital. The paper concludes with a brief discussion of the implications of the empirical findings for future research on the dynamics of the design industry.

Keywords: industrial design sector, human capital

Marguerite Madden, Center for Remote Sensing and Mapping Science (CRMS), Dept. of Geography, University of Georgia. Email:

mmadden@uga.edu; Thomas Jordan, Cetner for Remote Sensing and Mapping Science (CRMS), Dept. of Geography, University of Georgia. Email: tombob@uga.edu; *Conflicts of Conservation and Access in National Parks*

The National Park Service Act of 1916 defined the mission of the United States National Parks to conserve scenic, natural and historical resources of specially designated lands while providing for the enjoyment of said resources in a way that will leave them "unimpaired for the enjoyment of future generations." Managers increasingly are faced with conflicting options and must weigh National Park conservation goals against the desires and needs of public use. Researchers at the Center for Remote Sensing and Mapping Science (CRMS) at The University of Georgia have worked cooperatively with the National Park Service since 1994 to develop digital resource databases and use geospatial tools to assist in monitoring, management and decision making. Community-level vegetation distributions, off-road vehicle and airboat trail networks and fire fuel models, for example, have been created for 21 National Parks, Preserves, Home Sites and Battlefields in the southeastern United States from high-resolution remote sensing data and Global Positioning System (GPS) enabled field surveys. The digital data have provided resource managers and scientists with information on rare communities, invasive plants and animals, risk of disturbance and human impacts. Geovisualization techniques such as 3D perspective views and fly-through animations have been used to assess vegetation patterns and communicate Park values and concerns to users and administrators. Historical remote sensing data also has established development trends beyond Park boundaries and identified threats encroaching on cultural and natural resources. Together these techniques greatly enhance sound

Keywords: GIS, resources, National Parks, conflicts

Joanne F Maddern, Dr, University Of Dundee. Email:

j.f.maddern@dundee.ac.uk; *Biometric Geographies of Interoperability/Inequality*

The paper seeks to conceptualise the meeting point between fleshy corporealities and technopolitical strategies of transnational governance through automated code. It investigates the new 'geographies' created through the burgeoning introduction of biometric technologies. The proposed introduction of biometric technologies (most commonly fingerprinting systems, facial measurement and iris scanning technologies though any physical or biological feature that can be measured can be used as a biometric indicator) at national border points has been heralded as a panacea to many of the security problems we are now facing. Whilst much research has explored the technological capabilities of the technology (Ashbourn, 2000; Jain et al., 1999) less academic research has predicted the potential impacts on society of the 'the body as password' discourse. In mobility studies, some work has argued that such systems are central to the neo-liberal separation of different types of mobile publics through for instance, 'bypass immigration' based on biometric IDs which create a processing time differential between the 'kinetic elite' such as business travellers and other social groups such as standard travellers, asylum seekers, refugees and migrants.

Through interviews with producers and consumers, this research looks at the realities of biometric systems and unpicks a 'biology of culpability' that structures the supposedly neutral technology, which fractures populations along the lines of class, race, gender, age and ability.

Keywords: software sorted geographies, inequality, biometrics, biopower

Avril Maddrell, Oxford Brookes University. Email:

amaddrell@brookes.ac.uk; *Mapping changing shades of grief and consolation in historical landscapes of faith*

Grief can be experienced and expressed in spatial terms, often marked in the landscape in the form of individual or collective memorials and rituals. This paper studies two particular historical (foundational) Christian sites in the Isle of Man and Scotland, examining ways in which grief and consolation have been marked and overwritten by both the continuity and disruption of collective faith in these symbolic and aesthetic places. Particular attention is paid to the emergence of individualised practices of grief and consolation and how these reflect changing views of sacred space, including 'secular-sacred' space.

Keywords: Grief, consolation, historical, landscape, faith

Mary Ann Madej, USGS Western Ecological Research Center. Email:

mary_ann_madej@usgs.gov; Diane Sutherland, USFS Redwood Sciences Laboratory. Email: dsutherland@fs.fed.us; Bonnie Smith, Anderson Consulting. Email: for_bonnie@yahoo.com; Thomas E Lisle, USFS Redwood Sciences Laboratory. Email: tel7001@humboldt.edu; *Channel response to sediment pulses in steep, gravel-bed rivers: A Flume Study*

Fluvial geomorphologic field studies provide useful information on rates and processes of channel formation and evolution; however, they are typically confounded by a myriad of variables. In contrast, flume studies can control variables to provide a stricter experimental design, but the scale of water and sediment must be adapted to laboratory conditions. In this study we used a flume experiment to track changes in sediment transport and channel storage following large sediment inputs. In a 12-m long, 0.75 m wide flume, water discharge and flume slope were held constant, but the sediment feed rate varied to initiate cycles of aggradation and degradation cycle. We used a laser microtopographic scanner to measure bed topography and elevation. Channel response to increased sediment loads followed a similar trajectory of change that had been documented in field studies of Redwood Creek, California. Initially the channel responded to increases in sediment load by textural changes in the channel bed (a fining of the bed surface). As the aggradational cycle continued, bedform size and form roughness decreased. Mean depth decreased slightly during moderate sediment feeds, but decreased much more rapidly during high sediment feeds. Locally, secondary channels formed, although the channel pattern never became fully braided. As the sediment pulse was processed by the channel, the channel reverted to a single thread system, bedforms became more pronounced, channel roughness increased, and channel armoring became stronger. Overall transport rates increased during aggradational phases and decreased during degradational phases.

Keywords: sediment transport, storage, supply, flume, aggradation

Rebecca May Madgin, University of Leicester. Email:

rebeccamadgin@hotmail.com; *Re-constructing the Identity of Place: The Role of Industrial Heritage in Manchester, England, 1970-2000*

I will take Castlefield in central Manchester to show how the re-use of this area of industrial heritage has re-constructed the identity of place. The paper will show how Castlefield managed to achieve a new, positive identity as a result of transforming its image and appearance. The area, as a result of restoration and re-use, went from being a declining, forgotten part of Manchester to a rejuvenated, vibrant, mixed-use area at the heart of the city centre. In short Castlefield went from being a marginal space to a place. Indeed Castlefield, following on from the concept of the Urban State Park in Lowell, Massachusetts, became Britain's first Urban Heritage Park in 1982. Castlefield's identity has always come from its industrial buildings whether during the British industrial revolution or in its dilapidated state of the 1970s. Today the area's identity still rests with its industrial heritage but changes to the appearance and function have regulated how the area is perceived and how it is identified. As a result of these changes Castlefield is now identified as a cosmopolitan area which has used its industrial history to power its future. This new identity is one that Manchester itself aspired to reach. Manchester city centre has used, and is using, its industrial history to attract in both people and investment and to secure a prosperous future for the city. Therefore, restoring and re-using industrial buildings in Castlefield has had a profound affect on both a relatively small locale and on the city as a whole.

Keywords: industrial heritage, identity, regeneration, space, place

George Madrid, University of Texas, Dallas. Email: georgeamadrid@msn.com; Melissa Rura, University of Texas at Dallas. Email: missy.rura@gmail.com; Daniel Griffith, University of Texas at Dallas. Email: dagriffith@utdallas.edu; *A comparison of spatial filtering, spatial random effects, and GWR Poisson model specifications*

Although studies of georeferenced data increasingly incorporate spatial correlation among model residuals to improve precision and reduce bias, to date most analyses reported in the literature assume global associations that are constant and independent of location, an assumption coming under increasing scrutiny in the quantitative geography literature. Here we review and contrast three approaches for the estimation of and inference for spatially heterogeneous effects (i.e., associative factors whose impacts on the outcome of interest vary throughout geographic space). Specifically, we provide an in-depth comparison of both geographically weighted regression (GWR) models (which allow covariate effects to vary in space but only allow relatively ad hoc inference) and variable coefficient models (which allow varying effects via random effects and provide model-based estimation and inference, but require more advanced computational techniques) with spatial filtering models (which allow covariate effects to vary in space as well as provide model-based estimation and inference). We compare these approaches with respect to underlying conceptual structures, computational implementation, and inferential output, augmenting the comparison already furnished by Waller et al. (forthcoming) with a spatial filter one using their Houston crime dataset.

Keywords: spatial filter, GWR, Poisson regression

Francis J. Magilligan, Dartmouth College. Email: magilligan@dartmouth.edu; Carl Renshaw, Dartmouth College: Earth Sciences. Email: renshaw@dartmouth.edu; Kristen M. Svendsen, Dartmouth College: Earth Sciences. Email: Kristen.M.Svendsen.Adv09@Alum.Dartmouth.ORG; Nislow H. Nislow, USDA: Forest Service. Email: nislow@dartmouth.edu; James M. Kaste, Dartmouth College: Earth Sciences. Email: kaste@dartmouth.edu; *The Effects of Flow Regulation by Dams on Channel Bed Sedimentation and Benthic Community Structure: Longitudinal Variation and the Role of Tributary Inputs*

Flow regulation induces hydrologic, geomorphic and ecologic changes in impounded river systems, and tributaries may mitigate the effects of flow regulation by altering the flux of water and sediment into the flow-regulated mainstem. To capture the effects of channel bed changes and of tributary influences we use long-term discharge and cross-sectional data to assess the geomorphic and hydrologic impacts of impoundment on a flow-regulated river. In addition, we evaluate the use of the short-lived cosmogenic radioisotope ⁷Be (half-life 53.4 days) to link the geomorphic impacts to benthic macroinvertebrate community structure. We find that ⁷Be activity of transitional bed load sediment is highly seasonal and reflects both sediment source and residence time. Benthic populations also exhibit a strong seasonal variability. The mainstem radioisotope signal and benthic community composition change abruptly at tributary junctions. In the spring, neither the ⁷Be activity of the sediment, nor the benthic population exhibits a clear relationship with sample site location. However, during the summer the ratio of Ephemeroptera/Trichoptera, representing benthic community structure, decreases below tributary junctions. In addition, increases in filter-feeding/shredder Trichoptera abundance strongly correlate with recently ⁷Be tagged sediment at the confluences. The results show that tributaries are impacting the flow-regulated mainstem. Moreover, we propose that the tributaries are exacerbating the effects of impoundment due to the reduced competence and capacity of the mainstem.

Keywords: Dams, Isotopes, Macroinvertebrates, Tributary Junctions

William Magruder, University of British Columbia. Email: magruder@gmail.com; *Memory and spectacle in Berlin's new center*

This poster photographically documents and interprets the built environment of Potsdamer Platz, the new center of Berlin, Germany. The representation of Germany's fractured past is considered, as is the relation of this past to collective memory and national identity. Finally, Potsdamer Platz is considered as a landscape of spectacle.

Keywords: memory, architecture, Berlin, Germany

Marie Mahon, PhD, Department of Geography, National University of Ireland, Galway, Ireland. Email: marie.mahon@nuigalway.ie; Micheál Ó Cinnéide, PhD (Professor), Department of Geography, National University of Ireland, Galway, Ireland. Email: micheal.ocinneide@nuigalway.ie; *Claiming neighbourhood space in private housing estates; the impact of residential planning policies on the development of local capacity and civil society in the Republic of Ireland*

Housing development in the Republic of Ireland is controlled by the planning authorities but provided by private entities, e.g. property developers. Dense housing development in the form of 'estates' occurs in areas zoned for

residential purposes. Housing development in Ireland is proceeding at the highest rate in Europe. This paper focuses upon the implementation of planning policies that regulate private housing estate development in Ireland, in the context of growing concern about whose interests are being best served by the planning process. It looks particularly at the practice of 'handing over' of completed estates by developers, and the implementation of appropriate management structures to ensure their ongoing maintenance. Evidence suggests certain administrative and accountability deficits in how this is undertaken, with many developers not complying with the planning conditions granted to them, and a perceived reluctance on the part of the planning authorities to enforce these conditions. Using case study evidence from County Galway (West of Ireland), this paper traces the interaction of key stakeholders (planning authorities, developers and residents) in the matter of completion and management of housing estates. It explores the impacts for residents of a lack of transparency in the planning process, and the difficulties in compelling developers to fully complete developments, particularly in terms of residents' ability to establish a management role in what is ultimately their neighbourhood. It considers the implications for developing a sense of local empowerment and 'ownership' of their place of residence, and promoting a sense of local community and civil engagement.

Keywords: neighbourhood, local, capacity, planning, residential, empowerment

Thomas K. Maersperger, LP DAAC Scientist, SAIC, Contractor to USGS-EROS. Email: tmaersperger@usgs.gov; *The Essential Characteristics and Varied Uses of MODIS Land Products from the LP DAAC*

The U.S. Geological Survey's Center for Earth Resources Observation and Science (USGS EROS) is the site of the Land Processes Distributed Active Archive Center (LP DAAC), one of eight original DAACs established by the National Aeronautics and Space Administration (NASA) as part of its Earth Observing System Data and Information System (EOSDIS). The LP DAAC promotes interdisciplinary study and understanding of Earth's integrated systems by providing data for the investigation, characterization, and monitoring of biologic, geologic, hydrologic, and ecologic patterns and processes. To meet this mission, the LP DAAC ingests, processes, distributes, and archives data from land-related EOS sensors, and provides the science support, user assistance, and outreach required to foster the understanding and use of these data within the land remote sensing community. LP DAAC holdings include a large collection of land products derived from Moderate Resolution Imaging Spectroradiometer (MODIS) satellite data. MODIS products are derived from algorithms developed and validated by NASA science investigators, with data quality improvements implemented via a series of complete reprocessing campaigns during the mission. Approximately 70 different land product types and 14 million individual MODIS scenes are available through the LP DAAC at no charge to the end user. This poster describes the essential characteristics of the MODIS land product suite, and provides recent examples of the varied uses of these data.

Keywords: MODIS, remote sensing, global

Kelly Main, Student. Email: kmain@ucla.edu; *The Remaking of MacArthur Park: Place-meaning, control, and contestation in a contemporary ethnic landscape*

Many U.S. metropolitan areas are characterized by rapid changes in the physical form of cities and their populations. There is a new spatial order in cities as immigration flows culturally and physically change the urban landscape. What effects do these changes have in the way the different groups relate to their physical environment in these new culturally diverse ethnic landscapes? How has local planning practice related to land use responded to these changes? How have these responses and contestations of these responses affected the way group identity is formed, particularly as it is symbolized in the local physical environment? This paper seeks to answer these questions with a case study of three immigrant groups?from Mexico, Guatemala, and El Salvador?in the MacArthur Park neighborhood of Los Angeles, a culturally diverse environment to which there has been a significant local planning response to control the park/neighborhood's atmosphere and influence immigrant groups using the park. The study explores the emotional relationships to place experienced by neighborhood residents and visitors who use the park, the symbolic and otherwise meaningful nature of the local physical environment, and local planning practice's attempts to affect the meaning of and responses to the neighborhood/park through the appearance and use of the physical environment.

Keywords: sense of place, cultural diversity, transnationalism, land use, city planning, immigration, place attachment, place identity

John K. Maingi, Miami University. Email: maingijk@muohio.edu; Lucy W. Ndegwa, Miami University. Email: wandegwa@gmail.com; Monitoring Forest Cover Change on Mt. Kenya Using Multitemporal Landsat Data

In recent years, there have been many reports in the Kenyan media of massive destruction of Mt. Kenya Forests. Destructive activities in the forests include illegal logging for timber and charcoal production, forest encroachment for cultivation of marijuana and other crops, and livestock grazing. Aerial surveys and visual interpretation of Landsat TM data undertaken between 1999 and 2002 confirmed this trend of continuing deforestation. In the current study we used Landsat TM and ETM+ images acquired in 1987, 2000 and 2002 to produce forest maps and evaluate several change detection techniques for mapping change. Among the change detection techniques evaluated, multitemporal PCA resulted in the highest accuracy (86.9%). Change detection techniques based on vegetation indices including NDVI, SARVI, KT Greenness and KT Wetness appeared to capture differences in forest vigor rather than actual biomass changes.

Keywords: change detection, classifications, montane forest, East Africa

Susan P. Mains, University of the West Indies-Mona. Email: susan.mains@uwimona.edu.jm; Locating Movements and Moving Stories: Narrating Jamaican Migration

Mobility and identity are woven together through the process of narration and translation. The production of narrative is an inherently spatial process: it is a practice that situates stories, events, and feelings while creating new places and relationships. Narrative also provides a sense of direction and temporality, orienting the reader, viewer, or citizen towards an understanding of place as "becoming" in a particular way. As a practice that grapples with the rapidly shifting terrains of home, citizenship, and community, migration is interlinked with storied spaces and the production of narratives that often challenge dominant stories of mobility. In this paper I explore the ways in which Jamaican migrants' narratives of mobility, home, and political activism provide new ways of understanding transnational relations and spaces. Through an examination of interviews conducted with members of the Jamaican diaspora in New York, London, Toronto, and Miami, I examine the means by which spatial stories provide a process through which identity and place are (re)located. In addition, I analyze the relationship between migration, narrative, and translation highlighting the ways in which these practices can reinforce, and challenge exclusionary practices. Both narrative and translation transform identity and place through ongoing transformations, displacements, and the interweaving of multiple lives, and as such offer important entryways for understanding the complexities of migration.

Keywords: identity, Caribbean-Jamaica, diaspora, migration, narrative

Tomasz Majek, BA, MA, Simon Fraser University. Email: tmajek@sfu.ca; Roger Hayter, PhD, Simon Fraser University. Email: hayter@sfu.ca; Factories as Hybridizing Institutions: The Transfer of Japanese Lean Production to Poland's Auto Industry

This paper examines the idea of branch plant hybridization especially with respect to the internationalization of the Japanese-based lean production model. Conceptually, hybridization is interpreted from the perspective of the theory of the evolutionary firm, as a key process in revealing how place and space shape firm evolution and internationalization. Empirically, the paper comparatively analyses four Japanese auto branch plants that have located in Poland. The analysis focuses on six dimensions of shop floor and factory management to assess the nature of hybridization. The four branch plants illustrate different types of hybrid behaviour with different consequences for corporate and local performance.

Keywords: lean production, DFI, Japanese, firm, automobile, Poland, hybrid

Claire Major, . Email: majorclaire@sympatico.ca; Vulnerable Labour: SARS and Toronto's Hospitality and Healthcare Workers

As care becomes commodified and assumes the characteristics of precarious work, it departs from the Standard Employment Relationship. It becomes affective labour associated with immaterial production, work typically performed by women and immigrants in the global city. In this paper, I examine how the 2003 outbreak of SARS impacted on nurses in hospitals and housekeepers in hotels, two racialized, immigrant, and gendered workforces who were subject to neoliberal efficiencies prior to SARS (in the case of healthcare) and in the hospitality industry restructured using SARS as the catalyst. This work is part of SARS and the Global City: Severe Acute Respiratory Syndrome (SARS) in Toronto, a project lead by S. Harris Ali and Roger Keil, funded by the Canadian Social Sciences and Humanities Research Council (SSHRC). Starting broadly with the characteristics of the Standard Employment Relationship (SER), I then discuss affective, immaterial, post-Fordist, non-SER labour as typically performed by gendered and racialized workers in Toronto. Using data gathered in interviews and focus groups with nurses, hotel workers, union representatives, and

associations, I incorporate the voices of immigrant and racialized women who were engaged with SARS and impacted through the disruption the outbreak had on their working and personal lives. "Standards", such as standard employment relationships, the regulation and standardization of healthcare delivery, and the cleaning of hotel to "brand standards", are foiled by the actual messy and complex experiences of social, economic, and corporeal risks that SARS exposed.

Keywords: SARS, Toronto, Labour, employment relationships / standards, hospitality, healthcare

Niall Majury, Queens University Belfast. Email: n.majury@qub.ac.uk; Making space for transparency: ideas, their encounter and the construction of markets

The concept of 'transparency' is a pervasive one within contemporary policy discourses on economic globalisation and the associated re-configuration of social and economic space. Yet its entry into the lexicon of securities regulation is relatively recent. It was not until the 1990s that the term became hitched by regulators to how markets were being transformed historically. New technical capacities offered the possibility of re-configuring concrete market formations as 'distributed transparency devices', becoming what they 'should be' in both legal and economic disciplinary understandings of them. This paper examines the discursive power of 'transparency' as a regulative principle and the insights to be gained from a relational understanding of the spaces in which the idea is encountered and translated in practical arrangements. It focuses on an initiative by Canadian securities regulators to make sense of developments in Canada and elsewhere associated with 'on-screen' trading. This culminated in proposals to re-configure the prevailing market architecture as a 'market for marketplaces'. Analysis of how 'transparency' is enacted suggests that as a strategy for the government of conduct (enabling exchange and rendering markets regulable), it signifies not so much the devolving of 'authority itself' through 'the market', as the emergence of new ecologies of knowledge formation and a more variable, multi-institutional form of economic regulation. The outcome is not the radical 'decentring' of authority that some have suggested, but rather particular forms of visibility, patterns of organisational significance and regulatory strategies whose geographies need to be delineated and better understood.

Keywords: finance, markets, governance

Yasuyo Makido, Michigan State University. Email: makidoya@msu.edu; Joseph P. Messina, PhD, Michigan State University. Email: jpm@msu.edu; Ashton Shortridge, PhD, Michigan State University. Email: ashton@msu.edu; Testing the randomness using sub-pixel land cover mapping

Mixed pixels remain one of the great challenges of land cover mapping from remotely sensed images. While much research has focused on attempting to identify the proportion of land cover types at sub-pixel scales, relatively little attention has been devoted to the spatial allocation of land cover types within a pixel. Atkinson introduced pixel-swapping algorithm for predicting sub-pixel land cover distribution for binary landscapes. This algorithm iteratively changed the spatial arrangement of sub-pixel values based on a distance weighted function (i.e., attractiveness, O_i) of each sub-pixel in order to maximize the spatial correlation between neighboring sub-pixels. By employing the notion of attractiveness, we created the simultaneous categorical swapping technique, which is applicable to multiple classes. Using a pseudo-random number generator (PRNGs), the algorithm randomly allocates class codes to sub-pixels. Then, the algorithm simultaneously examines all pairs of cell-class combinations within a pixel to determine the most appropriate pairs of sub-pixels to swap resulting in a predictably autocorrelated landscape. As PRNGs create deterministic approximations of random number sequences, and have inherent biases, we recreated the standard suite of PRNGs in a custom software implementation. We demonstrate the impact of PRNG type on the initial allocation and apply our simultaneous method to increase the degree of contiguity. The generated images are used to characterize to model the error distribution.

Keywords: Sub-pixel mapping, Random numbers, spatial analysis

Frances Malamud-Roam, Department of Geography, University of California. Email: fmalamud@eps.berkeley.edu; B. Lynn Ingram, Departments of Geography and Earth and Planetary Sciences, University of California, Berkeley. Email: ingram@eps.berkeley.edu; Karl P Malamud-Roam, Ph.D., Contra Costa Mosquito and Vector Control District. Email: kmr@cccmyd.net; Climate Variations Reflected in Changing Sediment Fluxes to Tidal Marshes of San Francisco Bay from Rivers Draining Regions in Northern and Southern California

This research has focused on changing fluxes of mineral sediments to tidal marshes surrounding San Pablo bay in the San Francisco Estuary from the three major source regions: the Sacramento river watershed, the San Joaquin river watershed and local streams that drain to San Pablo bay. Sediments are trans-

ported by river inflow, and variations in the fraction of sediments from any region relative to the others reflect changes in climate patterns over the state. A suite of 26 elements were measured in sediments collected from source rivers to characterize the potential end-member sources. Sediments were collected from marshes surrounding San Pablo Bay and cores were then collected from 4 tidal marshes. The pattern of sediment flux from the identified source end members has changed over time. Each marsh site reflects a large input from the watershed regions outside the Delta, but also a significant input from the local tributaries to San Pablo bay. Two longer cores, from Petaluma marsh and China Camp marsh, show that on long timescales, climate variability has impacts on the sediment fluxes to the Bay marshes. Of particular interest, the longer records reveal more variability between the two watershed regions draining the Sacramento and San Joaquin systems - an increase in some cores of 20%. An intriguing indication of overall decline in mineral sediments delivered to these marsh sites is apparent in the China Camp record occurring during the period of the Mediaeval Climate Anomaly, and an increase is apparent during the Little Ice Age.

Keywords: climate variability, sediment flux, trace elements, tidal marsh, California climate

Amber C. Malaney, . Email: ; Imperial Valley, California: *The study of a cross border region*

It is only ten miles from Imperial Valley College to the border with Baja California, Mexico. If you come to our campus you are more likely to hear students speak Spanish than English. This poster investigates language and other cultural issues of a southwestern border area.

Keywords: cultural geography, student poster

Edward Malecki, Ohio State University. Email: malecki.4@osu.edu; *China and India in the World Economy*

China and India are becoming more integrated into the world economy. These two countries, each with over 1 billion population, are engaging with the global economy in very different ways. China has become a major participant in nearly all manufacturing sectors, and is a growing contributor to scientific research. India's more limited world-class capabilities are focused in two sectors: information technology and pharmaceuticals/biotechnology. How these two countries evolve in their engagement with large corporations and the production networks in place will likely affect diplomacy and security policy. China and India are reacting to globalization, the role of transnational corporations, and global interdependence as embodied in the Internet from distinct perspectives that necessarily disrupt conventional views. This research systematically examines the place of China and India in two dimensions: first, in the technological activities of Indian and Chinese participation in production and research networks of global corporations and, second, in the connections of the two countries and their major cities to the global Internet. This project continues a long-term concern with shifts in the economic and technological power among the world's nations.

Keywords: China, India, technology

Jon C. Malinowski, U.S. Military Academy. Email: mal@usma.edu; *The Geography of Summer Camps*

Summer camping has been part of American youth development for over 120 years, growing from a handful of small programs to a multi-billion dollar industry. This presentation incorporates historical and recent industry data to examine modern spatial trends in the professional camping movement. The spatial distribution of residential and day camps will be explored, along with regional variations in camp costs, camper and staff demographics, and basic camp operations.

Keywords: youth, cultural geography, economic geography

Nick Malleon, University of Leeds. Email: N.Malleon06@leeds.ac.uk; *An Agent-Based Model of Burglary in Leeds*

Occurrences of crime are complex phenomenon. They are the result of a vast number of interrelated elements which can include environmental factors as well as complex human behaviours. Traditionally crime occurrences have been modelled using statistical techniques and computer models (such as spatial interaction modelling). Although such approaches are useful, they face difficulties with providing predictive analyses and the integration of behavioural information. Agent-based modelling is a new modelling paradigm and has spurred a considerable amount of interest. An agent is an independent component of a system which interacts with other agents and its environment. Thus large systems of agents can be created to mimic real scenarios. Most importantly, the agents can incorporate behavioural information to determine how they should achieve their goals. An accurate agent-based model which incorporates human behavioural factors and detailed environmental components could have a number of uses. Not only could it be used to analyse offender travel but also provide "what if" analyses, such as the effect that new environmental developments or

crime reduction initiatives might have on a local area before their implementation. This will have a significant impact on local councils, town planners and the police. Although simple, the agent-based model built for this project yields interesting results. It indicated that certain areas in Leeds have a much lower burglary rates than would be expected. It also demonstrates that agent-based modelling is an excellent tool for these types of analyses and should be extended further.

Keywords: agent, crime, behaviour

Katri Mallory, University of Maine Farmington. Email: katri.mallory@maine.edu; *There Goes The "T": Measuring The Connectivity Of Boston's Public Transportation*

In the 1820s public transportation became prominent in urban areas around the globe. In the northeastern coast of the United States, public transportation remains central to historical and contemporary urban areas. It influences the varied political economy of the cities as well as the spatial dynamics. However, there are persistent flaws within public transportation, disproportionate access being one of the foremost concerns. This research addresses the question of access by presenting an analysis of the frequency of spatial distribution of stops and scheduled times of bus, subway, and light rail lines in defined economically differentiated boundaries within contemporary Boston and adjacent suburban areas. The analysis explicates the spatial processes of access to public transportation with regard to economic indicators and connectivity, using the beta index.

Keywords: Keywords: public transportation, access, economic boundaries, Boston

Gunnar Malmberg, Umea University. Email: gunnar.malmberg@geography.umu.se; *Imaging an Attractive Countryside - on migration and place-making in South Sweden*

In focus of the study is the interaction between migration and place making in a rural area in southern Sweden; how and by whom the place is defined and imaged. The place-making process is analyzed on the basis of official data, text and images. The area in focus has been known to outsiders as a backward region, as a periphery in a modernisation space and as a unique rural idyll attracting the cultural elite. The story starts in the early part of the 20th century when urbanization accelerated in Sweden and the rural youth looked for income, education, amusement and modernity in towns and cities, while simultaneously the urban middle-class internalised new ideals of the rural idyll and started their "return" to the countryside. This return included the selection of exclusive and unique places in the countryside. The area of this study was one of the selected. It was renamed ("Österlen") and redefined by the cultural elite, especially the painters, and converted into a unique rural idyll, attracting tourist, second home owners and to some extent immigrants from the urban areas. But it has remained a region of out-migration, unemployment and low education level.

Keywords: Place-making, Migration, Sweden

Virginie Mamadouh, University of Amsterdam, The Netherlands. Email: v.d.mamadouh@uva.nl; *Establishing a Constitution for Europe while enlarging? Visions of Europe in the referenda campaigns in France and the Netherlands*

In referenda in France (May 29, 2005) and the Netherlands (June 1, 2005), citizens of these Member States rejected the EU Constitution and consequently blocked the ratification of the Treaty establishing a Constitution for Europe. This paper explores the public debate in these two countries to disclose how Europe is imagined and re-imagined in a period of rapid territorial and institutional changes (both enlargement and deepening). The paper compares the main issues raised in the debates and the arguments put forward by proponents and opponents. It focuses mainly on the way the 2004 enlargement and future eastwards enlargements (Bulgaria, Romania, Turkey, etc) were envisioned. Dissatisfaction with a lack of say in the enlargement process, fears related to the impact of the enlargements, combined with anxiety about the changing nature of the European project, often affected negatively opinions about the constitutional project. These findings are compared to polls data about the opinions of citizens about the institutional and the territorial shape of the European Union to assert whether the preoccupations of Dutch and French voters are representative for the preoccupations of citizens in Old Europe, defined either as the Six of Shumania, EU15, or according to Donald Rumsfeld.

Keywords: European Union, referenda, constitution, enlargement, France, the Netherlands

David Manahan, PhD, California State University, Sacramento. Email: dmanahan@csus.edu; *A Critical Pedagogy of Place: Rethinking the Teaching and Learning of Geography in Higher Education*

In our inter-connected world, geographic knowledge is vital to understanding the complex geo-political and economic relationships, increasingly problematic environmental issues, and inequalities prevalent in all human populations. In this

study, I evaluate the teaching and learning of geography in higher education on many fronts. First, I outline the need for a geographically literate public. Second, I demonstrate Americans' geographic illiteracy and apathy, and third, discuss and critique possible reasons: disconnected lifestyles, lack of geographic exposure and value, ineffectual classroom pedagogy, and disciplinary confusion. Fourth, I embed these reasons into scales of influence, from individual (folk pedagogies) to institutional (disciplinary culture) to societal (master narratives). And fifth, I address avenues of possible change based on the educational literature and the wishes of geographers, and focusing on institutional and societal shifts from the Teaching Paradigm to the Learning Paradigm. In four community college geography classrooms, I implemented a critical pedagogy of place (Gruenewald, 2003). Developed from place-based education and critical pedagogy, a critical pedagogy of place embraces progressive pedagogies, classroom democracy, community relations, and eco-social justice and equality. Through multiple qualitative and quantitative assessments, the students demonstrated increased conceptual learning and skills development, felt educationally and personally empowered, indicated an increased sense of geographic awareness and interest, more intimately connected to their communities, and generally enjoyed the learning process. These positive results support my notion that geographers should adopt a critical pedagogy of place as a theoretical and practical construct for the teaching and learning of geography in higher education.

Keywords: geography education, critical pedagogy of place, learning paradigm, higher education, action research

Jennifer L. Mandel, Ph.D., University of Wisconsin - Platteville. Email: mandelj@uwplatt.edu; *Women's Empowerment & Spatial Mobility in Porto Novo, Benin*

According to Lourdes Beneria globalization has produced two parallel processes feminization of the labor force and feminization of poverty. The result for women is that they have a greater number of and a myriad of different income generating opportunities, but also often more financial responsibilities. Not all women are equally impacted, however. We need to understand better what processes produce these differential patterns in women's livelihood experiences because this knowledge may point the way to assisting those who are only surviving at present. In this paper I will show that while many frequently inter-related factors shape women's livelihood opportunities including: reproductive responsibilities, access to capital, education, etc., another often under-explored issue is spatial mobility. I argue that increased spatial mobility substantially increases women's opportunities for creating profitable livelihood strategies.

Keywords: Gender, Africa,

Bertie Mandelblatt, Royal Holloway, University of London. Email: b.r.mandelblatt@rhul.ac.uk; "Two and a half pots of manioc flour, or three cassavas": the Code noir, the consumption of slaves and slaves' consumption in the ancien régime French Atlantic"

This paper investigates the conflict between the embodied practices of slaves' food consumption, and their personal commodification in the plantation societies of the French Caribbean. Placing slaves at the centre of the history of sugar, and of the French Atlantic, shifts attention to the massive labour force on which sugar, and the French new world societies that grew up around it, depended. Placing slaves' food practices at the centre of their own history means reconceptualizing them as consuming bodies, underscoring the conflict that this presented to their dehumanisation as slaves. This paper focuses on the Code noir, the Louis XIV's 1685 edict that regulated slavery in the French colonies in the Americas, and how food consumption figures in its legal framework. The Code outlines the precise parameters of the objectification of slaves. However, several of these articles claim to treat the duty of slave-owners towards their slaves in terms of food: stipulating minimum food requirements that slave-owners were to provide, the legal recourse slaves had in cases of non-compliance, etc. After historically contextualizing the Code noir, this paper studies these articles and considers their implications for a sustained study of slaves' food consumption. The Code noir is useful because it sets out the larger cultural patterns - the place of individual foodstuffs (manioc, salt beef), and the role of markets and provision grounds? within the contradictory context of slave as consumer/slave as commodity. These contradictions signal the ways studying consumption can lead to new historical geographies of the Atlantic world.

Keywords: French Atlantic, consumption, slavery, material culture, food studies, Code Noir

Tina Mangieri, University of North Carolina at Chapel Hill. Email: mangieri@unc.edu; *Fashioning faith in a transnational city*

The mutability of East African coastal identity has a long literature, emphasizing variable moments in which African, Arab, Swahili, or other salient category is declared or debased given current local conditions. Based on fieldwork conducted in Mombasa, Kenya in 2004 and 2006, this paper explores the myriad ways in which these fluid identities are fleetingly "fixed" by apparel, while

attentive to economic and cultural links making these appearances possible. Changes in coastal dress, particularly a shift away from public consumption of "local" cloth among Swahili women and the increasing presence of veiling, are noticeable in both observation of city streets and in an examination of recent manufacturing and trade data. With the end of domestic textile and apparel production for local consumption in Kenya, new patterns are emerging for the importation of clothes. While a woman's choice to veil (or not) is partly implicated in these recent changes, a focus on the clothing of Swahili men offers an alternative entrée into discussions of local issues of identity as these articulate with global forces. Swahili men's public clothing is less proscribed than women, giving their daily choice of dress wider berth. Socio-spatial constructions of identities as "Islamic," "African," "Western," evidenced by the decisions Swahili men make in their everyday appearance, highlight that clothing perceived in these terms is neither "fixed" nor the same in East Africa, the Middle East, nor elsewhere in the world.

Keywords: identity, transnationalism, Islam, Africa

Leah D. Manos, Northwest Missouri State University. Email: lmanos@nwmissouri.edu; *A Case Study on Role-Playing Exercises in Geographic Education*

Role-playing is a widely-recognized teaching technique. Working through role-playing scenarios can help students develop critical analytical skills, inspire creative problem solving, and give students experience in negotiating acceptable outcomes. In this paper I will compare the results of two separate semester-long role-playing exercises I have used in my 2006 and 2007 undergraduate urban geography courses. In each case the same scenario was used. My methodology is qualitative, and includes classroom observations, analysis of students' written and oral work, and assessment results. Assessment goals are to gauge students' success in mastering factual material, basic concepts of urban geography, competence in presenting information in oral and written form, and demonstration of ability to work effectively in small and large groups. This paper will include a discussion of aspects of the role-playing exercises which worked successfully and those that did not, and will conclude with suggestions for designing and using such exercises.

Keywords: geographic education, educational techniques, urban

Becky Mansfield, Ohio State University. Email: mansfield.32@osu.edu; *The Social Nature of Natural Childbirth*

This talk argues that "natural" childbirth (birth without medical intervention) is a "social" model of birth. It also suggests that perspectives from nature-society relations should augment the focus on place and space in critical health geographies. The argument draws from my analysis of books for women considering natural childbirth. Authors commonly use nature-oriented words such as "trust" and "instinct," yet they also emphasize that "instinct" needs very social support to make it happen. My findings are that natural childbirth requires active learning, physical and emotional preparation, and social support beforehand; requires the woman and her caregivers to perform a variety of activities during labor; and requires the proper physical and emotional environment. That is, natural childbirth replaces medical intervention with other social practices. The significance of this is that the socio-natural character of natural childbirth provides an alternative interpretation of problems in childbirth. From both medical and purely natural perspectives, problems in childbirth are the fault of women and their bodies (i.e. women's nature). But if childbirth is a socio-natural relation, problems may be because the social practice is not perfect; even when attempting natural childbirth, women may not have everything they need to succeed. Seeing natural childbirth through this nature-society lens highlights that natural childbirth is not just a nostalgic attempt to "return" to nature, but is a political movement that challenges the medical model of birth by developing social practices that treat women as active, strong, and trustworthy.

Keywords: gender, nature-society relations, health geography

Ginger S Mansfield, University of Oregon. Email: gmansfie@uoregon.edu; *Canadians Among Us: Brain-Drain Immigration, Whiteness, and Identity in the Twin Cities Urban Area*

This paper discusses the migration of Canadians to the United States, concentrating on post-NAFTA migrants in the Twin Cities metro region in Minnesota. There are more than 8500 documented Canadians living in this area, though little research has been conducted by geographers on their settlement patterns or on the political processes that influence their migration. In this paper I explore the economic and political forces that drive the migration of Canadians to the United States, specifically how NAFTA has contributed to the brain-drain of highly-skilled, top-wage earning immigrants. Additionally, I question whether 'normalized whiteness' in Canada has influenced settlement patterns in the United States and the Canadian migration experience in general. Writing by geographers and other scholars on the issue of normalized whiteness will further inform this research (Kobayashi, 1993; Peake and Ray, 2001, and others). Questionnaire responses and informal interviews from the Canada Day picnic

held in Bloomington, MN in July, 2006, will shed light on the migration experience of Canadians living in the Twin Cities.

Keywords: Migration, Canadians, Identity, United States

Steven M. Manson, University of Minnesota. Email: manson@umn.edu; Tom Swanson, University of Minnesota. Email: swans990@umn.edu; Shipeng Sun, University of Minnesota. Email: sunx0170@umn.edu; Linking Complex Models to Simple GIS or Simple Models to Complex GIS?

Geographic complexity - the explicit integration of complexity research with space and place ? increasingly leads practioners to combine Geographic Information Systems (GIS) with complex modeling approaches such as agent-based models, cellular automata, or neural networks. Integrating GIS with complex models touches on both emerging and longstanding areas of inquiry: the role of open source verses proprietary software, semantic interoperability, high performance computing, loose versus tight coupling, and the simultaneous treatment of spatial and temporal dynamics. We present several case studies on these issues based on linking agent-based models to GIS to model land change.

Keywords: geographic complexity, GIS, model coupling

Anna Mansson McGinty, University of Wisconsin-Milwaukee. Email: mansson@uwm.edu; Alternative Femininities and Sisterhoods among Muslim Women. Ethnographic Approaches to Gender and Identity

Departing from two different ethnographic studies, the paper will focus on the emergence of alternative femininities and "sisterhoods" as well as the various gender discourses that Muslim women draw on in their identity formation. In a just finished long-term project on Swedish and American women who have converted to Islam I analyze the particular meaning they assign to Islam and the seemingly irreconcilable "Muslim" and "Western" discourses on gender that they appropriate as Swedish Muslim women and American Muslim women, respectively. In a current project on Muslim sisterhood, drawing on extensive personal interviews with Muslim women and participant observations within a Muslim women organization in an American mid-Western city, I study the notions of "sisterhood" that emerge in women-only activities and the various gendered identities that are constructed through the personal space fashioned by the hijab. There is an increasing body of literature on Islamic feminism and discourse analysis of the feminist rereading of Islamic scriptures, but fewer are the studies that take a look at how these feminist interpretations are implemented in Muslim women's everyday life and identity-making. The argument of the paper is that by looking at the personal meaning assigned to various discourses on gender and to the highly disputed hijab we can gain a better understanding of cultural change and continuity, in this case regarding gender roles and relations among Muslim women in the West.

Keywords: muslim women, identity formation, islam in the west

Maya Manzi, Clark University. Email: mamanzi@clarku.edu; A Political Ecology Perspective on Beekeeping: The Case of Honey Gathering in the Community of Arica Viejo, Peruvian Amazon.

For thousands of years honey gathering has been practiced by indigenous communities in many different parts of the world. Environmental change and market integration have fostered in some cases, a process of honey bee domestication, and in others, a resurgence, intensification, or re-adaptation of indigenous apiculture. Studies on community-based natural resource-use management have often overlooked the contribution of beekeeping to poverty alleviation and environmental conservation. This study is based on qualitative and quantitative data gathered through in-depth household interviews (n=40) conducted in 2001, 2003, and 2005, in the community of Arica Viejo, located along the Ucayali River, Peruvian Amazon. Comparison between our case study results and other studies on community beekeeping reveals some important environmental, socioeconomic, and political implications of beekeeping as a commercial livelihood practice among resource-dependent communities. Promises and challenges of beekeeping in lowland Amazonian environments are also discussed.

Keywords: human/environment interaction, sustainable rural livelihoods, honey-gathering, apiculture, community-based resource management, Peruvian Amazon, Latin America

Liang Mao, SUNY - Buffalo. Email: liangmao@buffalo.edu; Ling Bian, SUNY-Buffalo. Email: lbian@buffalo.edu; Intervention strategies in an individual-based spatially explicit model of epidemiology

The spread of disease within a population is an intrinsic spatio-temporal process. Few intervention strategies have explicitly taken this into consideration. In this proposed study, we use the individual-based spatially explicit model to represent spatial heterogeneity in the disease transmission, and explore its effects on intervention strategies. In this model, the discrete individuals, their interactions and mobility are formulized in a network specified by six parameters. These parameters describe the properties of individuals, the properties of links, and the

topology of the network. By adjusting these parameters, several intervention strategies are defined in terms of different targeted populations or social networks. Each intervention scenario is then introduced into the model and simulated to evaluate its efficacy of achieving herd immunity. The impacts of spatio-temporal heterogeneity on intervention efficacy are discussed by comparison. These results provide insights for real-world intervention design and public policy making.

Keywords: intervention, individual based modeling, spatial heterogeneity, communicable diseases

Hanna Maoh, Dr., McMaster University. Email: maohhf@mcmaster.ca; Pavlos Kanaroglou, Dr., McMaster University. Email: pavlos@mcmaster.ca; Hejun Kang, PhD Candidate, McMaster University. Email: kangh3@mcmaster.ca; A New Approach to Modeling the Spatial Distribution of Population Using Public Data from the Canadian Census: An Application to Halifax, Nova Scotia

This paper reports on the development of a demographic model that is part of a simulation model designed to evaluate the interactions between the land use and transportation systems in the CMA of Halifax, Nova Scotia. The devised framework makes use of two components: the Rogers multi-regional population projection model and the multinomial logit (MNL) model. The former uses age and sex-specific vital statistics on fertility, mortality and inter-regional migration to project the progression of population in 8 geographic areas including the CMA of Halifax. Following the classification scheme of the census data, census tract population is modeled as a composite of two population groups that include non-movers and movers. Non-movers are people who survived and remained at the same residence over 5-years time period. Movers, on the other hand, comprise four population subgroups that include intra-urban movers, intra-provincial movers, inter-provincial movers and external migrants. A binomial logit model is estimated to determine the number of non-movers in each census tract. Such information is aggregated to the CMA level and combined with the outcome from the Rogers model to determine the total number of movers. Those are then distributed to census tracts using a destination choice MNL model. Census tract data are used to formulate the explanatory variables of the described logit models. Besides using a multiregional population projection model, a major innovation of the proposed framework is its reliance on publicly available data to explain the mobility behavior of people and to perform small area population projections.

Keywords: Halifax, demography, mobility, migration, Rogers model, logit model

Jennifer Mapes, University of Southern California. Email: jmapes@usc.edu; Jennifer Wolch, University of Southern California. Email: wolch@usc.edu; Exploring 'sustainable' new communities

There is increasing recognition that urban sprawl is harmful to America's natural environment and its socio-economic fabric. But short of prohibiting growth all together, what can be done to prevent further degradation? Among proposed "solutions" to sprawl include concepts of smart growth and sustainability. Some developers are now seeking to incorporate notions of sustainability into their designs for new communities. In this paper, we examine the successes and failures of developments that have won awards for their sustainable or smart growth achievements. We describe the broad range of characteristics of these communities and consider their ability to address multiple scales of sustainability, as well as their attention to a broad range of sustainable practices ? environmental, social, and economic. Our analysis suggests that while a few of these communities have made great strides in moving toward theoretical goals of sustainability, many developments focus on creating a marketable community rather than one that provides for a sustainable future.

Keywords: sprawl, sustainability, planned communities

Elodie Marandet, Brunel University. Email: elodie.marandet@brunel.ac.uk; Susan Buckingham, Brunel University. Email: susan.buckingham@brunel.ac.uk; Fiona Smith, Dr, Brunel University. Email: Fiona.Smith@brunel.ac.uk; Emma Wainwright, Dr, Brunel University. Email: Emma.Wainwright@brunel.ac.uk; Skilling down/training up: women migrants' experiences of and participation in the neo-liberal learning market in West London

In recent years, the UK Government has increasingly stressed the role of lifelong learning in eradicating social exclusion and improving the productivity and skills base of the country. Further, with a clear neo-liberal rationale that emphasises waged work as both a civic duty and a necessity for various social entitlements, groups of unemployed individuals are being offered (re)training to make them 'work-ready' and to 'encourage' them to take responsibility for themselves and their families. Women with low qualifications have been particularly targeted for training and work in the low paid- and feminised care sector. Our research in West London shows that many migrant women, some of whom have high levels of education and qualifications in their countries of origin,

have also been attracted to these types of courses. Drawing on focus groups which explored women's attitudes towards and access to training, we argue that whilst the current UK Government's training policy encourages immigrant women to fill in the skills gap in the care sector, notably in childcare, many of these women resist such stereotyping in both the career trajectories they envisage for themselves, and the motivations they have for undertaking training in these areas. The paper, therefore, examines how these women negotiate the British neo-liberal learning market and the norms pertaining to their gendered and racialised identities. It also attempts to shed light on how they manage the relationship between productive and reproductive roles (Kofman and Raghuram, 2006; Zontini, 2004), work and training, past experiences and future careers.

Keywords: training, gender, migrants

Anthony Marca, University of California, Santa Barbara. Email: marca@geog.ucsb.edu; On Surfari: Surf Tourism Flows from California

Growing research on surfing tourism reflects the rise in global popularity of surfing and the emergence of a commercial industry that caters to a niche market of travelers. Various surfing tourist typologies, tourism management techniques, and environmental impacts on surf destinations have been identified in previous studies, yet the spatial patterns of surfing trips have not been investigated. As part of a Master's thesis in geography, I collected data on surf trips taken by California surfers in 2005 using an internet-based questionnaire. Results from a descriptive analysis of surf trip distances suggest that distance decay influences the majority of surfing trips; however, some prominent surf destinations have enough attractive power to interrupt the theoretical decay curve, as illustrated by secondary modes at distances corresponding to Hawaii and Costa Rica. Flow maps reveal consistent directional flows of California surf tourists, with some minor seasonal shifts. Surf trips originating in California generally remain in the Pacific Rim and are focused within California and along the Baja peninsula. During spring and summer months, when swells decrease in the northern hemisphere, the number of visits to destinations in the southern hemisphere increased.

Keywords: surfing, tourism, flow maps, distance decay

Michael J. Marchman, University of Kentucky. Email: marchman@uky.edu; Driven to the margins: neoliberalism, taxi drivers, and tourism in the Caribbean

Taxi drivers working in the tourism industry in St. Lucia, West Indies, are struggling to survive economically and to maintain their status as independent, self-employed workers. As the tourism industry has grown, the government of St. Lucia has adopted (sometimes grudgingly) neoliberal reforms aimed at meeting the demands of transnational capital and economic and political changes associated with the anticipated creation of the Free Trade Area of the Americas. In the process, the tourism-taxi sector, which was traditionally structured around associations and cooperatives of self-employed taxi drivers, has come under increasing threat from multinational tour operators, cruise ship lines, and local destination management companies. These challenges pose serious threats to the ability of tourism-taxi drivers to continue to earn livelihoods through taxi work and to retain their position as self-employed entrepreneurs. Taxi drivers are increasingly forced into competition with a growing number of private companies attempting to capture ever-increasing shares of the market and generating intense competition among taxi drivers. This paper examines these processes of change and the ways taxi drivers are responding to them on individual and collective bases.

Keywords: neoliberalism, economic, tourism, taxis, Caribbean

Alan P. Marcus, Ph.D. Candidate (ABD), University of Massachusetts, Amherst. Email: amarcus@geo.umass.edu; Debunking Pan-Latinamericanisms: The "Hispanic/Latino" Category. Brazilian Immigrants and (another) American Ethnic Dilemma

The increasing visibility of the terms Hispanic and Latino has (re)produced a monolithic Spanish-speaking and racialized framework for understanding populations from the geographical realm named Latin America. As all categories stem from socially constructed ideas, I interrogate the transformation of the terms Hispanic/Latino into a powerful "reality" within the United States at the cost of Brazilian immigrant invisibility and the misappropriation of a multi-dimensional geographical realm. This interrogation process is an integral part of this paper. For example, the U.S. Census does not consider Brazilians to be Hispanic (as of 1980) or Latinos (as of 2000), and yet within both English and Spanish-speaking intellectual and public discourses, the two terms are used loosely to ascribe populations from Latin America. I draw on previous studies on Brazilian immigration to the US and on preliminary research conducted by the author in Framingham, MA. I call for more attention to the lack of discussions within social spheres (public, popular, and intellectual discourses) of Brazilian national/cultural identity. Ramifications include methodological and epistemological flaws and confusion within intellectual, political, and public discourses that address all things that pertain to Latin America or that include the terms:

"Hispanic/Latino".

Keywords: Brazilian immigration, identity, borders, ethnic geography, latin america

Isabelle A. Maret, Ph.D., University of New Orleans. Email: isathomas45@hotmail.com; Vulnerability and risk: Can we rebuild a safer New Orleans?

Since the 1992 Kyoto conference, urban vulnerability has become a global concern. As climate change due to human activity increases the rate of potential natural disasters, numerous studies have begun to focus on urban vulnerability. A decade-long reflection led urban researchers to identify risks, to analyze their causes and to advance some comprehensive solutions. Disasters or disruptions are no longer conceived as acts of God or haphazard events but as the results of human activity. In many cases, urban planners question land use in order to understand how the city dwellers' social and geographical distribution interacts with disasters. Over the past few years, several hurricanes have struck American cities and the costs due to the disasters have risen dramatically. Though these losses could be ascribed to the ever more expensive infrastructures, this view point would elude the true problem: urban sprawl in America entailed people to dwell in hazardous areas. Even though, they are shielded by protection systems, these can be deficient as in New Orleans. Hurricanes Katrina brought about the biggest natural disaster ever occurred in an American city. This presentation will examine the relationship between the New Orleans's urban growth patterns since the 1920's, and the city's increased vulnerability. It will present the spatial landscape of the devastation due to Hurricane Katrina. At last it will scrutinize the different rebuilding strategies and their impact on the revival speed of the neighborhoods. New Orleans' recovery may be an opportunity to find a better way in urban development.

Keywords: Urban vulnerability, sustainable development, New Orleans, GIS

Florence Margai, Ph.D., Binghamton University-SUNY. Email: margai@binghamton.edu; Malaria Morbidity and Treatment Seeking Patterns in Depressed Communities

Malaria continues to be a prevalent parasitic disease that threatens the lives of over 500 million Africans each year. An additional 100 million people live in epidemic-prone areas with limited immunity and greater risks for deaths and disabilities when outbreaks occur. This study examines the prevalence rates of malaria and the modes of treatment utilized by residents in the Kroo Bay Community in Freetown, Sierra Leone. This community was selected because of elevated risks, high poverty rates, and limited access to health services. Also, residents in this community underwent traumatic experiences during the brutal civil war (1991-2002) in Sierra Leone. Using data obtained from 780 subjects in 2006, this paper i) examines the level of awareness of malaria prevalence, knowledge and use of cheaper treatment alternatives; ii) examines ways to improve access to these drug alternatives; and iii) analyzes the efficacy, costs/benefits of using complementary and alternative treatment therapies. The results provide meaningful information for the spatial characterization of community risk profiles and the development of interventive programs aimed at reducing the disease burden.

Keywords: Health, Malaria, Sierra Leone,

Ananthakrishna Maringanti, University of Minnesota - Minneapolis. Email: marin013@umn.edu; Clean cities, messy politics: Geographies of evictions in India

Since the mid 1990s, as part of its economic reforms, the Government of India has pursued an aggressive policy mix that simultaneously accords nominal autonomy to local state institutions and forces them to access finances from capital markets for urban development. In this context, local state institutions have been increasingly resorting to revenue increasing measures through selling, leasing, or converting Government owned land into equity in public-private partnership ventures. This shift in the government's role vis a vis land - from custodian to entrepreneur - relies on regularizing land records, settling sociospatial claims rooted in local histories in favor of a universal property regime based on clear titles and digital maps, and producing clean and green cities. A number of housing rights campaigns in India have documented the violence that this shift wreaks on women, children and older people by evicting existing informal settlements. Based on collaborative work with a housing rights campaign in Hyderabad, India this paper first explores the different strategies of resistance and accommodation adopted by Housing Rights campaigns in India. Based on this exploration, it will then explain why formal rights discourses have a mixed success in bringing onto the agenda of clean cities, the very messy claims arising from particular meanings of home, labor, household, community and self help that underpin informal settlements

Keywords: Informal settlements, housing rights, landownership, urban renewal, India

Bernadette M Marion, The Florida State University. Email: berniemarion@gmail.com; Mark W Horner, PhD, The Florida State University. Email: mhorner@fsu.edu; *Extending the Dissimilarity Index to Measure Jobs-Housing Balance*

The classical dissimilarity index is an enduring measure of segregation that is readily understandable and applicable to a range of comparative ecological analyses. Recent enhancements made by geographers have extended the explanatory power of the index to incorporate more explicit elements of spatiality. One-overlooked potential applications area of the index is that of measuring urban jobs-housing balance. In this modeling exercise, we further extend the potential spatiality of the dissimilarity index by incorporating distance-decay concepts found in the accessibility literature in order to produce an effective measure of jobs-housing balance. Furthermore, we add functionality to the spatial measure by addressing the uniformity of segregation with a complementary global measure. Our technique examines the proportion of zones that demonstrate mismatched accessibilities to two population groups given a fixed value of dissimilarity. The developed measure complements the dissimilarity index-based analyses by evaluating the intensity of dissimilarity in a given proportion of zones. The indices are tested on a multi-city database of 26 U.S. metropolitan areas. Theoretical properties of the indices and empirical results provide evidence of their utility for measuring jobs-housing balance.

Keywords: Dissimilarity Index, Segregation Measures, Jobs-Housing Balance

Bryan G. Mark, Department of Geography, The Ohio State University. Email: mark.9@osu.edu; *Assessing climate forcing of recent and late-Pleistocene Andean glacier volume changes: from heuristic analyses to inverse modeling*

Tropical Andean glaciers are highly sensitive to climate changes over different temporal and spatial scales. Recent and ongoing recession has important implication for hydrological resources, while accurate understanding of the timing and nature of past tropical glacial advances is a crucial source of paleoclimatic information for the validation and comparison of global climate models. Both direct observations of recent glacier volume recession and reconstructions from late-glacial moraines in Perú have been used to test hypotheses about how these ice volumes respond to climatic forcing. Important insights are gained as the changes to ice mass (not just area) are derived and evaluated in specific topographic contexts. Examples are provided from two studies on different time scales in the Queshque massif of the southern Cordillera Blanca, Perú: (1) a heuristic analysis of the spatial variability of late 20th century glacier recession; (2) a reconstruction of late-Pleistocene paleoglacier volumes using a coupled mass-energy balance and ice flow model.

Keywords: Andes, mountain glaciers, climate change

David M. Mark, Geography, University at Buffalo. Email: dmark@buffalo.edu; Jin-kyu Jung, Geography, University at Buffalo. Email: jjung4@buffalo.edu; *Using Qualitative and Mixed Methods to Represent Information About Indigenous Geographic Concepts*

The Yindjibarndi people of northwestern Australia and Diné (Navajo) of New Mexico and Arizona live in similar semi-arid or desert environments, yet have very different languages and histories. How similar are the concepts that underlie the landscape terminology of these languages? Project researchers have conducted ethnographic field interviews, photo-response focus group, and ethnophotography protocols in the two areas. We also have quantitative GPS coordinates, and have used GPS and GIS data to integrate qualitative and quantitative information from a variety of sources. Particular research methods were developed and extended on each visit to the field, without much thought for how the observations might be analyzed. More than 40 hours of audio and many thousands of digital photographs presented a daunting interpretation challenge. It became clear that mixed methods, and especially Computer-Assisted Qualitative Data Analysis Software (CAQDAS) could help filter this information and see connections that might otherwise be missed. Using both ATLAS.ti and ArcGIS together to combine qualitative and quantitative data helps us to organize and analyze many varieties of data such as text, graphics, audio, and visual data files. The software can show the relationship among all of these data types. Although the main goals and paradigm of the research project are cognitive and scientific, mixed methods are providing a unique opportunity to link various types of qualitative information with geo-locational data. Results appear to provide insights into Indigenous geographic concepts that can help elucidate human relations to landscape and provide foundations to support Indigenous Geographic Knowledge Systems.

Keywords: GIS, qualitative methods, mixed methods, indigenous knowledge

Brian Marks, University of Arizona. Email: bmarks1@email.arizona.edu; *Cajun Rice in an Atlantic World*

African slaves brought the farming of rice to Louisiana in the early 18th Century. It thence hybridized into new, diverse forms by later adopters of this agrarian tradition. Louisiana rice farming is historically rooted in French colonial slavery and in subsistence production by Cajun, Native American, and African-American smallholders in the 18th, 19th and early 20th Centuries. Judith Carney's work on West African contributions to rice farming in South Carolina and Brazil demonstrates the important role of enslaved people as possessors of sophisticated agronomic knowledge and technology, not only labor, in the agricultural history of the Americas. Louisiana is a consequential case for applying Carney's findings about rice in the Americas. The work of Gwendolyn Midlo Hall and others provides a considerable literature on the slave trade. This work shows most Louisiana slaves came initially from the Senegambian interior. Numerous detailed historical descriptions of rice production landscapes exist, many by LSU geographers trained in the Sauerian tradition. Their thick descriptions, interpreted in the context of Atlantic basin exchanges, rework discrete cultural ecologies into a transcontinental historical political ecology of diaspora. Historical Louisiana rice farming bears strong resemblances to the floodplain and flood recession rice agriculture of the Inner Niger delta and its hinterlands where many enslaved Louisianians came from. The subaltern peoples of South Louisiana share a tradition of subsistence rice farming. Their differences in farming styles, rice processing technology, and cuisines show how this common African inheritance was negotiated with their pre-existent material cultural practices.

Keywords: Louisiana, West Africa, rice, historical political ecology

Ann Markusen, University of Minnesota. Email: markusen@umn.edu; *Consumption-Driven Regional Development*

Economic geographers generally hold an export base theory of growth and development, positing that the size of a local economy is constrained by the size of its economic base, i.e. its ability to export output to other regions. Import substitution has largely been rejected as a significant phenomenon. In this paper, I offer a consumption base theory of regional development, arguing that changes in consumption patterns can affect the number and quality of jobs in an economy. Such changes can be either secular in nature or policy-amenable. A model of consumption base change is constructed. As evidence of the significance of the consumption base, I show that nearly 80% of job growth in major metropolitan areas in the past twenty years has taken place in the residentiary sector. I also re-interpret the body of empirical studies on export base regional growth to suggest that the long-observed tendency for the size of the multiplier to increase with size of regional economy may be a result of shifts in consumption rather than simply economies of scale in the production of residentiary goods and services. I also address the body of work on amenities and regional development, noting that regional growth is in part a function of attracting footloose workers who are drawn to regions (or leave them) because of consumption preferences. I then use the case of cultural planning and policy to explore how different US cities and regions have used consumption as a job creation and development strategy.

Keywords: regional development, consumption, jobs, culture

Scott H. Markwith, University of Georgia, Geography Department. Email: markwith@uga.edu; Michael J. Scanlon, Cornell University, Department of Plant Biology. Email: mjs298@cornell.edu; *Multi-Scale Analysis of Hymenocallis coronaria Genetic Diversity, Genetic Structure, and Gene Movement Under the Influence of Unidirectional Stream Flow*

Understanding gene movement in unidirectional flow environments and its effect on genetic diversity and genetic structure is necessary for management of human manipulation of these systems, whether the impact is population extinction, gene flow barriers in the form of dams, or reintroduction programs. Application of hypotheses and models to explain patterns of genetic diversity, structure, and gene flow is rare and results are inconsistent in the riverine macrophyte literature. This study addresses Ritland's unidirectional diversity hypothesis, the one-dimensional stepping stone model, and metapopulation model at the within and among population scales. *Hymenocallis coronaria*, an aquatic macrophyte inhabiting rocky river shoals of the southeastern U.S., was sampled in the Cahaba, Flint, Savannah, and Catawba River basins. Significant isolation-by-distance within populations and among populations

This paper analyzes the trajectory of the twenty years of the Movimento dos Trabalhadores Rurais Sem Terra (MST or Landless Rural Workers' Movement), the main social movement engaged in the struggle for land in Brazil. It presents a series of arguments to demonstrate the relevance and the meanings of this struggle in the present time, based on statistical data, bibliographic reference as well as long direct research on social movements and the agrarian question in Brazil. It deals with the socio-economic and political context of the MST's formation and the major changes evidenced in this scenario in the past two

decades. It identifies the major processes that contribute to the recent re-emergence of the struggle for land and the new social actors involved in that struggle. It analyzes the positions adopted by the MST and its achievements at different points of the recent national political developments in order to highlight the MST's project and assumed political identities. One of the MST main conquests is to have placed land reform in the national political agenda, impacting our political culture. But this social movement has also carried out expressive actions in other fronts. The expansion of agribusiness and the power of destruction presented by it in the countryside vis-à-vis other forms of production and natural resources are responsible for a convergence between peasant resistance and environmental critique. The MST becomes aware of the existent convergence between its struggle and the struggles of indigenous peoples and traditional populations, linking itself to anti-globalization struggles.

Keywords: Brazil, Landless Rural Workers' Movement, struggle for land, accumulation by dispossession, social movement, social identity

Paul G. Marr, Shippensburg University. Email: pgmarr@ship.edu; *The King's Highway to Lancaster: A graph-theory analysis of colonial Pennsylvania's road network.*

William Scull's 1770 map of Pennsylvania is of interest to historic transport researchers due to the attention to detail in his representation of the landscape. In particular, major roadways and river crossings were drawn with remarkable detail and accuracy. This map was used as the primary data source for graph analyses in an attempt to reconstruct the transport landscape of colonial Pennsylvania. Although poorly located with respect to water transport, Lancaster was well situated relative to the colonial road system. As Philadelphia extended its hinterlands westward, Lancaster became a major inland entrepôt. From its position just east of the Susquehanna, Lancaster provided easy access to both the Cumberland valley via Harris' ferry and to the York plain via Wright's ferry. In this position it was located within the region of highest connectivity?meaning it was located such that it could take advantage of the road infrastructure, and within the region of highest accessibility?meaning it was in a location which minimized the distance to all other locations. The expansion of the road network westward, the attendant increase in the size of its hinterland, and Lancaster's role as inland entrepôt gave Philadelphia the means to secure its position as colonial America's most important mercantile city, a position it held until supplanted by New York at the beginning of the 19th century.

Keywords: Colonial Pennsylvania, graph analysis, transport geography

Melissa Marschke, Ph.D., York Center for Asian Research, York University. Email: marschke@yorku.ca; *Livelihood realities: an investigation into the disconnect between resource policy and rural life within Cambodian fishing communities*

In Cambodia, as is the trend throughout Southeast Asia, regulation and management over livelihoods and resources has significantly intensified. Such regulation is found in decentralization programs, coastal resource management programs, land titling and with donor conditionalities. Although the essence of decentralization and many donor programs such as community-based resource management are 'bottom-up' forms of decision-making or influence, little consideration is given as to whether such programs actually enhance rural life. Perhaps a disconnect exists between current policy and the ever changing economic, political and social processes that shape coastal livelihoods? This paper sets out to explore livelihoods in coastal Cambodia, and then examine if the national policy context adequately addresses the 'reality' of rural life. The paper begins by presenting a brief sketch of livelihoods in several fishing villages, with particular attention to diversification and migration strategies. Initial analysis suggests that the outcome of the current policy context related to resource issues results in resource protection measures rather than considering livelihood enhancement options or addressing pressing migration issues. This paper will then explore some of the reasons for this conservation emphasis and consider options that may better support coastal livelihoods.

Keywords: Cambodia, livelihood, coastal, political ecology

Terry Marsden, Cardiff University School of City & Regional Planning. Email: marsdentk@cardiff.ac.uk; Samartha Thankappan, Centre for Business Relationships, Accountability and Society (BRASS) Cardiff University. Email: Thankappans@cardiff.ac.uk; *Dealing with Complexity and Contingency in the Geographies of Agri-food : from food regimes to sustainable food chains?*

Abstract of Paper for 'Critical Geographies of Food: theory and Practice' Terry Marsden and Samartha Thankappan School of City and Regional Planning and Centre for Business Relationships, Accountability and Society (BRASS) Cardiff University. Title: Dealing with Complexity and Contingency in the Geographies of Agri-food : from food regimes to sustainable food chains? With reference to recent evidence collected concerning public, private and consumer organisations the paper considers the new regulatory frameworks and relation-

ships which are developing at global and regional levels. In particular it sets out three major sets of dynamics and tensions associated with: private (corporate) and state and civil interests; economic globalisation and ecological re-localisation; and the competitive and contingent relationships between 'conventional' and 'alternative' forms of food innovation. Having outlined some of the key regulatory changes at global and regional levels, the paper will then address what these new forms of institutional complexity and contingency mean for different agri-food spaces at regional and local levels. This suggests the need to examine both new pressures facing agri-food systems and to do so by considering new socio-ecological processes through which particular spaces and scales become re-defined. The paper examines some evidence from China and Brazil in this regard- two regions where these tensions are at their most intense. In conclusion the paper will propose a revised conceptualisation of complex and contingent agri-food which attempts to link theory with practice.

Keywords: Agri-food, sustainable food chains,

Meredith Marsh, University of California, Santa Barbara. Email: merimarsh@yahoo.com; *Towards a Theoretical Base for a Grade-Appropriate Minimal GIS*

As GIS becomes increasingly heralded as a means to promote the explicit teaching of both spatial and geographic thinking in K-12 classrooms, the danger of teaching pointing and clicking procedures to obtain specified outcomes becomes quite high. Traditional GIS software packages that have often proven too complex for teachers and students to effectively learn spatial analysis must be replaced with pedagogical GIS. A "Minimal" pedagogical GIS would provide a support system for K-12 populations by implementing grade-appropriate spatial concept understanding to perform specific spatial analysis tasks. The Minimal GIS would span from low-technology, simple concept, simple spatial analyses for the lower grade levels to more complex concepts, tasks, and technology at the higher grade levels. This paper will propose a theoretical base for the Minimal GIS, describing grade-appropriate introduction of spatial concepts and tasks using current research; additionally, it will propose an experimental design for testing the effectiveness of the Minimal GIS.

Keywords: GIS, spatial thinking, geography education, support system

Lisa Marshall, University of North Carolina - Chapel Hill, Department of Geography. Email: lisamarshall@yahoo.com; *Narrating Nuclear - communicating the necessity*

"Places, like maps, might seem to be fairly uncomplicated or neutral things, given the deep-seated tendency to view place, rather like space, a static container into which social histories can be located ? [P]lace is actively constructed through a constellation of material and discursive practices" ? [And as Pred (1984) adds.] "[p]laces are in a constant process of becoming?a place is not inert, but produced." Blomley, Nicholas. *Mud for the Land in Public Culture*, 14(2002): 571 For a nuclear renaissance to take hold within the United States, the nuclear industry must tell its story. It must provide its own imaginative geography. This paper will examine some of the messages, images, and science "speak" driving the nuclear resurgence. I contend that the enterprise never waned, just the communication mechanism. How has the industry developed its new campaign? Why? And what are the implications to the industrial landscape?

Keywords: geography of science, nuclear engineering, nuclear science, energy

Matt Marsik, Department of Geography and Land Use and Environmental Change Institute, University of Florida. Email: mmarsik@ufl.edu; Karla Rocha, School of Natural Resources and Environment, Land Use and Environmental Change Institute, University of Florida, and Universidade Federal do Acre, Rio Branco, AC, Brasil. Email: rocha@ufl.edu; Jane Southworth, Department of Geography and Land Use and Environmental Change Institute, University of Florida. Email: jsouthwo@geog.ufl.edu; Frank Barra, Centro para la Investigación y Preservación del Amazonas de la Universidad Amazónica de Pando, Cobija, Pando, Bolivia. Email: sigcipa@yahoo.es; I. Foster Brown, Woods Hole Research Center, Falmouth, Massachusetts and Universidade Federal do Acre, Rio Branco, AC, Brasil. Email: fbrown@uol.com.br; Stephen Perz, Department of Sociology, University of Florida. Email: sperz@soc.ufl.edu; *Land Cover Change in the MAP Region, Southwestern Amazonia: Driven by Road Expansion*

An increase of road networks in the MAP region (Madre de Dios, Peru, Acre, Brasil, and Pando Bolivia, Southwestern Amazonia) will allow the extraction of forest products and increased cattle ranching through improved access to formerly remote areas. A detailed, spatially-explicit study of regional trends in land cover and changes resulting from road construction and expansion will be performed using a Landsat 20-year (1986-2006) time series. Traditional land cover classification analysis coupled with alternative analysis methods using continuous data will investigate land cover change in the MAP region. It is expected that with increasing distance from roads the amount of forest increases

due to restricted internal access and costs of road construction and maintenance, while the amount of pasture decreases due to restricted access and connectivity. Fragmentation of forest nearest roads is greatest in Madre de Dios than in Pando because of 'prospecting' whereby pioneer ranchers claim and clear lands before road construction and paving. Consolidated frontier clearing dominates in Acre due to the existence of the paved Inter-oceanic highway, which has allowed continual, historical access of people to clear forest for pasture and cattle ranching.

Keywords: Southwestern Amazonia, remote sensing, land cover change, road expansion

James Robert Marston, Dr., Department of Geography & Research Unit on Spatial Cognition and Choice, University of California Santa Barbara. Email: marstonj@geog.ucsb.edu; Roberta L Klatzky, Dr., Department of Psychology, Carnegie-Mellon University. Email: klatzky@andrew.cmu.edu; Nicholas A. Giudice, Dr., Department of Psychology, University of California Santa Barbara. Email: giudice@psych.ucsb.edu; Jack M Loomis, Dr., Department of Psychology, University of California Santa Barbara. Email: loomis@psych.ucsb.edu; Reginald G. Golledge, Dr., Department of Geography & Research Unit on Spatial Cognition and Choice, University of California Santa Barbara. Email: golledge@geog.ucsb.edu; *Measuring Cognitive Load of Non-Visual Navigation Interfaces*

Navigation devices for the blind require some form of cognitive processing, as users must pay attention to, process, and act on the spatial information. This could be detrimental, distracting users from immediate needs and safety. To measure the cognitive demands imposed by the navigation interface, we imposed a secondary task: Users monitored an array that sent vibrotactile stimulation to three fingers and reported any instances of sequential stimulation to the same finger. Degraded performance in the navigation task under cognitive load would indicate competition with capacity required for the secondary task. In an experiment, blindfolded participants were guided along virtual paths and information was provided en route about the direction of the next turning point, either by spatial language ("left," "right," or "straight") or virtual sound (i.e., the perceived sound location indicated the target direction). We hypothesized that virtual sound, being processed at direct perceptual levels, would have lower cognitive demands than even simple language commands, which require cognitive mediation. The guidance modes were equivalent in a no-load condition; however, when the secondary vibrotactile task was added, participants navigating with spatial language showed an increase in distance traveled and time to complete a path. By indicating the superiority of virtual sound for guidance in the presence of additional cognitive load, as is characteristic of everyday navigation, these results have important implications for the design of future navigation and guidance systems for visually impaired persons or those needing to direct their primary attention elsewhere, e.g. when driving.

Keywords: blind navigation, GPS, assistive technology, applied disability research, cognitive load

David J Martin, PhD, University of Southampton. Email: D.J.Martin@soton.ac.uk; James A Wright, PhD, University of Southampton. Email: J.A.Wright@soton.ac.uk; Richard W Treves, University of Southampton. Email: R.W.Treves@soton.ac.uk; *Distance Students Or Distance Courses? Delivering Transatlantic GIS Modules*

This paper concerns the delivery of specialist online Masters-level GIS modules into more than one institutional programme simultaneously, effectively allowing these modules to be shared between the participating institutions. Our programme was originally developed as part of an ill-fated UK e-learning initiative known as UK e-Universities (UKeU). Under the UKeU model we adopted a learning object-based approach to the authoring of materials, designed from the outset for potential repurposing and reuse. The UK universities of Leeds and Southampton, working together as part of the Worldwide University Network (WUN) were successful in obtaining UKeU funding to develop a new wholly-online GIS Masters programme with application-oriented pathways. After the demise of UKeU, the participating universities took on the programme as a collaborative venture. Collaborations within WUN led to agreement to share a Southampton-authored optional module "GIS for Analysis of Health" with the Pennsylvania State University GIS programme. Rather than require students to engage with multiple virtual learning environments (VLEs), we adopted a model whereby the same course materials are delivered simultaneously through different VLEs, each student working within their own institutional software environment. The Southampton-based tutor has simultaneously tutored students in Leeds, Southampton and Penn State. This presentation explains our experiences in the design and implementation of reusable GIS educational materials and key issues involved in this mode of delivery, including differences in assessment regimes, student expectations and access to resources. The module has now been well-received by three student cohorts and further educational research and develop-

ment needs have been identified.

Keywords: GIS, distance, education, learning object, VLE

Deborah G. Martin, Clark University. Email: demartin@clarku.edu; Christopher City, J.D., Clark University. Email: ccity@clarku.edu; *Legal Discourse in Urban Politics*

Theories of urban governance alternately emphasize the role of political economy, local elites, and urban activists in shaping urban politics and redevelopment. By comparison, law remains a relatively unexamined factor in local actions and discourses. Legal frameworks at the local, state, and federal levels influence contested issues of urban governance, including understandings of appropriate land uses and the use of key natural resources, such as water. In this paper, we use newspaper and observational accounts of a land use conflict and a water supply dispute in two municipalities in Massachusetts to trace the "legalization" of the issues, and how that legalization has shaped the terms of debates and outcomes of the conflicts. By "legalization" we refer to the ways that parties involved invoke local, state, and federal laws to define and advocate for certain understandings of appropriate land and resource use. Although scholars of law and geography point to important ways that legal decisions and interpretations shape local issues such as redistricting, segregation, and natural resource use, these findings have not been incorporated into theories of urban governance and the multi-actor, multi-scalar dynamics that shape it. We seek to address that omission by identifying how legal understandings and rhetoric influence, and may even determine, the terms of governance debates and decision-making.

Keywords: urban governance, legal geography, legalization, land use, water resources

John Jeffrey Martin, Ph.D., Jacksonville University. Email: jmartin6@ju.edu; *Determining A Relationship Between Two Circular Data Sets*

Direction is an important attribute for a wide variety of spatial phenomena. Analyses of such spatial phenomena are often achieved through statistical methods. However, since direction is measured in circular units many familiar statistical techniques cannot be applied. An example of this is Pearson's correlation coefficient which is a standard used to determine the relationship between two variables measured in linear units. If it is used to compare circular data the results will be erroneous. Here, a surrogate for Pearson's r is developed that quantifies a relationship between two variables measured on the circular scale. The technique evaluates the cosine and sine of subsequent directional observations. Ultimately the method provides a coefficient that expresses a value for the relationship between two circular variables within a range of 1.0 to -1.0, like Pearson's r . In this research the technique successfully determines a relationship in the direction of downed trees, measured in degrees, from two separate tropical events in Jacksonville, Florida.

Keywords: Circular data, correlation, Pearson's correlation coefficient r

Kallen M. Martin, ABD, St. Lawrence University; Syracuse University. Email: kmartin@stlawu.edu; *Life Along The Line: Places of Memory and Landscapes of Contestation*

Meanings of place and performative traditions often are symbolic of indigenous peoples' cultural practices. In many instances, the meaning of place and culture are quite inseparable, reflecting landscapes of healing, power, and social relations. In the early half of the 20th century, rivers were highways and borders were zones of uncertainty for the Mohawks of Akwesasne, leading to multiple subjectivities and landscapes of contestation between them and the emerging politics of Canada and the United States. This paper provides insight into that landscape in the context of the sweetgrass basket trade between Canadian-based Mohawk basket makers and American-based trading store owners uniquely situated in the centre of Mohawk territory. A brief historical overview of borders and boundaries along the St. Lawrence River foregrounds this analysis of place and landscape - as a people dispossessed of their land and river, and as producers of cultural representations that become exploited. Drawn from numerous interviews of Mohawks who lived by and along the St. Lawrence River between 1900 and 1950, the river and borders reflect their places of cultural importance. Competing discourses, however, disrupt the layered relationships that defined the Mohawks and landscapes of contestation.

Keywords: Mohawks of Akwesasne, St. Lawrence River, place, landscape, boundaries

Lauren Martin, University of Kentucky. Email: lauren.martin@uky.edu; *Violence, Neoliberalism, and Value: Gendering the Exception*

In this paper, I think through inclusion and exclusion in the context of neoliberalism and globalization. Despite critical insights into the nature of sovereignty and law, Giorgio Agamben's (1998; 2005) political theory neglects gender. In fact, identity categories (race, class, ethnicity, sexuality) are largely ignored, as his work concentrates on the mechanisms of liberal law from antiquity to the present. The implementation of neoliberal policies has

introduced market rationality to many public services and spaces, causing an understudied shift in practices of citizenship and state power. Neoliberal policies increasingly encourage differential valuation of citizens based on their labor market value. Feminist geographers have long argued that women are disproportionately affected by neoliberal policies and the processes of globalization. Notions public and private space, access to education and training, and wage levels continue to be articulated through categories of difference, and patriarchal notions of worth are increasingly supported by neoliberal policies. Thus, social and political value are increasingly tied to labor market value, and create new forms of inclusion and abandonment. I bring together Aihwa Ong's (2006) concept of neoliberalism as exception (an expanded notion of Agamben's state of exception) and Melissa Wright's (2004) analysis of value and female sex work to extend Pratt's (2005) critique of Agamben.

Keywords: gender, neoliberalism, violence, globalization, Agamben, labor theory of value

Patricia M. Martin, Université De Montréal. Email: patricia.martin@umontreal.ca; *Making visible the sites of gendered violence: towards a geography of femicide in Latin America*

Femicide, a term first coined by Jill Radford and Diana Russell (1992), is defined as the killing of women because they are women. As a concept, femicide advances three core arguments: it suggests that women are killed specifically in relationship to their female roles and identities; it insists that femicide is profoundly political, in that it forcibly maintains hierarchical gendered relationships; and it asserts that, in as much as the state generates conditions leading to femicide, "impunity" is also a gendered phenomenon. In Latin America the term femicide first gained prominence in relationship to the spectacular rise of violent female deaths in Ciudad Juarez, Mexico. Indications suggest, however, that the phenomenon of femicide is more geographically extensive than originally thought, both in Mexico and throughout Latin America. To address this emerging "geography" gendered violence, this paper will trace the contours of femicide in Latin America, both as a phenomenon and as a concept. It begins by providing an overview of the existing data related to femicide. It then will turn to a multiscaled analysis of the emerging policies initiatives around femicide, highlighting the discursive evolution of the term in institutional and activist circles. This analysis will provide, finally, an initial means for evaluating whether the deeply political implications of the term "femicide" have been neutralized in policy arenas.

Keywords: gender, violence, Latin America

Stacey Martin, MS, MA, Emory University. Email: stacey.martin@emory.edu; *Browse, Build, and Bank a Map of Southern Cultures and Histories: A subject based portal and its GIS service.*

This presentation captures the challenges and successes of building a subject based domain portal with a GIS service that enables expert and non-expert users to search, browse, build, and share maps with the Southern Studies community. Emory University's Woodruff Library is building on years of research to develop a sustainable portal environment focused on Southern cultures and history, named SouthComb. Even though building a portal environment is becoming easier, building a sustainable low-cost portal with GIS services raises new challenges. This case study reviews three services in development that include a location based mapping service, a series of browseable thematic maps and a spatial data repository built using the University of Minnesota's open source environment, MapServer, XML, and Java.

Keywords: GIS, MapServer, Southern History

Nicholas Martinelli, University of Oregon. Email: emartin2@uoregon.edu; *Information to Knowledge: How map and variable type relationships affect the movement of mapped information from working to long term memory.*

In many cases a map is meant to serve an educational purpose. The goal of the map is for the user to be left with some measure of recall about the subject presented. Using computer based instruments I will evaluate user recall of feature variables at select time points following viewing of a map. Multiple map type and variable type relationships will be tested. For example, I will look at the location variable of a feature on static, animated, and interactive map products. Map user accuracy is fairly consistent between map types for this variable in previous testing. By testing user accuracy at multiple, specific time intervals I will be able to assess the performances of various map types in stimulating the transfer of information into long term memory. By testing multiple map and variable combinations I will classify map and variable type relationships that support the most accurate long term recall for the map user.

Keywords: cartography, spatial, cognition, memory

Adriana E. Martinez, Texas A&M University. Email: adrianaemartinez@gmail.com; *Sediment Dynamics in a Dammed River System, Yegua Creek, Texas*

Dams have altered flow distributions and sediment transport in rivers everywhere, causing a host of changes in channel morphology and sediment dynamics. Although major changes in flow regime have occurred along Yegua Creek, Texas, since the closure of Somerville Dam in 1967, the issue of sediment transport has not been studied in detail, and the degree to which sediment is moving through the system remains unclear. This study assesses the extent to which sediment is being transported through Somerville Dam and downstream of the dam. Sediment characteristics are examined to test the working hypothesis that little sediment is passing through the dam. Analysis of aerial photographs further indicates the extent to which immobile sediments are forming depositional features. Results give insight into the consequences of stream impoundment. They also increase our understanding of the efficacy of sediment delivery into the Brazos River and ultimately to the Texas coastline. Because Yegua Creek is a major tributary to the Brazos River and an important source of water supply in the south-central region of Texas, increased understanding of sediment dynamics within Yegua Creek is especially important in a regional context.

Keywords: sediment, sediment transport, Yegua Creek, Somerville Dam, geomorphology

Andrew M. Marton, University of Nottingham. Email: andrew.marton@nottingham.ac.uk; *Producing Space in China's Lower Yangzi Delta: Rural Agglomeration and the Urban Echo in Kunshan*

This paper engages the notion of urban formation in China as a state project through an examination of spatial economic transformation in the lower Yangzi delta. The morphology of urban forms in this region arise from shifting local institutional structures, and how these are embedded in the reconfiguration and consolidation of political and administrative jurisdiction and space. The paper illustrates how areas within the extended metropolitan region of the lower Yangzi delta are repositioning themselves in the wider space economy by adopting functional specialisation. Major changes to the patterns of spatial change in Kunshan which occurred between 1998 and 2005 are discussed with a view to highlighting recent outcomes of urban development in the lower Yangzi delta. Borrowed from the Chinese literature, the notion of an "urban echo" is introduced to move towards re-conceptualising the resulting shift in the patterns and processes of urban transition. The paper extends this notion to illustrate how specific locally driven development strategies and policies, including economic repositioning and political/administrative restructuring - and how they manifest themselves in spatial terms, explicitly seek to globalise areas like Kunshan by leap-frogging places like Shanghai and Pudong by directly mobilising international investment, production linkages and commodity chains. The findings emphasise that local forces continue to play a critically important role in determining the contours of regional and urban development in concert with growing international forces which have accelerated global interactions and interrelationships in places like Kunshan.

Keywords: urbanisation, lower Yangzi delta, urban echo

Evan Martzial, Salem State College. Email: evan@martzial.com; *Analyzing the 2006 Oil Spill off of Lebanese Coast*

Due to the recent Israeli and Lebanese conflict, there has been a large oil spill off the coast of Lebanon. This research will analyze the extent and severity of this oil spill and how the catastrophe affects the Lebanese coast line and the greater surrounding Mediterranean area. This major environmental disaster needs to be studied and analyzed to fully understand the effects. This research will utilize, but not be confined to satellite imagery from the Center for Satellite Based Crisis Information. They have multiple DLR satellite images and MODIS time series data that will be used to analyze this environmental disaster. This research will attempt to bring to light the incredible impact this spill had on Lebanon and the Mediterranean, and what conclusions we can draw from this horrific event.

Keywords: Remote Sensing, Oil Spill, Lebanon

Matt Marx, Harvard University. Email: mmarx@hbs.edu; Debbie Strumsky, Harvard University. Email: dstrumsky@hbs.edu; Lee Fleming, Harvard University. Email: lfleming@hbs.edu; *Noncompetes and Inventor Mobility: Specialists, Stars, and the Michigan Experiment*

Several scholars have documented the positive consequences of job-hopping by inventors, including knowledge spillovers and agglomeration and the concentration of spinoffs. This work investigates a possible antecedent of inventor mobility: regional variation in the enforcement of post-employment noncompete covenants. While previous research on non-competes has been largely focused on California and Silicon Valley, we exploit Michigan's mid-1980s reversal of its noncompete enforcement legislation as a "natural experiment" to investigate the impact of noncompetes on mobility. Using the U.S. patent

database, we find that inventor mobility decreased by 40% in Michigan after the state reversed its policies. Moreover, this effect was amplified for “star” inventors and even more so for inventors with specialized technical skills. These results suggest that where noncompetes can be more fully enforced, employers take advantage of the opportunity to block the exit of key employees, indicating that noncompetes exercise a constraint on the labor market.

Keywords: non-competes, labor mobility, regional advantage, innovation

Luke J Marzen, Auburn University. Email: marzelj@auburn.edu; Toni A. Alexander, Auburn University. Email: alexato@auburn.edu; Greg Weaver, Auburn University. Email: weavegs@auburn.edu; Robert A Norton, Auburn University. Email: nortora@auburn.edu; Modeling Infectious Laryngotracheitis incidents in Marshall and Cullmann Counties, Alabama.

Infectious Laryngotracheitis (LT) is a highly contagious and pathogenic virus that results in serious economic losses in the poultry industry. LT outbreaks in the Southeast U.S. have substantially affected the commercial broiler industry, causing quarantines and depopulation losses from infected flocks. The goal of the research is to develop methods enabling resource managers to be able to project probabilities and locations of disease incidents, should more serious foreign animal disease outbreaks occur such as Avian Influenza (AI). LT is being used in the current model as a surrogate for AI, since the disease is already present in the US and data are available. The two viruses are also similar in several physical characteristics, both being readily transmitted via the air, water and soil. LT data for 2000-6, collected at the farm level by the Alabama State Veterinarian's Office are being used to develop models that attempt to explain and predict LT incidents. In this study, data for two Alabama Counties heavily involved in the poultry industry are utilized. The incidents are mapped for Cullman and Marshall County and then are compared to various explanatory factors in an attempt to provide a better understanding of the spatial-temporal interactions of LT in these Counties as well as to illustrate characteristics of the population at risk. Plans are also developed to use the data in a streaming 3D internet visualization portal in order to assist first responders in the event of an outbreak.

Keywords: poultry, disease, GIS

Michael Mascia, World Wildlife Fund. Email: michael.mascia@wwfus.org; C. Anne Claus, World Wildlife Fund. Email: annie.claus@wwfus.org; Social impacts of marine protected areas: a global review

Marine protected areas (MPAs) are one of the primary policy instruments used to conserve marine ecosystems. Relatively little research has examined the positive and negative social impacts of MPAs, yet social “performance” often determines the extent of local, national, and international political and financial support for MPAs. Based on a literature review and analysis of unpublished field data, this study reviews current social scientific knowledge regarding MPA social impacts. Several patterns emerge: ? MPAs transfer the benefits of resource use within and among resource user groups. ? Fishermen with fixed gear or informal fishing territories are more significantly affected by MPAs than transient fishermen employing mobile gear. ? MPAs often induce community-level demographic change; ? The social performance of MPAs subsequently shapes MPA evolution. “Successful” MPAs frequently spur site expansion, while “unsuccessful” MPAs often fuel efforts to revoke MPA designations. Four aspects of MPA governance- decision-making arrangements, resource use rights, monitoring and enforcement systems, and conflict resolution mechanisms - appear to play pivotal roles in shaping the social impacts of MPAs. These findings provide (1) a framework for designing MPAs that deliver positive social and biological outcomes; and (2) the basis for further research into under-studied areas of MPA social science.

Keywords: biodiversity, conservation, poverty

Peter Maskell, DRUID/Copenhagen Business School. Email: maskell@cbs.dk; Projects and the Geography of Innovation: Successful transient inter-firm collaborations for knowledge generation

Because knowledge is usually distributed among different individuals, its mobilization as part of innovation efforts implies a degree of collaboration. Such mobilization is usually taken to be facilitated by the pre-existence of shared cognitive models of the world developed by collocation (clustering) or by continuous interaction (investment in pipelines or networks). The present paper extends this common wisdom by investigating the organization of knowledge creation through successful transient collaborative inter-firm arrangements or “projects” that dominate certain kinds of economic activity (e.g. construction, creative industries, biotech, IT). These arrangements differ across industries and regions on significant parameters such as stability, reach and diversity, but also on the allocation of power, property rights and profits. The paper adds to the discourse of geography of innovation by pursuing intuitions regarding the systemic nature of search for knowledge and solutions in particular in the

creative industries. It is based on an empirical study of the dynamic inter-relatedness between characteristics of the firm (like its choice of activities; products; organisational form; or strategy) and the industry it belongs to on the one hand, and the preferred form of market arrangements on the other.

Keywords: knowledge, projects, creative industries, search, theory of the firm, networks, pipelines, clusters

Carmen Masó, US Environmental Protection Agency, Region 5 Chicago. Email: maso.carmen@epa.gov; NEPAAssist: A Web based Application for Environmental Assessment

NEPA, the National Environmental Policy Act, requires all federal agencies to: assess the environmental impacts of major federal projects or decisions such as issuing permits, spending federal money, or actions that affect federal lands; consider the environmental impacts in making decisions; and disclose the environmental impacts to the public. To simplify the process of screening proposals, a web-based interactive mapping application, NEPAAssist, was developed. This screening tool allows reviewers to take advantage of available geographic data and to integrate buffering analysis into their workflow. NEPAAssist is an easy to use web-based application that draws environmental data from Geographic Information System (GIS) servers within EPA and from non-EPA servers on the Internet. The application enables users to delineate a proposed project footprint on a map as a point, line or boundary, and view information on environmental resources in the locale of that delineated footprint. NEPAAssist was developed in cooperation with EPA Regional offices, EPA's Office of Federal Activities, EPA's Office Environmental Information and SAIC contractors. This presentation will provide an overview of the application, its implementation and future uses.

Keywords: GIS, Environment

Peter F. Mason, Bechtel Corp. Email: pmason@bechtel.com; Sustainable Construction in a Carbon Constrained World

The engineering and construction industry assists customers with project development. Industry practice involves studying project costs within the context of market, environmental requirements, and sustainability goals. Within the last decade, however, with the rise of greenhouse gasses (GHG), global warming and related effects, the context for consideration of projects has changed. This change is a ‘carbon constrained’ world where global interests are moving in the direction of lowering CO2 output as a contributing factor to global warming. This has resulted in a change in energy infrastructure including: (1) shift to natural gas as a transitory measure rather than long term use, (2) nuclear energy, (3) ‘clean coal’ technology, (4) carbon capture and storage, (5) renewables, (6) advanced vehicle technologies, and (7) expanded green building and LEED (Leadership in Energy and Environmental Design) design activity. Future project decisions will include not only cost, schedule, safety and quality factors, but also climatic change as part of sustainability. Sustainable construction will reward more efficient construction including improvements in: (1) energy management, (2) resource management, and (3) minimization of carbon footprint. Positive outcomes include: (1) projects that best serve customers now and in the future, (2) reinforcement of a culture of project optimization and efficiency which rewards energy conservation and recycled materials, and (3) attraction of technical and professional talent for a sustainable construction industry in a carbon constrained world.

Keywords: sustainability, construction, energy, environment

Robert J. Mason, Temple University. Email: rmason@temple.edu; Evaluating “Quieter Revolution” Land-Use Programs

Environmental lawyers Fred Bosselman and David Callies characterized the early 1970s ascension of state and regional land-use regulatory programs as the “Quiet Revolution in Land Use Management.” But the revolution soon lost steam, with rather few new regulatory programs being put into place after 1980. Instead, softer, quieter approaches have taken root. Collaborative, place-based planning; the ascension of land trusts and watershed organizations; and “smart-growth” programs are typical of this new wave of land-use management approaches. While this may not collectively amount to a movement, the totality of these approaches is greater than the sum of their parts. How do we begin to understand the value of these emerging approaches? This paper proposes an evaluation strategy that incorporates, among other dimensions: ecological outcomes, cost effectiveness, civic engagement potential, institutional capacity-building, environmental/social justice impacts, and vulnerability reduction. This strategy is applied, in a preliminary manner, to three regional land-use management programs that are geographically proximate but rather different in style. The Adirondack Park's program is regulatory, the Northern Forest Land program in northern New York and New England is largely voluntary and incentive-based, and the Catskill-New York City watershed program is inspired by the avoided cost to New York City of water filtration. Physical outcomes vary considerably, while all three approaches—in varying measure—expand institutional capacity and

enhance civic engagement; this includes engagement of those directly opposed to the land-use programs.

Keywords: land use, evaluation, New York, New England

Ghada A. Masri, Ph.D. Candidate, University of California, Davis. Email: gamasri@ucdavis.edu; *Myths of Beirut: The Politics of History and the Seeds of Memory*

Memories of carnage and massacre, from Lebanon's 16 years Civil War, were brought to the fore by civilians and international journalists alike, during the recent round of violence in the Israeli-Hezbollah war in the summer of 2006. Now that war is over once again, the nation's energies and resources are galvanized for yet another reconstruction even before the first reconstruction of Beirut is complete. Such interruptions in the city's reconstruction are not new. Even before the end of the Civil War in 1990, initiation of plans to restore Beirut as the "heart" of the nation and symbol of "modern" prosperity, were begun multiple times over in the spaces between death and destruction. Between 1990 and summer 2006, the Lebanese government, via Solidere, completed the reconstruction of Beirut's Central District (BCD) at the city's core. This reconstruction has been guided by the perpetuation of multiple mythologies?the most prominent of these being the myth of Beirut's golden era as "Paris of the Middle East." Intertwined with this narrative are the myths and memories of Lebanese national identity, long a site of conflict among the country's diverse communities. Based on dissertation fieldwork, I examine the contested narratives of Lebanese national identity as expressed in the touristic reconstruction of the BCD. I argue that after the Civil War, narratives of national identity not only remain unresolved, but that new imaginings constructing Beirut as "Manhattan" express a new relationship to global centers of power, creating links to an alternate imagining of nation and identity.

Keywords: Memory, Heritage, Post-War Reconstruction, National Identity, Tourism

Jeffrey A Masse, University of Washington. Email: jmasse@u.washington.edu; *Commodity Fetishism, Buddhism, and Consuming Desire*

Reworking commodity fetishism via Buddhist philosophy helps us understand the construction of desire in regimes of intensive consumption. Marxian and cultural approaches to commodity fetishism explain the histories and social relations bound up with commodities. Buddhist thought seeks to understand the origins and historical specificity of desires, including desires that lead us to consume. We need both understandings to more fully engage with the politics of consumption. From a Buddhist standpoint, the reification of a commodity into a thing obscures understanding of the material and psychological roots of desire. When one's attention is directed towards acquisition of an object we are directed away from thinking critically about how we came to want that object in the first place. This distraction has great consequence; when desire is understood in unskillful ways we act thoughtlessly and are ill at ease, both personally and as societies. I illustrate a Buddhist approach to commodity fetishism with the example of bottled water. Product narratives define consumers and their lived environments as lacking in spatial and temporal ways. Labels and marketing define the 'good' as where and when the consumer is not. In bottled water marketing 'pure' is elsewhere, and if one wants to be 'pure' then one needs bottled water. By interrogating the ways geographies of lack and lack's resolution are reproduced through marketing discourse we highlight the constructedness of different ways of being, becoming, and desiring. We also open the possibility of desiring, and consuming, in other ways.

Keywords: consumption, bottled water, religion

Chris Massingill, University of Oregon. Email: cmassing@uoregon.edu; *Stream Restoration in the Sprague River Basin, Oregon: interactions of soils, water, plant communities, and land use*

In the politically contentious Klamath Basin, stream restoration has been seen as a large part of recovery efforts for endangered fish, water quantity and quality. Exclusion of cattle from riparian corridors has been proven to be a simple and cost effective way to improve water quality through physical protection of stream banks and filtration of surface runoff from adjacent pastures. Plant communities are typically quick to respond to relief from grazing pressure, filling in bare soil areas and stabilizing otherwise transient sediments, though sometimes in unexpected ways. This project was designed to document vegetation response to fencing and to investigate riparian vegetation response to fencing as a function of soil and hydrologic conditions. Transects were located in a variety of restoration sites, ranging unfenced and grazed, to a fence just being built, to a 15-year-old fence. Transects stretched from the upper limit of the riparian zone (typically into sagebrush), to the inside limit of vegetation, often within the wetted channel. Vegetation was documented by functional group, band width on the transect, and species when possible. Soil moisture and texture were described within 40 cm of the surface. Naturally resprouting woody vegetation

near the transect were identified and located. Preliminary results show considerable overlap between surface moisture and vegetation group types. Adjacent land use had a great impact on shallow ground water and riparian communities.

Keywords: riparian, restoration, Klamath, vegetation, grazing

Joy Nystrom Mast, Carthage College. Email: jmast@carthage.edu; Lawrence Stevens, Ph.D., Grand Canyon Wildlands Council. Email: ; *Dendrochronological analysis of cottonwoods to determine variation in springtime flow in springs, Grand Canyon National Park*

Our study provided the National Park Service with a determination of whether regional groundwater pumping of the Redwall Limestone aquifer south of Grand Canyon may be exerting a negative impact on Fremont cottonwood (*Populus fremontii*) growth at springs emanating from the South Tonto Platform. We examined stand structure and collected tree-ring cores from 20 or more Fremont cottonwood trees in 2003 at the only four springs on the Tonto Platform that support sufficiently large stands of cottonwood trees to permit dendrochronological analyses: Burro Spring, Cottonwood Creek Spring, Pipe Creek Spring, and Slate Creek Spring. Recruitment appears to be limited at sites dominated by springflows (e.g., Burro Spring) but is abundant in sites dominated by surfaceflow (e.g., Slate Creek). Dendrochronological analyses were used to distinguish ring age (growth) and climate factors from chronic (interannual) stress imposed by reduced discharge since 1980. Using standardized annular growth data, we first assembled long-term climate data, next modeled growth and climate data effects on the standardized annular growth, then eliminated those age and climate traces from the tree-ring data, and finally contrasted adjusted annular growth during the period of record to 1980 with that from 1981 to 2002. Dendrochronological results indicate that two of the four springs (Burro Spring and Pipe Creek Spring) may be sustaining long-term declines in cottonwood growth that are not related to normal aging processes or climate. Our results indicate that groundwater pumping threaten South Rim springs.

Keywords: biogeography, tree rings, Arizona

Michele Masucci, Temple University. Email: masucci@temple.edu; *A framework for examining Information and Communications Technologies (ICTs), health and disabilities*

Healthy People 2010 states that fostering health literacy is a key to improving health outcomes and changing underlying health disparities. In response to this public health objective, many efforts to use information and communication technologies (ICTs) are underway, including examining how information and communication technologies such as e-mail, instant messaging, and Internet listserve can support a diverse array of health information delivery and access challenges. Such knowledge is critical to the advancement of the use of many ICT applications for advancing health care among individuals, families and communities. However, one aspect of the use of ICTs to eliminate health disparities and improve health literacy that has received little priority is the consideration of the health information needs of persons with disabilities and how ICTs have served to regulate access to health information and access to care for vulnerable populations. This paper will introduce a framework for examining the intersection of ICT, health information delivery and access, and concerns of persons with disabilities while also distinguishing among many facets of wellness that involve moving away from a "medicalized" construct of disabilities. Geographic implications relate to the embeddedness of ICTs in daily negotiation of space and place among persons with disabilities, which can produce odd paradoxes in how ICTs can alternately mitigate or exacerbate access to health information and care.

Keywords: health literacy, ICT-GIS, disability studies, health disparities, wellness, new public health

Jeffrey R Masuda, McMaster University. Email: masudaj@mcmaster.ca; *Understanding Spatial Inequities in Risk: Environmental Health Promotion and the Politics of Place in Land-Use Decisions in Hamilton, Ontario*

My presentation will focus on research that focuses on industrial facilities proposed near residential neighbourhoods in Hamilton. The success or failure of such proposals is often contingent upon policy and planning decisions that must balance economic development with citizen's concerns about the environment and health protection. In most cases, these decision-making processes are framed within risk assessment/management/mitigation discourses of which understanding and influence require a certain level of expert proficiency and are thus exclusionary to many citizen groups. Access to decision-making by citizen stakeholders thus appears to be closely bound up in 'environmental social capital' - defined here as the capacity of concerned groups (i.e. communities) to mobilize intellectual, financial, and other resources in order to influence policy decision-making. In my empirical work, I am tracing how environmental social capital contributes to the unequal allocation of environmental risks related to locally contentious environmental disputes as mediated through these formal risk discourses. From my theoretical work, I will propose how an environmental

health promotion perspective can help to re-orient decision-making away from 'risk' toward a more progressive stance of 'health supportive environments' which can ultimately lead to more effective and inclusionary policies and more equitable development trajectories on the urban landscape.

Keywords: Environment, risk, health, spatial equity, health promotion

Christine Mathenge, Indiana University. Email: cmatheng@indiana.edu; The 'Chiga' Vernacular Landscape and the Locality of Shared Symbols

Kigezi, for many Ugandans, conjures up images of well cultivated ridges and valleys with a unique patchwork of fields that appear green year around. For the Chiga, the landscape of Kigezi reflects both a long shared struggle to tame the land they inherited many generations ago and harness a livelihood and collective action to improve community infrastructure and living conditions. I reflect on collective actions that have yielded symbolic landscapes in different parts of Kigezi, the first marking the beginning of cooperatively-owned land in Kigezi in the 1970s and the second a more contemporary community response to economic hardship in the late 1990s. Vernacular landscapes arguably cumulate in symbolic features that encapsulate shared feelings and memories for local inhabitants, but whose significance and meaning is likely lost on external observers.

Keywords: symbolic landscapes, vernacular landscapes

Flora I. Matheson, PhD, Centre for Research on Inner City Health, St. Michael's Hospital. Email: mathesonf@smh.toronto.on.ca; Rahim Moineddin, PhD, Department of Family and Community Medicine, University of Toronto. Email: rahim.moineddin@utoronto.ca; Richard H. Glazier, MD, MPh, Institute for Clinical Evaluative Sciences. Email: rick.glazier@ices.on.ca; A multilevel analysis of gender, neighborhood chronic stress, self-perceived stress, and body mass index

This study examined the contributions of individual-level self-perceived stress and neighbourhood-level chronic stress in explaining differences in body mass index for adult men and women living in 25 urban areas in Canada. Data from two cycles of the Canadian Community Health Survey (cycle 1.1 and cycle 2.1 collected in 2000/01 and 2003/04 respectively) were combined with census tract-level community data from the 2001 census. Results of multilevel analyses showed that men and women living in neighbourhoods with high neighbourhood material deprivation (chronic stress) had higher BMI than adults living in more advantaged areas. In general, men had higher BMI than women. Self-perceived stress was associated with higher BMI for both men and women. The cross-level interaction between gender and material deprivation was significant after adjustment for individual-level demographic and lifestyle characteristics; the average difference between males and females depends on the extent of material deprivation present in the neighbourhood with material deprivation being more detrimental for females than males. Women living in a deprived area have, on average, a BMI score of 2.6 points higher than women living in less disadvantaged areas. Being married and not having a high school diploma (SES) were associated with higher BMI. Lower BMI was associated with visible minority, current smoker, high fruit and vegetable consumption and high physical activity. Unexplained within- and between-neighborhood variance in BMI remained with most unexplained variation due to within-community variance.

Keywords: Gender, Body Mass Index, Chronic Stress, Material Deprivation, Urban Health

Rita R Mathew, University of Georgia. Email: ritmath@uga.edu; Learning Cultural Geography in a fishing village in southern India

Students from a college preparatory high school in South Georgia participate in an innovative service project to learn cultural geography while on a trip to a high school in a fishing village affected by the Asia Pacific Tsunami of December 2004. Issues such as sources of water pollution, impact of globalization on the local fishing industry, caste system and its role in identity formation, comparative study of school curriculum, judiciary system in Georgia and a state in India are addressed. As part of their service experience, the group set up a network for computers and trained teachers at the site. They have provided support through fund-raising, by paying for internet access and by helping to start an Internet Chapter. The local agenda to build a library is a cornerstone of the service project. The study abroad trip to Pallam, India turns into a life changing experience for the American students and staff alike as they develop an understanding of "privilege" vis-vis "entitlement." Highlighted in this case study is the positionality of participants when they meet "other" students while aspects of social construction of cultural identity in high school students are also examined. This participatory action research paper explores the theoretical issues involved in teaching cultural geography through an alternative mode.

Keywords: Cultural Geography, Identity, Pedagogy, Service Learning, Study Abroad, Asia, Globalization

Elizabeth S. Mathews, MA, National University of Ireland, Maynooth. Email: esmathews@yahoo.ie; Mainstreaming of Deaf Education in Ireland: An International Comparative Study of Policy and Practice

This paper presents early findings from a PhD project on policy and practice of deaf education in Ireland, in particular the move to mainstream services since the 1998 Education Act. This research hypothesises that the provisions made in policy are far from adequate in dealing with the complexities presented with deaf students and that even these minimal provisions are not being received in the classroom. Furthermore, lack of awareness, preparedness and training among staff has aggravated the difficult task of including deaf students in a mainstream classroom. Informed by findings on the cognitive and linguistic development of deaf children, critical pedagogy, geographies of disabilities, and concepts of normalcy, it assesses the legislative and practical aspects of deaf education in the Irish mainstream primary classroom through policy analysis, interviews with stakeholders, and case study observations. The under-representation of the adult deaf community in the education of deaf children is addressed by including a 'Deaf Voice' at all stages of the research process. The ultimate aim of the project is to highlight the difficulties facing deaf students, their parents and teachers while they try to negotiate services, and to begin to rectify these difficulties by reporting findings to the National Council for Special Education in Ireland and by proposing changes based on international best practice.

Keywords: disability, deaf, education, policy

Vanessa Mathews, University of Toronto. Email: vanessa.mathews@utoronto.ca; Multiple Constructions: Reconstituting the Distillery Historic District as Consumptive Strategy

In 1990 upgrades to equipment and a competitive global marketplace led to irreversible financial constraints for the Gooderham and Worts Distillery in Toronto and the site closed its doors to spirits production. Over a decade later, in 2003, the site -renamed the Distillery Historic District? was reopened and reconstituted as a seductive playground of wares and rares (art galleries, theatre and studio spaces, retail stores, boutiques, condominiums, and eateries). The construction and image of the site as a cultural entertainment quarter acts as a unifying banner for the purpose of capital accumulation. Although the site is owned and operated by a private real estate development company, it is a manifestation of a number of interconnected power relations that work to constitute / reconstitute space. Since the 1990s, urban redevelopment of old industrial spaces into planned cultural districts and/or festive spaces of consumption has intensified resulting in a greater need to extend theorizations of the process to develop an understanding of their effects. In this paper, I contribute theoretically to discussions of urban redevelopment through the notion of difference. I engage with difference at the Distillery in its multiple constructions as a commodity that purports value and as a space of possibility in order to map how these meanings and practices are operationalized, and how they co-exist.

Keywords: urban redevelopment, difference, Distillery District, Toronto, cultural geography

Kent Mathewson, Louisiana State University. Email: kentm@lsu.edu; Incidents Abroad: Notes on the AGS's 150 Year Record of Latin Americanist Sponsored Research and Publication

From its earliest years, the American Geographical Society has been instrumentally and intimately involved in Latin American research. For North American geographers, Latin America quickly came to have a special station and status among the world's geographical realms. Both simple propinquity and proprietary presumptions played a role in this development, but there have been other more significant affinities that have also contributed to this relationship. This paper reviews key episodes and enduring aspects of the AGS-Latin American interaction and exchange over the past 150 years. These include: the first map published by the AGS ("Map of the Republic of Paraguay?" 1852); the first annual address (M.F. Maury 1854) to the Society which stressed Latin American research opportunities; the AGS's advisory role in selecting trans-isthmian canal routes including Panama's; the AGS's Millionth Map of Hispanic America project; role of AGS publications in disseminating Latin Americanist research results; and the AGS's current Bowman Expedition project. From the 1850s to the present, the AGS has been a key promoter, pioneer, and practitioner of Latin American geographical research.

Keywords: American Geographical Society, Latin America, mapping

Sarah Mathis, B.S., University of North Texas. Email: semathis@hotmail.com; Joseph Oppong, Ph.D, University of North Texas. Email: oppong@po7.cas.unt.edu; The Health Care Crisis in Mozambique

Mozambique is in a health care crisis. Currently an estimated 514 physicians serve the more than 19 million citizens, and the numbers are not different for other healthcare workers. Since independence from Portugal in 1975,

Mozambique has been plagued with civil conflict, drought, and disease which have severely impacted the health care system. Currently the political climate in Mozambique is stable and allows an analytical look at how past conflict and disease have led to the current crisis. Using a political ecology framework this paper examines the geography of health care and health status in Mozambique. It attempts to understand how the available health care services are distributed across the ten provinces and provides policy recommendations for redressing the health care and health status imbalance.

Keywords: Mozambique, health care, geography

Timothy C. Matisziw, The Ohio State University. Email: matisziw.1@osu.edu; Alan T. Murray, The Ohio State University. Email: murray.308@osu.edu; *Assessing Nature Reserve Vulnerability*

Nature reserves are essential for protecting the habitat of vulnerable species. These reserves help mitigate threats to critical habitats in order to promote and sustain viable populations. Damage to reserves due to natural and manmade hazards, however, can jeopardize species persistence through habitat loss and fragmentation. One approach for safeguarding reserve species, is to identify areas of habitat vital to reserve operation. Once critical habitats are identified, reserve planners and managers can more effectively prioritize protection/mitigation measures to be administered in the event of a disaster. Alternatively, with regard to reserve design, one may wish to select an arrangement of sites least vulnerable to environmental disruption. This paper presents an approach for identifying reserve parcels critical to reserve operation. Application results are presented and implications are discussed.

Keywords: vital infrastructure, reserve design, spatial optimization

David S. Mattern, Parametrix, Inc.. Email: dmattern@parametrix.com; *Reader-friendly environmental documents - oxymoron or opportunity?*

Over time, environmental documents have become too technical and too lengthy (often hundreds and hundreds of pages) to effectively inform the public of project effects and benefits. While NEPA's clear intent is to provide this information to the general public, the common practice by agencies and their consultants has been towards cumbersome, jargon-laden, tomes that obfuscate issues and effectively exclude that audience. Environmental documents are almost always written to appease legal and technical reviewers. Conclusions, if stated, are often so qualified they are indecipherable. As a result, these documents fail to engage the audience we are to write for, the public and decision-makers. Although recognized and generally deplored by NEPA practitioners, this practice has only recently started to change. This paper summarizes recent efforts to improve the quality and readability of environmental documents. Examples include the Alaskan Way Viaduct and Seawall Replacement Project Draft EIS, which has received several awards for innovation and clarity. Basic principles and techniques for creating reader-friendly documents are summarized and the pitfalls and challenges of each are described. Current tools and resources for creating these documents are also reviewed. Efforts to improve the readability of environmental documents uncover inherent contradictions in environmental regulations and guidance. Further challenges lie in established agency practices and expectations. The author describes experiences, both positive and negative, preparing the EIS cited above and ongoing reactions from interest groups, bureaucrats, and lawyers. The paper concludes with a summary of continuing efforts to improve document quality.

Keywords: NEPA, EIS, environmental documentation

Olen Paul Matthews, University of New Mexico. Email: opmatt@unm.edu; *Are Water Rights Sacred, or Can they be Regulated without an Unconstitutional "Takings"?*

Those who have water rights in the western United States often feel their water right is "sacred". Somehow water rights must be better than property rights associated with land. Any action that might change the nature of the right brings out vitriolic rhetoric from right holders. Regulations that changes the volume available to right holders is perceived as unconstitutional or perhaps even an interference with a basic human right. In spite of the perceived holiness of water rights, they are in fact no better than any other property right, and they may not be as good. Water in the West has a continuing public interest which means the rights are never an exclusive private right. Also, water rights can be lost through non-use making them more contingent than land rights. In addition, water rights cannot be sold if third parties or the public interest are harmed. These restrictions on water rights make them less of a right than land rights. In spite of these limitations water rights are property rights protected by the constitution. But, water rights can be regulated. My paper explores the limits to these regulations in light of recent court decisions.

Keywords: Keywords: water rights, regulation, constitution, takings.

Doreen J. Mattingly, Department of Women's Studies, San Diego State University. Email: mattingl@mail.sdsu.edu; *Paradoxes of Gender and Identity in Indian Call Centers.*

The outsourcing of ITES work to India has created jobs for close to half a million Indian workers, many of whom work the night shift in call centers serving US and UK customers. Alternately portrayed as oppressed 'cyber-coolies' and catalysts for change, Indian call center workers embody at least two paradoxes. The first paradox concerns gender: although the occupation of telephone operator has been gendered as female, taboos on women's night work and high male unemployment have led to a mixed-gender workforce in India. The second paradox concerns national identity: in the name of national development, Indian workers spend their working hours immersed in US or UK culture providing service to Westerners. This paper draws on interviews with 23 Delhi call center workers to examine the ways that workers themselves make sense of these seeming contradictions. Specifically, the paper investigates the ways that workers' understandings of gender and national identity reinforce and/or challenge management practices and discourses.

Keywords: gender, labor, identity, globalization, outsourcing, call centers

Henrik Mattsson, Uppsala University. Email: henrik.mattsson@kultgeog.uu.se; *Innovating in Cluster / Cluster as Innovation: the case of Biotechvalley*

It has been noted that innovation seems to take place to a higher degree in clusters than elsewhere and we have lately seen a worldwide wave of emerging cluster initiatives and similar innovation policy projects. Some of these are realistic efforts based on existing regional strengths and partly existing cluster structures. Most, however, are grasping at straws. The latter is especially true when it comes to buzz technologies such as IT and biotech. We could subsequently add a new label - "pathetic clusters" ? to the already existing list of embryonic, emerging, world-class or stagnating clusters. However, although such clusters do not generate the same economic effects as complete Porterian clusters, they are reshaping economic landscapes at regional and local levels. They do so, this paper argues, in the form of local economic practices. Although economic geographers often tend to explain innovation (competitiveness) by looking at cluster dynamics, in such accounts, the cluster concept itself can actually function as an innovation, imposing similar effects on the economy as more familiar types of innovation would, by creating a local competitive edge. For example, 'pathetic cluster projects' induce local practices, which, in turn, create awareness among local actors about regional strengths and weaknesses, and mobilize action and cooperation. In the present paper, this function of the cluster is examined. Illustration of the potential and limits of pathetic clusters projects is provided in the form of a case study about a Swedish biotech cluster.

Keywords: biotech, innovation, cluster, innovation policy

Elizabeth Mavroudi, The University of Exeter. Email: e_mavroudi@hotmail.com; *Postcolonial perspectives and the Palestinian / Israeli conflict: the view from Palestinians in diaspora*

This paper uses the case study of diasporic Palestinians in Athens and how they view the current (colonial) situation, Palestinian cause or struggle as well as their (postcolonial) visions and hopes for the future of Palestine in order to comment on the value and applicability of postcolonial theories to the Palestinian/Israeli issue. Palestinians in diaspora outside the Middle East, such as in Athens may be seen as experiencing colonialism from afar. Although they are not physically in the midst of conflict, they are very much attached to the current (and historical) situation in Palestine. It is only through recognition that the past, present and future are inextricably tied that the manifestations of the past can be actively dealt with. Postcolonial perspectives force past histories to occupy awkward positions in the present, so that the two occupy an uneasy co-existence, which can lead to (partial) recovery of alternative visions, memories, experiences and identities. Above all, perhaps, the relevance of postcolonial theories is their optimism and hope for social change and justice in the future through agency and resistance. However, although Palestinians may still be seen as experiencing colonialism, colonial and postcolonial worlds, identities and realities are constantly clashing and merging. This paper argues that in order for Palestinians to imagine and realise a socially just, postcolonial future for themselves, they need to understand their connections and similarities as well as differences, problems and power inequalities between Jews and Arabs rather than create binary colonial/postcolonial oppositions and us/them relationships.

Keywords: Palestinians, diaspora, Palestinian-Israeli conflict, postcolonial perspectives, identities

Julia Maxted, Dr, Canterbury Christ Church University. Email: j.e.maxted@canterbury.ac.uk; Nicholas Harrison, Prof, Imperial College, London and CCLRC. Email: nicholas.harrison@ic.ac.uk; *Modelling pathways for the rapid transfer to, and adoption of emergent renewable energy technologies in African cities*

The rapid development in the performance, reliability and especially the cost of a number of key technologies (photovoltaic batteries, hydrogen storage, fuel cells) have significant consequences for energy infrastructure in developing countries. This paper will report findings from research combining an active technology watch with the identification of market need, derived from analysis of the African context, to inform the development of models of pathways to rapid renewable energy transfer and adoption.

Keywords: Renewable energy technologies, Africa, sustainable urban development

Jared David May, M.Sc., University Landau. Email: may@uni-landau.de; Markus Dotterweich, University of Koblenz-Landau. Email: mail@markus-dotterweich.de; *Soil Archives, an example of Prehistoric and Modern Impacts on Erosion and Gully Formation during the Holocene from the Loess Hills of Northern Mississippi*

The Loess Hills of Northern Mississippi are underlain by Marine and Fluvial sediments deposited during the upper Cretaceous through the Paleocene. These deposits were subsequently covered by Loesses or by Forest and Grassland Soils throughout the Pleistocene and consist largely of materials with a particle size of fine-sand or smaller, and are above all, highly erodible. During the Holocene, these soils and sediments were repeatedly exposed, eroded, and trans-located via fluvial systems. Near Owl Creek Indian Mounds, we have discovered a valley fill sedimentation sequence which documents the entire Holocene. This Soil Archive allows us the opportunity to reconstruct the stages of Anthropogenic influences on the Landscape, beginning in the Middle Archaic, around 7,000 BP when the Native Americans first began to significantly alter the landscape. When reconstructing the Holocene landscape evolution, we utilize an interdisciplinary approach combining the fields of pedology, environmental geography, geoarchaeology, and archaeology. This includes: In depth soil profile descriptions and laboratory analysis, sampling for various dating techniques, former landscape & hydrology condition reconstruction, identification of pedological & geological processes, correlation with GPS/GIS data as well as historical material and images, and landowner interviews. We will present our most current findings in our efforts to reconstruct this unique Soil Archive. The results from North Mississippi will be incorporated into a collection of global data which we use to model and reconstruct long term soil erosion processes. These models increase our understanding of man's past and future influence in the emergence of fluvial systems.

Keywords: Soil Erosion History, Human Impact, Prehistoric, Holocene, Soil Archive, Mississippi

Jeff May, MA, York University. Email: chucky_may@hotmail.com; *Exile on Yonge Street: Public Space and Homelessness in Toronto*

In 2005, the council of the City of Toronto passed its plan to deal with the city's homelessness problem entitled "From the Street into Homes" The plan was excellent in its understanding of reducing homelessness in Toronto, but contained troubling provisions which threatened the ability and the right of the homeless in Toronto to use the city's public spaces. The plan fits into a larger effort in North American cities to make public spaces inaccessible for public use and more specifically, for the use of the homeless. This paper examines three main themes. It analyzes the slippery identity of public space and homelessness. It illuminates the social, political, and physical methods used to inhibit the homeless from using public space on Yonge Street in downtown Toronto. Finally, it uncovers some of the creative techniques the homeless engage to make use of street space in the face of contravening plans.

Keywords: Homelessness, public space

Shoshana Mayden, University of Arizona. Email: smayden@email.arizona.edu; *Hunting for Turtle Eggs: the Use of Local Knowledge and Volunteer Tourism in Conserving Sea Turtle Nests*

Wildlife conservation programs increasingly identify themselves as "community-based," with some claiming to incorporate local knowledge into their work. In Latin America, there is also a recent trend for conservation projects to recruit volunteer tourists, who provide both labor and funding for the program. What happens when these two trends merge, bringing biologists, foreign volunteers, local people, and wildlife together? This paper draws on postcolonial theory and employs a political ecology framework to examine volunteer tourism and marine turtle conservation in the context of Costa Rica. Based on interviews and participant observation at one turtle-nesting program, I argue that there are differences among the conservation practices and self-reported knowledges of volunteers, biologists, and community participants. Initial research results point to a disconnect surrounding how these varying participants position local

knowledge. While volunteers appear to highly value the input of local participants, they perceive local knowledge as stemming from both past and current poaching by community members. This paper evaluates these participant discourses alongside how these knowledges play out on the beach as volunteers, community helpers, and the occasional poacher look for turtle nests.

Keywords: sea turtles, Costa Rica, knowledge, conservation, political ecology

Danny Mayer, University of Kentucky. Email: dmayer0@uky.edu; Hunter S. Thompson, *Freak Power, and the "Aspen Technique"*

This paper re-visits the 1970 Freak Power campaign of Hunter S. Thompson for sheriff of Aspen, Colorado. Among other things, Thompson's campaign platform called for ripping up and re-sodding the city's streets, renaming the area Fat City, installing a bastinado on the courthouse lawn, and zoning the "greedheads" (tourism and real estate contractors) out of existence. I situate Thompson's campaign within two interrelated narratives: (1) the countercultural dispersal from cities like San Francisco and New York to small towns throughout the nation, and (2) the spatial strategies employed by Thompson for materializing a whole new electorate out of the dispersed counterculture - the Freaks of Freak Power.

Keywords: Sixties, cultural landscapes

Jonathan D. Mayer, PhD, University of Washington. Email: jmayer@u.washington.edu; Jonathan D Mayer, PhD, University of Washington, Epidemiology and Geography. Email: jmayer@u.washington.edu; Colin Rehm, BA, Department of Epidemiology, University of Washington. Email: crehm@u.washington.edu; Beth Kirlin, BA, Group Health Center for Health Studies. Email: bkirlin@yahoo.com; John D Loeser, MD, Departments of Neurosurgery and Anesthesiology. Email: jdloeser@u.washington.edu; *Outpatient Opioid Availability in Washington State*

Jonathan Mayer, Depts of Epidemiology, Geography, Internal Medicine, Family Medicine, and Health Services Colin Rehm, Department of Epidemiology Beth Kirlin, Group Health Center for Health Studies John D. Loeser, Departments of Neurosurgery and Anesthesiology and Multidisciplinary Pain Center, All of the University of Washington, Seattle WA Previous research suggests that there are pronounced disparities in the availability of opioids, which are the mainstays for treatment for both acute and chronic pain. This is based upon two studies in New York City and in Michigan. Because the culture of pain treatment may differ in Washington State, we developed a questionnaire that was mailed to pharmacy managers in Washington. We had a 60% return rate with no bias in response rates, and 60% is exactly equal to the return rates in clinical epidemiology and medical research that uses mailed surveys. Our survey suggests that most pharmacies carry almost all of the long acting and short acting opioids, which is a major difference from previous studies. There is minimal difference by regions that have concentrated poverty or minority populations. We speculate on possible reasons for these novel findings.

Keywords: pain; socioeconomic disparities in health care; medical geography

Jonathan D. Mayer, University of Washington, Epidemiology and Geography. Email: jmayer@u.washington.edu; Colin Rehm, Department of Epidemiology, University of Washington. Email: crehm@u.washington.edu; Beth Kirlin, Group Health Center for Health Studies. Email: bkirlin@yahoo.com; John D Loeser, Departments of Neurosurgery and Anesthesiology. Email: jdloeser@u.washington.edu; *Outpatient Opioid Availability in Washington State*

Jonathan Mayer, Depts of Epidemiology, Geography, Internal Medicine, Family Medicine, and Health Services Colin Rehm, Department of Epidemiology Beth Kirlin, Group Health Center for Health Studies John D. Loeser, Departments of Neurosurgery and Anesthesiology and Multidisciplinary Pain Center, All of the University of Washington, Seattle WA Previous research suggests that there are pronounced disparities in the availability of opioids, which are the mainstays for treatment for both acute and chronic pain. This is based upon two studies in New York City and in Michigan. Because the culture of pain treatment may differ in Washington State, we developed a questionnaire that was mailed to pharmacy managers in Washington. We had a 60% return rate with no bias in response rates, and 60% is exactly equal to the return rates in clinical epidemiology and medical research that uses mailed surveys. Our survey suggests that most pharmacies carry almost all of the long acting and short acting opioids, which is a major difference from previous studies. There is minimal difference by regions that have concentrated poverty or minority populations. We speculate on possible reasons for these novel findings.

Keywords: pain; socioeconomic disparities in health care; medical geography

Judith Mayer, Ph.D., Environmental Planning. Email: jmayer@humboldt1.com; *Prospects for Community-based Fire Management in Indonesia*

Community-based approaches help vulnerable communities in Indonesia protect their land and livelihoods against disastrous and chronic impacts of repeated fires. Based on extended research in some 20 villages in East and West Kalimantan, this study assesses the potential for communities to challenge “fire fatalism” by building local capacity to control, prevent, and use fire in changing landscapes and political contexts. The study draws on interviews and oral histories of fire, burning practices, and landscape change, narratives and participatory mapping of fire events and risks, corroborating remote sensing evidence, observation of fire management activities, summaries of nearby land development and resource exploitation, and analysis of changing fire policies and programs. Community based fire management efforts often support local struggles to retain or gain control over land and forests. Negotiations open opportunities for villages to cooperate with or to contest actions by regional officials testing newly devolved responsibilities, and by companies offering to help villages control fires, but whose own activities pose fire risks. Prioritizing international concerns about transboundary “haze” and atmospheric carbon loadings may concentrate Indonesia’s future fire efforts toward a limited range of prominent fire types (peatland fires; burning to expand corporate plantations), while abandoning approaches that address varied fire concerns and livelihood needs of many communities in fire-prone areas. Broadly applying the participatory and social justice principles of community-based fire management in the face of narrowing fire policy targets may help reassert locally-generated approaches to protecting land and livelihoods against unwanted fires with varied causes and impacts.

Keywords: fire, hazard, community-based resource management, Indonesia

Gideon Mazinga, MSA, Loma Linda University. Email: gmazinga01g@univ.llu.edu; *Patterns of Satisfaction with Health Services in Malawi: Analysis using Geographic Information Systems Technology*

Malawi is among the countries in the southern region of Africa which is experiencing an increase in number of patients seeking health services as a result of the prevailing diseases including but not limited to HIV/AIDS. Spatial information is crucial in making effective policies to improve quality of health services to all Malawians. A growing number of health service agencies are discovering Geographical Information Systems (GIS) as a new way to help understand health and social problems, explain to policy makers and constituents the wide discrepancies between needs and resources, and to effectively and equally place those resources in communities (Mandayam, 2002). This paper attempts to address spatial patterns of satisfaction with health services in Malawi. Spatial autocorrelation test was conducted to find out if satisfaction with health services was randomly distributed in all districts across Malawi. Spatial autocorrelation was determined by Moran’s I measured on percentage of satisfaction by district for 26 districts. Results indicated that there was significant positive spatial autocorrelation of satisfaction with health services in Malawi (Moran I = 0.4045, $p < 0.05$). The results depicted spatial pattern of districts with lower percentage of satisfaction with health services in the central and northern region and spatial pattern of districts with higher percentage of satisfaction with health services in the southern region. These results are helpful to policy makers to consider providing equal and fair provision of quality health services to all people in all districts by targeting districts that are less satisfied with health services.

Keywords: health services, satisfaction, GIS

Soumya Mazumdar, University of Iowa. Email: soumyamazumdar@yahoo.com; *The effects of geocoding inaccuracies on the ability to recover relationships between environmental exposures and Health*

Positional inaccuracies and inability to match some addresses to digital street files influence the recovery of relationships between measures of environmental exposure and health. In most studies, the process that generates the geocodes controls the severity of these problems. In this research, using Monte Carlo simulations I experimentally controlled positional accuracy, level of completeness in geocoding addresses and hypothetical relationships between environmental exposure and disease. The test data include credible measures of contamination and likely magnitudes of health effects. The ability to detect a known level of relationship—statistical power?depends therefore not only on the modelled strength of the relationship but also on the level of positional accuracy and completeness of the geocodes. I analyze inaccuracies of geocoded addresses generated by three types of geocoding processes: a) Addresses located on readily available orthophoto coverages; b) Addresses located by commonly used TIGER (Topologically Integrated Geographic Encoding and Referencing system) files; and, c) E-911 geocodes (developed by local authorities for emergency dispatch purposes). Results calibrate losses in statistical power that depend on a decrease in the degree of geocoding completeness and a decrease in positional accuracy. Although these specific results cannot be generalized to other situations, the

computational method used to calibrate the sensitivity of the results can be used in any situation.

Keywords: G.I.S, geocoding, accuracy, health

Jeff Mc Govern, University of Arizona. Email: jtmcgoe@email.arizona.edu; *Up Front and Back Home: Exploring Ways in Which CMCs are Conjoining the Combat Zone and the Home Front and Some Possible Ramifications*

My presentation will examine changing modes of communication utilized by deployed soldiers and their families and friends residing within the United States and explore some possible ramifications of the collapsing of space between the “safe and secure” home front and the “hostile and dangerous” combat zones in the current Iraq and Afghanistan wars. Through the concomitant development of communication technologies and their increased availability to U.S. troops overseas, the volume and type of communication between the Home Front and the Combat Zone have almost begun to meld the two spaces into one, removing a psychological safety of distance, both metaphorically and in some senses physically, between family and combatant. In the paper I will contrast twentieth century modes of communication between U.S. troops overseas and their correspondents and then move onto twenty-first century modes of communication for the same to explore how they might be affecting contemporary U.S. foreign policy.

Keywords: political geography, soldiers, world wide web

Michael Andrew Andrew McAdams, Fatih University, Istanbul Türkiye. Email: mcadams@fatih.edu.tr; *The Role of Urban and Inter-regional Transportation in South Eastern Europe*

South Eastern Europe is experiencing many challenges as it develops economically and integrates with the rest of Europe; among them is the development of an improved transportation network at all scales. The development of a good transportation is crucial to aid in its economic development. At the present time, the area’s linkages to Europe and Central Asia are inadequate to support the growing interaction between the regions. The urban transportation systems are also undergoing dramatic change due to increasing automobile ownership and rural-urban migration. There is an immediate impact on the environment, urban growth and long term effects on the energy supplies of the region. At both the inter-regional and urban level, there needs to be a balanced and sustainable approach. This paper will discuss past development of both urban and inter-regional transportation networks and explore future scenarios for a well-developed and integrated network.

Keywords: transportation, urban economic development, South Eastern Europe, Balkans, sustainability

Kathleen McAfee, San Francisco State University. Email: km@kmafee.com; *Global Markets in Environmental Services: The Missing Link Between Conservation and Development?*

Commodification of environmental services (ES) - carbon storage, water filtration, flood control, wildlife habitats, genetic diversity, and scenic beauty - has become a leading trend in international environmental policy. Although ES marketing discourse reflects a neoliberal ideal of private entrepreneurialism, market pricing, and efficiency, most actual ES trading schemes depend substantially on regulation, subsidies, and other support by public institutions. Multilateral and private agencies are developing programs for transnational trade in tropical and subtropical ecosystem services. Their advocates predict that they will generate vast new revenues for climate-change mitigation and biodiversity preservation. Some advance a more ambitious claim: by simultaneously fostering economic growth, conservation, and social equity, they say, the monetary valuation and commercialization of ES can provide the missing conceptual and practical link between conservation and development. This paper questions whether transnational ES markets can yield either net conservation or net equity gains. To the extent that transnational carbon markets make it easier to avoid GHG reductions at the source, they promote net environmental harm. Moreover, carbon sequestration, waste storage, or habitat maintenance are cheaper in global South because land rents, wages, and living standards are lower there. Thus, the pivotal premise of low-cost conservation by commercialization depends on the continuation of extreme socio-economic inequality. The discourse of global ES trading subsumes ecology within the smaller world of market economy. By leaving out the greater part of nature’s meanings and uses to the world’s poor majority, it radically discounts the existing and future values of ecological and eco-social production.

Keywords: environmental services, development, neoliberalism, environmental justice, conservation

Marne McArdle, Department of Geography and Environmental Studies, Northeastern Illinois Univ. Email: poniente@hotmail.com; *Where have all the lesbians gone? Lesbian Placemaking in Chicago.*

Chicago's "Boystown" community in the Lakeview neighborhood is widely known as a gay male enclave. Much less known is Chicago's "Girldown" lesbian enclave in the Andersonville neighborhood. In general, gay male places and sociospatial identity seem to be much more openly on display than their lesbian counterparts. Based on autoethnographic fieldwork, this paper examines the contingency of lesbian placemaking in Chicago and seeks to identify the parameters within which sociospatial identity is constituted in the community. It argues that the reality of place for lesbians in Chicago is constantly changing, and that the lesbian "scene" is a fleeting one, specific to time and space.

Keywords: lesbian, Chicago, sexual geography

Kathleen E McBride, BS, Northern Arizona University. Email: kathleen.thatcher@nau.edu; Thomas Painter, PhD, National Snow and Ice Data Center. Email: tpainter@nsidc.org; Chris Landry, PhD, Center for Snow and Avalanche Studies. Email: clandry@snowstudies.org; *A synoptic climatology of desert dust deposition to the alpine snowpack in the San Juan Mountains, Colorado, U.S.A.*

Collaborative research is underway in the San Juan Mountains to study the radiative and hydrologic effects of desert dust deposits on alpine snow. The component described here is the development of a synoptic climatology for winter and spring dust deposition to the alpine snowpack in the San Juan Mountains of southwest Colorado. The purpose of this study is to determine what types of meteorological and climatological characteristics generate the dust deposition events in the San Juan Mountains. A further understanding of the climatology of dust deposition events will provide insight into the interactions between deserts and mountains and facilitate seasonal to daily predictions of dust emission events. We analyze 18 dust deposition events that have been documented in snow in the San Juan Mountains of Colorado in winter and spring seasons of 2003 through 2006. The research explores antecedent precipitation, soil moisture, wind conditions, vegetation cover, pressure patterns at 500mb and the back trajectories of dust events and dust-free events. Data from the Southwest Climate Impact Meteorological Stations (CLIM-MET), the Moderate Resolution Imaging Spectroradiometer (MODIS), the Advanced Microwave Scanning Radiometer - Earth Observing System (AMSR-E) and the Stochastic Time-Inverted Lagrangian Transport (STILT) model are analyzed. Finally, existing correlations between ENSO and the San Juan Mountain dust events are investigated.

Keywords: Dust, snow, trajectory, atmosphere, Colorado Plateau

Anna McCall-Taylor, University of Washington. Email: amct@u.washington.edu; *Employer-Based Health Insurance and Gendered Employment*

The majority of non-elderly Americans rely upon employer-based health insurance (EBHI) to afford healthcare. Rising health care costs, the changing nature of American employment, and trends within the health insurance industry have made it more and more difficult for individuals and families to secure and maintain employer-based health insurance coverage. While scholars from other disciplines have explored some of the ways in which the quest for EBHI influences individual employment decisions, few have taken gender - or the gendered context in which employment decisions are made - into account. Within Geography, there is an unfortunate paucity of work on this issue of pressing topical importance and exciting theoretical relevance. I share the results of my analysis of the importance of married couples' need for EBHI to the gendered blurring of the lines between home and work and this phenomenon's reconstitution of gendered roles. I suggest that a study of employer-based health insurance has much to contribute to discussions of gender, work, and home, by speaking to household decision-making, care and neoliberalism, and Feminist Geographies.

Keywords: Health Insurance, Feminist Geographies, Economic Geographies, Care, Household

Robert J. McCalla, Saint Mary's University. Email: robert.mccalla@smu.ca; *'Intermediacy' in Caribbean transshipment container ports*

It is estimated that, on average, 30% of all containers handled in ports are transshipped intramodally. Some ports, notably Tanjung Pelepas, Gioia Tauro, and Algeciras are almost 100% transshipment ports. Such ports rely heavily on their intermediate position relative to shipping lanes - a geographical situation factor - to attract transshipment business. Intermediacy can be shown by measuring deviation distance of the port from shipping lanes. The less deviation the more convenient - less cost - it is for large ships on deep-sea routes to transship containers to other deep-sea routes or short sea ones. An interesting case today is the competition for transshipment trade within the Caribbean Basin. At least six

ports - Freeport, Kingston, Rio Haina-Causedo, Colon, Cartagena, and Port of Spain-Point Lisas - can be identified in the "Caribbean Transshipment Triangle". This paper shows intermediacy properties of each port relative to six shipping routes passing through or near the area. Individually, no one port has the least deviation distance to all routes, but Colon because of its location at the entrance/egress from the Panama Canal is well-positioned with no deviation on three routes. In aggregate, the port with the least deviation distance to all routes is Kingston; the greatest is Port of Spain-Point Lisas. Given that the intermediacy property of the six ports is competitive, the paper concludes with a discussion of other factors - notably site ones - to account for the fortunes of these ports as transshipment points.

Keywords: Caribbean, containers, transshipment

Judith McCallum, York University. Email: judithmc@yorku.ca; *Truth Commissions in Time/Space*

This paper argues that Truth Commissions, as they have emerged in recent history, are examples of globalities that are generated in nonlocal fields and linked through the ideoscapes of reconciliation and democracy, with the implicit (and sometimes explicit) the goal of consolidating the nation-state (Whitlock 2001). In order to demonstrate this, the paper will first provide a definition of TCs, it will then provide a brief overview of their development and the current distribution of active and inactive TCs. The paper will then seek to provide what Doreen Massey (1999) defines as the "power-geometries of time-space" of TCs, and examine more specifically role of the nation-state in TCs. Finally it will respond to the call for a grounding of this approach to globalization in the everyday life, examining the performance of TCs in everyday, lived experiences.

Keywords: Globalization, Space, ideoscapes

Susannah R. McCandless, Clark University. Email: smccandless@clarku.edu; *Laboring to conserve the land: land trusts and migrant farmworkers in Vermont*

This panel participation will address doctoral research on the landscape and livelihood effects of private land conservation, through conservation easements. Specifically, it examines aspects of the research concerning the role of migrant Mexican farmworkers on conserved Vermont dairy farms. Without legal status, these workers cannot move freely through the landscape they work to maintain and reproduce. Despite increasing support from the wider community, farmworkers experience the aesthetically prized Vermont countryside as a carceral landscape.

Keywords: land conservation, land trusts, migration, labor, landscape, livelihood, Vermont

Eugene McCann, Simon Fraser University. Email: emccann@sfu.ca; *Calculative Technologies and Global Circuits of Knowledge in Contemporary Urban Development: Toward a Theorization.*

Scholars across the social sciences are increasingly interested in how localities are constituted in and through global relationships and by flows of people, capital, and ideas. The foundations of this global-relational approach are numerous, but Harvey's notions of circulation, mobility, and fixity and Massey's conceptualization of a global sense of place clearly figure centrally. More recently, literatures on migration, global cities, policy transfer, and mobilities of various kinds have enriched this perspective. Yet, there is much to be done to understand what Lerner has called the 'apparently mundane practices' and 'messy actualities' through which localities are produced in global-relational context. This is certainly the case in the study of urban development. Questions remain about how - through which practices, inter-personal connections, travels, global assemblages of expertise, everyday routines, etc. - urban development gets done. This paper seeks to partially address this lack. Drawing on a synthesis of poststructuralist and political economy approaches, it will focus on two connected, but relatively understudied, aspects of the urban development process: (1) the calculative technologies through which urban governance and development actors understand their practice, their successes, and their position within wider fields of inter-urban competition; (2) the global circuits of knowledge which allow other cities to be learned from and which provide paths for the transfer of 'models' and 'best practices.' The paper will highlight aspects of both and argue that these apparently mundane technologies and practices must be positioned more centrally in contemporary studies of urban development.

Keywords: Urban development, Policy knowledge, Governmentality

Shannon McCarragher, Northern Illinois University. Email: smccarragher@gmail.com; *Photosystem Stress of Understory Balsam Fir (Abies balsamea) in Ontario, Canada as Measured by Chlorophyll Fluorescence*

The main goal of this research was to assess the health and stress levels of understory balsam fir seedlings and saplings within Lake Superior Provincial Park (LSPP) in Ontario, Canada. This was accomplished by testing the photochemical efficiency of their photosystem II, which measures fluorescence. The data

obtained provide an indication of the degree to which the seedlings and saplings are stressed due to various environmental factors such as high light intensity, low water availability, or limiting soil nutrients, to address whether this species will be impacted by future climate change. Four sites were sampled, with a total of 136 seedlings and saplings measured for their photochemical efficiencies. Morning (AM), Noon (Midday), and late-afternoon (PM) measurements were taken at these sites, with approximate four hour intervals between each of the three measurements. It was hypothesized that the sampled balsam firs would display little, if any, indication of stress because the researched area is located near the southern limit of balsam fir, which should therefore provide optimum growing conditions. Many factors (such as size class, location, and time of day) were statistically analyzed by running one way ANOVA, Kruskal-Wallis test, and t-test using the collected data. The greatest statistical significance was found when all sites were testing based on light condition and time of day.

Keywords: boreal forest, canada, balsam fir, climate change

Danny McCarroll, . Email: d.mccarroll@swan.ac.uk; Neil Loader, . Email: ; Mary Gagen, . Email: ; Iain Robertson, . Email: ; Giles Young, . Email: ; Kevin Anchukaitis, . Email: ; Sietse Los, . Email: ; Risto Jalkanen, . Email: ; Andreas Kirchhefer, . Email: ; *Objective correction of tree ring stable carbon isotope chronologies for changes in the carbon dioxide content of the atmosphere.*

Tree ring stable carbon isotope ratios ($\delta^{13}C$) often display a decline over the industrial period (after AD1850) that is only partly explained by changes in the isotopic ratio of carbon dioxide and represents a response to increased atmospheric concentrations of CO_2 (pCO_2 , or ca). If this is not corrected, calibration of long tree ring stable isotope chronologies using the modern period, for which meteorological records are available, will be compromised. An objective correction procedure is proposed where temporal de-trending is restricted by two logical constraints based on the physiological response of trees. The first constraint allows a falling trend in $\delta^{13}C$, which exceeds that which could logically be attributed to a passive response to rising ca , to be retained. The second ensures that any increase in $\delta^{13}C$ is not removed. The procedure is tested using data sites in Finland and Norway. In each case it results in a substantial improvement in the correlation with local meteorological measurements.

Keywords: tree rings isotopes carbon

John F McCarthy, PhD, Australian National University. Email: john.mccarthy@anu.edu.au; Contrasting Convergences: Smallholder engagement with the Oil Palm Boom on the Frontier of Malaysian Borneo and of Outer Island Indonesia.

Over recent decades a structural transformation has affected agriculture in frontier areas of Malaysian Borneo and Outer Island Indonesia with the rapid conversion of agricultural lands, fallows and formerly forested areas into oil palm. By comparing cases in each country, this paper will explore why, despite significant differences in systems of governance, frontier areas of Malaysian Borneo and Outer Island Indonesia appear to be converging around a particular mode of agrarian change during the oil palm boom. Both have similar positions in the international political economy of this commodity and have complementary resource endowments. Moreover, in both cases, in concert with neo-liberal principles, state agencies have facilitated development schemes and provided incentives for private plantations that involve the privatization of customary lands and the integration of smallholders into large blocks of land set aside for monocrop development. While indigenous smallholders are inclined to enter oil palm production where there is space for them to engage with the market on favorable terms, for many poorer smallholders the current transition is associated with uncertainty over incomes, land tenure arrangements, and economic structures and has raised environmental, social and political contentions. Contrasting how wider political and economic forces articulate with local legal and institutional mechanisms to shape outcomes in each case, this paper will explore the factors affecting how smallholders are either able to progress or are marginalized by the terms under which they engage with the agrarian transition.

Keywords: Agrarian transformation oil palm frontier Southeast Asia

Linda McCarthy, University of Wisconsin. Email: lmccarth@uwm.edu; Off the Mark? Economic Efficiency in Targeting the Most Marketable Sites rather than Spatial and Social Equity in Public Assistance for Brownfield Redevelopment

Brownfields are properties where expansion, redevelopment, or reuse is complicated by the presence of known or suspected hazardous substances, pollutants, or contaminants. The U.S. Environmental Protection Agency has estimated that between 500,000 and one million properties have a strong potential for contamination. Public-sector efforts to promote cleanup and redevelopment are faced not only with the burden of such a significant number of brownfields, but also with the challenge of limited public funds. As a result, targeting public-sector funding toward the most marketable sites is a commonly-

adopted approach in cities across the United States. Targeting public redevelopment funding toward the most marketable brownfields is viewed as an economically efficient use of scarce resources, because it may guarantee the greatest likelihood of success. But to what extent does this policy promote spatial and social inequities by neglecting contaminated sites in distressed neighborhoods containing minority and low-income populations? This case study of Milwaukee, Wisconsin identified that tracts with above average percentages of African Americans and Hispanics, although containing above average numbers of brownfields per square mile and higher percentages of brownfields compared to percentage of the city's area, had below average city-assisted redevelopments as a percentage of all brownfields. A policy implication is that, despite difficulties promoting brownfield redevelopment in distressed neighborhoods, in addition to economic efficiencies, more emphasis is needed for the social benefits of public assistance for brownfield redevelopment, including potential spillover benefits for surrounding neighborhoods, such as crime reduction and health improvements.

Keywords: brownfields, spatial and social equity, economic efficiency, public subsidies, environmental justice

Mark McCarthy, BA, PhD, FRGS, Galway-Mayo Institute of Technology, Ireland. Email: mark.mccarthy@gmit.ie; John Towler, Galway-Mayo Institute of Technology, Ireland. Email: mark.mccarthy@gmit.ie; Tracing Irish Ancestors within Diverse Tourism Spaces: A Proactive Approach to Developing New Models of Genealogical Tourism Promotion and Management

There are over 70 million people of Irish descent scattered across the globe, forming a nostalgic Diasporic network that links Ireland to places such as the USA, UK, Canada, Australia, New Zealand and Argentina. While the concepts of cultural affinity and roots have long-served as 'pull' factors which have attracted sentimental ethnic tourists to Ireland, the advent of the Internet as a 'virtual' research tool for family history research and the ongoing reconfiguration of the tourism industry in general have raised countless questions about the future of its ancestral tourism industry. Using evidence gleaned from an online questionnaire and extensive fieldwork throughout the West of Ireland, this paper is concerned with the challenges and opportunities facing genealogy as a tourism product. Special attention is paid to the notion that tourism in the new Europe "needs to be managed with foresight, proactively rather than retrospectively responding to change" (Hall, Smith and Marciszewska, 2006). Following an overview of the current heritage management difficulties that exist in promoting genealogy tourism, we will attempt to illustrate how these may be best addressed by the development of new marketing strategies and work/organisational practices for the genealogy tourism industry as a whole - including the encouragement of dynamic activity within both 'real' and 'virtual' tourism sub-spaces.

Keywords: tourism geography, genealogy, Ireland

Erin McCarty, Graduate Student, Geography, Ohio University. Email: em348105@ohio.edu; Open-Space Preservation in Edinburgh and Baltimore: A Cross-site Comparison

Policy makers continue to develop ways to control sprawl, but the problem is growing. So too are problems related to human health problems, energy consumption, and environmental degradation. Planners need greater knowledge of the tools available to combat irresponsible development. Edinburgh, Scotland uses one such tool, the Green Belt, successfully. This study outlines the creation and current condition of the Green Belt around Edinburgh, comparing the U.K. city's experience with open space management in Baltimore, Maryland. Initial results show that cities should implement more regional cooperation in order to achieve open space preservation goals. This study is part of the ongoing Baltimore Ecosystem Study, a multifaceted, long-term ecological research project devoted to understanding how cities function as ecosystems.

Keywords: Open Space; Preservation; Green Belt; Edinburgh; Baltimore

Jessica L McCarty, Doctoral Candidate in Geography, University of Maryland Department of Geography. Email: mccarty@geog.umd.edu; Multi-temporal Crop Type Mapping for the Contiguous U.S. using 250m MODIS Data

A semi-automated decision tree classification approach was developed to quantify crop types in the contiguous United States. 250m Moderate Resolution Imaging Spectroradiometer (MODIS) 16-day time periods for the year 2003 were used to test a semi-automated decision tree classifier approach. The Landsat-based Cropland Data Layer (CDL) produced by the USDA NASS was used for training and validation data for the decision tree classifier. The tree models included both red (620-670 nm), near infrared (841-876 nm), and normalized difference vegetation indices (NDVI). Results were improved when the MODIS Vegetation Continuous Fields (VCF) percent tree cover was used to define non-crop areas as well as an initial grassland/pasture classification from the CDL product. Field data of crop locations for sampling and validation improved the remote sensing-based estimates of individual crops. The monthly crop type maps were adept at detecting crop rotation patterns, making this product adept for

both monitoring monthly crop growth and estimating fire-related emissions from agriculture.

Keywords: remote sensing, agriculture, United States

Ron McChesney, Ohio Wesleyan University. Email: rmcches@owu.edu; *Global Exurban Development Patterns*

Exurban development is a component of metropolitan areas. Metropolitan areas consist of central cities, sprawling suburbs, fragmented exurbs and open space rural lands. Metropolitan areas exist in all world regions of the earth. The rapid diffusion of the spatial tool Google Earth allows for the average person to gain an impression of the human settlement pattern. A review of Google Earth images demonstrates that exurban development patterns are part of a global economic process, and can be observed in numerous locations.

Keywords: exurban, land use, Google Earth

Amy L McCleary, University of North Carolina at Chapel Hill. Email: alnorman@email.unc.edu; *Identification of Invasive Guayaba (Psidium guajava) on Isla Isabela, Galápagos Archipelago using Object Based Image Analysis Techniques*

The Galápagos Islands of Ecuador, located approximately 1,000-km off the coast of Ecuador, were only sparsely populated from their discovery in the 1500s until the 1980s. More recently, poor economic conditions on the Ecuadorian mainland combined with a fishing boom in the archipelago, and available service positions linked to the burgeoning ecotourism industry, have resulted in conflicts between people and the environment, possibly best exemplified by the pressure placed on the Galápagos National Park by the introduction of invasive plant and animal species that are replacing endemic flora and fauna. Guayaba (*Psidium guajava*), the invasive plant species of focus in this research, has become particularly aggressive within agricultural areas as it is rapidly replacing native grasslands and Scalesia forests. In this study, object based image analysis (OBIA) methods available in Definiens Professional 5 were applied to a high spatial resolution Quickbird image of Isla Isabela in the archipelago to identify the spatial location and pattern of guayaba in test areas. A multi-resolution segmentation method was first applied to the Quickbird image to create individual image objects, a hierarchical classification scheme was developed to identify patches of guayaba and non-guayaba, and the classification scheme was applied to the image objects. The resulting classification of guayaba shows a significant concentration of large and small patches within the agricultural zone, but also within the surrounding Galápagos National Park.

Keywords: Remote Sensing, OBIA, Invasive, Ecuador

George Franklin, Jr. McCleary, University of Kansas. Email: mccleary@ku.edu; Christian Cooley, Unified Government of Wyandotte County / Kansas City, Kansas. Email: ccooley@wycokck.org; *Cartography, GIS, and Teaching the Geography of Wine*

Maps of wine-production areas abound in both scientific publications (books, reports, and journals) and "wine tourism" literature (from brochures and guidebooks to sheet maps and web sites). While some are excellent (e. g., James Wilson's book, *TERROIR*, and the map, "Vineyards of Yamhill County"), much of the tourism literature is extremely inefficient for navigation and misleading in the representation of the location and extent of wineries and vineyards. There are few maps that contribute satisfactorily to the integrated series of maps at many scales and levels of detail needed to teach a world-scale course in the geography of wine. The problems range from the simple to the complex. Solutions? Base maps of the principal wine-producing regions of the world have been developed on single pages (letter-size), all on the same projection and at the same scale - these can be overlaid easily, facilitating graphic comparison. For the global view, the Briesemeister Projection provides a better perspective than the rectangular projections usually employed. The technology of Geographical Information Systems can be structured to accommodate non-technical (and non-major) students in the class. A "template" (using ESRI ArcGIS) was developed, focusing on the wines of Italy (using Langhe as a local example), to encourage students in the class to examine more interesting, more complex, research problems.

Keywords: cartography, education, GIS, map, tourism, wine

Sherri A. McClure-Baker, Oklahoma State University. Email: sherri.a.mcclure@okstate.edu; *Using ArcIMS as a Tool for the RAISE GK-12 Program*

RAISE (Rural Alliance for Improving Science Education) is a GK-12 program developed through a partnership between Oklahoma State University and three local school districts. 10 OSU graduate students are partnered with teachers from these local schools. These partnered teams are working cooperatively to integrate GISci technology into the science curriculum. Geographic information sciences (GISci) offer a suite of useful tools such as GIS, GPS and Remote Sensing to help educators teach students about various subjects. As data

was gathered by the participating schools, there became a need for storing and accessing the data. The best way to accomplish this was through the use of an Arc Internet Map Server (ArcIMS). The RAISE ArcIMS Virtual Mapping Atlas was created to house data collected by the three participating schools in Payne, Noble and Kingfisher Counties in Oklahoma. In addition to the collected data, base data for the state of Oklahoma was also considered. Working with the teachers and scientists from each district to determine needs, data was compiled, manipulated and stored in an ArcIMS website. By using the VMA in conjunction with ArcGIS software, the teacher/scientist partners are allowed access to additional information collected by the other school districts as well as pertinent county data for their own district.

Keywords: GIS, GK-12, ArcIMS

Andrew T. McColgan, University of Memphis. Email: drubydoo@yahoo.com; *Rates and Forms of Tafoni Weathering from High-resolution Digital Elevation Data*

The quantification of temporal changes in geomorphic process-form relations are a critical factor in determining landform evolution. Weathering represents an integral component in the development of landforms. Tafoni weathering from three coastal platforms with different altitudes and different known emergence ages are examined to assess weathering rates from Nojima-zaki, Japan. The findings add an additional 15 years to the record of tafoni weathering at this site. Furthermore, the study is enhanced by the use of high-resolution terrestrial laser scanning (TLS) technology. TLS is used to image the rock surfaces as point clouds. The data are modeled and geomorphometric variables are virtually recorded for subsequent statistical analyses. Indices are developed from combined geomorphometric variables to enhance inferences drawn from the temporal changes in tafoni weathering features and processes. In addition to the form analysis, micro-scale spatial context is explored through a random stratified sampling of pits on separate platforms. The within- and between-variability comparisons of the rock surface provide finer-scale understanding of the spatial variability of tafoni weathering features.

Keywords: geomorphology, weathering, Japan, laser scanning

Chris McColl, M.Sc., Central Washington University. Email: mccollc@cwu.edu; Anthony Gabriel, PhD/Professor, Central Washington University. Email: gabriela@cwu.edu; *A Fire Hazard Decision Support Tool for Improved Rural Security*

In the Pacific Northwest an increasing number of residential developments are being planned and are occurring within forest and shrub lands. As more development extends deeper within these regions, the associated risk of wildfire to these residences increases. It is advantageous for local land use planning agencies to foresee which regions would be at risk due to wild fire hazards, enabling appropriate mitigation plans to be developed in advance. This research outlines the development of a fire hazard decision support tool that is based upon two modeling components: 1) a fire hazard model; and 2) a land use forecasting model. The fire hazard model has been developed by incorporating influential fire hazard variables to spatially identify wildfire-at-risk regions using GIS technologies. Future residential distribution patterns are forecasted by the land use forecasting model, which is based upon a county government comprehensive land use planning policy of the selected study area. Identified 'wildfire-at-risk' regions are compared to forecasted patterns of future residential growth, delineated by the land use model. Overlapping regions of wildfire hazard and future growth can be identified as locations where mitigation activities should be focused. Results of this application can then be used to aid land use planning activities in the modification of comprehensive land use plans that incorporate future fire hazard risks within their design at the county scale.

Keywords: Wildfire, vulnerability mapping

William J. McConnell, Michigan State University. Email: mconn64@msu.edu; *Forestation in Post-colonial Madagascar Highlands*

Madagascar's farmers have long been vilified as the main agents in an environmental disaster ensuing from the deforestation of the island. But studies over the past decade - in Madagascar as elsewhere - have undermined this conventional degradation narrative. While it is clear that a great deal of the island's forests have been felled to make way for agriculture, considerable areas are undergoing net increase in tree cover. Some of this forestation is taking place in formal/commercial plantations and is well-documented, but analysis of informal, scattered tree growth is scant. Thus, there are no reliable estimates of long-term rates of forestation. This paper describes preliminary results from research designed to provide such estimates for the past five decades. The paper contributes to the development of forest transition theory, providing empirical evidence for that Madagascar is following the so-called 'forest-scarcity' path. Forestation in Madagascar is important to the livelihood options of the rural population, both directly through the provision of consumable and marketable products, and indirectly through soil and water conservation. There are also

broader environmental implications, such as the sequestration of carbon. The study will help ascertain the degree to which forestation is meeting fuelwood needs on a sustainable basis, and at what point such forestation could make Madagascar's land use carbon neutral. These data will form the basis for spatially explicit simulations capable of reproducing the observed land cover trends in the Madagascan highlands over the past half century, and projecting those trends out through the next several decades.

Keywords: Madagascar, forest transition

Jen McCormack, PhD Student, University of Arizona. Email: jenmack@email.arizona.edu; *Rebels and Scholars: Palestinian Bedouin Women Students in the Naqab/Negev Desert*

As first generation college students at Ben-Gurion University, a group of Palestinian Bedouin women in the Naqab/Negev desert of southern Israel challenge both an antagonistic state and a legacy of patrilineal power by their academic pursuits and political action. In a series of interviews, these young women elucidated the changing identity politics for the Bedouin communities in Israel and growing vocal affiliation with Palestinians in the West Bank and Gaza. Additionally, they articulated the expectations of women in traditional Bedouin communities and how as young women, they are consciously rebelling against those kin-based power structures. In their university studies, these students expressed goals of obtaining degrees that will allow them to aid their impoverished communities. Essentially, by developing skills at the university, they can return to their villages and counteract the socio-economic problems created by state policies against Negev Bedouin communities. And by attending the university, securing degrees and directly engaging the political climate on campus, these women offer a revolutionary form of leadership to the traditionally agnatic based power structures in their communities. One interview participant encapsulated her aim, "I will do something to change. I want the generations that live now to have freedom in their families, in their communities." These young women subvert both tradition and state policies by cultivating a constructive form of rebellion offering a unique model to other young people in socially and politically disadvantaged communities.

Keywords: state, kin, women, students, Palestine, identity, subversion

Peter J. McCormick, Fort Lewis College. Email: mccormick_p@fortlewis.edu; *Moors, Sephardim, Celts, and Indians: auto-histories and auto-geographies of diaspora and place*

The initial push of humanistic geography in the 1970s was an attempt at re-peopleing a discipline dominated by social science. Since then the radical turn to technology and social theory has, once again, removed human agency and, to some degree, the individual and collective sub-groups from time and place. This paper draws upon early geographic humanism, by placing the 'self' within geographic discourse and within cultural and ecological space and is the result of years of personal genealogical research. The focus is on the convergence of people of Black Irish (Celtic/Iberian), French Huguenot/Iberian (Basque, Moorish and Sephardic Jew), and American Indian (Civilized Tribes) origins, in the Dust Bowl of the southern Plains of the 1930s. The paper discusses the development of cultural and familial homelands, diaspora and culture change, and the impact of this project on individual and family identity. The research process of connecting nearly four dozen family lines has been integrative; that is, it has allowed a corporate recovery of the past by placing families within larger historical and geographical contexts. The paper also illustrates how, over time, families, as cultural groups, transcend ethnic boundaries, social crises, and environmental disasters. Finally, the paper speculates on how such processes can serve as a means for understanding the nature of individual and collective identities and the imperative role geography plays in ethnic and cultural formation.

Keywords: Moors, Sephardic Jews, Celts, American Indians, homelands, landscape, Dust Bowl, auto-geography, humanism

Sabrina McCormick, Michigan State University. Email: mccor124@msu.edu; *Controversies over Large Dams in the Amazon*

In this paper, I explore the local, national and transnational controversies surrounding struggles over large hydroelectric dams in the Brazilian Amazon. As a part of a larger megadevelopment plan, the Brazilian government intends to construct an undetermined number of dams. Major international contention is developing due to the environmental sensitivity of the region and the potentially sweeping impacts on local populations. An additional component of these debates relates to potential funders of these projects. Transnational corporations from several other continents including North America, Asia, Europe and Africa are making investments in hydropower in Brazil. I seek to identify the intersection of these corporate institutions with civil society and the state. Why do companies prefer to invest in Brazil? How does the Brazilian government respond to these corporate interests? What is the role of civil society in policy-making regarding new dam construction? I focus on two recent cases to examine these processes: Belo Monte Dam in the eastern Amazon and Rio Madeira in the

western part of the region. These cases inform how contestation over other large hydroelectric dams in the Amazon will be rejected or resolved.

Keywords: Brazil, water, energy, Amazon, hydroelectric dam

Matt McCourt, University of Maine Farmington. Email: matthew.mccourt@maine.edu; *Affective Encounters in "Bloody Harlan"*

In 1931 a series of violent confrontations between miners and deputies in Harlan, Kentucky, attracted widespread attention in the national media. The ensuing year of organizing, investigating, and reporting brought an outpouring of relief, fundraising, and visits from sympathizers in metropolitan centers of the northeastern US. Among the visitors were groups of notable writers drawn from the leftist intelligentsia. The writers' encounters with Harlan and Harlan's labor conflict produced numerous articles, plays, reports, published memoirs and notes, several poems and fictionalized accounts, countless letters to the editor, leftist and mainstream press coverage, and diary writing. Reading the writers' more authoritative accounts, you might find them highly composed and self-possessed. You might find their interventions high-minded and even heroic. On the other hand, their personal writing is more apt to plumb their petty quarrels and infighting, their convulsions, their wracked nerves, paranoia and gloom. This paper draws from those writings that tap a visceral register, following the writers as they stumble upon situations that stretch the bounds of their considerable literary endowments, at times, rendered wholly unintelligible. In their diaries, notes and memoirs, the writers enact a micropolitics of encounter that might serve as an admonition for subsequent interventions.

Keywords: historical, affect, Appalachia

Talia M. McCray, Ph.D., University of Rhode Island. Email: tali@m.uri.edu; *Perceptions of Personal Space of Urban Teenagers Living in Providence, R.I.*

Studies agree that gender, household responsibilities, and life-cycle are significant factors that influence travel behavior. Some researchers have even used the ability to physically reach activities as a social indicator for monitoring the quality of life. However, little attention has been given to how transportation and land-use patterns affect the activity choices of urban teenagers. This study takes place at one inner city Providence high school, comprised of 180 students, who are predominantly children of immigrants. The research attempts to glean an understanding of the different perceptions of "personal space", and how various socioeconomic factors affect activity spaces. Perceptions of safe and unsafe places in Providence are compared with crime data from the City of Providence. Preliminary results show differences related to gender, transport mode, family structure, and part-time jobs.

Keywords: gis, teenagers, activity patterns, perceptions

Brent McCusker, PhD, West Virginia University. Email: Brent.McCusker@mail.wvu.edu; Joseph Hodge, PhD, West Virginia University. Email: Joseph.Hodge@mail.wvu.edu; *Historical Land Use Change in Limpopo, South Africa: The Case of Betterment and "Bantu" Town Planning*

South Africa's transition out of apartheid has been complex and the break with past traditions has been incomplete. A primary concern in the apartheid era was physically separating black from white people whilst keeping the black populations close enough to places where their labor was needed so that it could be mobilized when necessary. When considered unnecessary, black laborers could be "endorsed out" or expelled to more distant reserves - the bantustans. Using a political ecology approach, we present evidence on the historical and contemporary constitution of land use change in the northern part of the former Lebowa bantustan. We map changes in the region from 1963 -2001 encompassing the university town of Mankweng, Limpopo and nearby betterment areas. Throughout the paper we attempt to link observed land use changes to national, regional, and local agents of change. We outline several policy challenges resulting from our investigation pertinent to current rural planning and land reform attempts.

Keywords: land use, historical geography, betterment, South Africa

Paul N. McDaniel, University of Tennessee. Email: pmcdani1@utk.edu; *Ethnic Enclave or International Corridor?: Immigrant Businesses in a New South City*

Immigration is changing the U.S. South in unprecedented ways. The South is no longer nearly the exclusive domain of whites and blacks. Hispanics and Asians comprise increasingly influential minorities in towns and cities throughout the region. Immigrants, many of whom are recent arrivals, often choose to start entrepreneurial business ventures rather than go to work for someone else. My research examines immigrant-owned entrepreneurial establishments along two business corridors in metropolitan Birmingham, Alabama, a middle-tier metropolitan area that has experienced minimal in-migration in the last half century - but is now receiving more and more immigrants from many places. In this paper I examine the following issues: (1) factors leading to the development of

Birmingham's international corridor, (2) the reasons immigrant-entrepreneurs came to Birmingham specifically and the results of their presence in the area, (3) determinants of the location of the international corridor, and (4) the perceptions of immigrant entrepreneurs by local government officials. I address these issues using a multi-method approach that includes statistical analysis, archival research, personal observations and semi-structured open-ended interviews.

Keywords: Migration, Entrepreneurship, Ethnic Enclave, International Corridor, Birmingham, Alabama, U.S. South

Melanie Hughes McDermott, Rutgers University. Email: mmcdermott@aesop.rutgers.edu; *Locating Benefits: Decision-making, Resource Access and Equity in U.S. Community-Based Forestry*

The Ford Foundation's Community-based Forestry Demonstration Program, implemented over five years at thirteen pilot sites, represents an important experiment in community natural resource management in the United States. In its call for proposals and subsequent assessments, the Ford program promoted a prominent model, or ideal, of community natural resource management in which a defining feature is the simultaneous, balanced pursuit of ecological, economic and social goals (often symbolized as the "three-legged stool," or "triple bottom line"). In fact, an in-depth ethnographic examination of two of the pilot sites, one in southwestern New Mexico, and one in western Alabama, finds that these initiatives do not match up well to this model. However, a view through an alternative lens tells a different story. Rather than characterizing the outcomes of community natural resource management, this alternative framework examines the causes, or mechanisms, through which it acts, asserting that it will bring about social change (generate benefits), when it shifts: (1) who has a role in making what decisions about forest management, and (2) who gets access to what resources (e.g., forest, capital, knowledge). Both cases met these foundational criteria, yet were pursuing ecology, economy and equity in sequence (and with uneven emphasis), rather than as an integrated whole. We also found that who among community members gained access to resources and decision-making influence (1) reflected the distribution of power, cultural values, and racial/ethnic dynamics in the community, and (2) largely predicted who benefited from community natural resource management.

Keywords: community natural resource management CNRM, community-based forestry CBF, USequity, community, community development, rural

Ashley McDonald, Mississippi State University. Email: anm68@msstate.edu; Grady Dixon, Dr., Mississippi State University. Email: ; *Variation in Storm Surge Height: Result of Coastal Geography*

Hurricanes strike the United States coast annually, and with each land-falling storm there is potential for significant damage as a result of storm surge. Storm surge causes most coastal devastation and it is generally accepted that hurricane strength, categorized by the Saffir-Simpson scale, and storm surge are directly proportional. Because this scale does not include storm surge and other land-sea interactions, it inadequately reflects effects a hurricane can have on the coast at landfall, which consequently leads to underestimated predictions of potential damage. Since most destruction occurs from storm surge, variables contributing to storm surge become the most important factors when assessing damage potential. For this study, coastal geography and bathymetry are examined as major variables contributing to storm surge heights. The Gulf Coast and Atlantic Coast are divided into 5 basins, based upon geographical similarities and bathymetric structure; resulting storm surge from hurricanes, within the same category and having similar environmental variables, are then compared for each basin. Thus, two hurricanes of equal strength, which make landfall at two separate locations having different coastal geography and/or bathymetry, can have a considerable storm surge difference, although categorically identical. In order to provide timely, accurate forecasts and proper projection of potential damage, this research will improve the understanding of variables contributing to storm surge and the inconsistencies with the Saffir-Simpson scale.

Keywords: Meteorology, Coastal Geography

Darrel L. McDonald, Ph.D., Stephen F Austin State University. Email: dmcDonald@sfasu.edu; Daniel Scognamiglio, Ph.D., Stephen F. Austin State University. Email: dscognamiglio@sfasu.edu; *Aspects of Sacred Space Spatiality Arising from Mapping of Selected East Texas Counties Cemeteries*

The earliest cemeteries in East Texas were attributed to Caddoan groups. Few of their mound burials remain on the landscape today. Later, Spaniards established cemeteries but, again, these sacred places were essentially erased by later settlers. The present cultural cemetery landscape dates from the early 19th century when Euro-Americans moved into East Texas. The study examined the spatial and temporal affinities of nearly 800 cemeteries located in Nacogdoches and Angelina Counties. GPS locations, orientation and temporal factors were analyzed to better understand cultural processes at work from the 19th century to present. Temporal analysis indicated a general trend from church affiliated

cemeteries to community related cemeteries to an increase in city-based internments, although in recent years there has been a change toward an increasing number of family cemeteries located on private land. Spatial patterns displayed a wide variety of orientation patterns, with an eastern facing entrance gate most common. Additionally, cemeteries tended to occupy mid to upper slopes, understandably, that insured longevity by reducing the potential for disturbance of the cemetery landscapes. Currently an important spatial interpretation challenge for many of the older cemeteries is the fact that intra-spatial mapping was less organized after establishment, record keeping was minimal which has now given rise to considerable issues of does the cemetery have room for more internments or is the cemetery full.

Keywords: Sacred Space, Spatial Analysis, East Texas Cemeteries

David A. McDonald, Queen's University. Email: dm23@post.queensu.ca; *Electric Capitalism: Recolonizing Africa on the Power Grid*

The electricity sector in South and Southern Africa has been undergoing massive reforms over the past ten years as it moves towards more commercially-oriented and privately-managed networks. These reforms are having enormous implications for the way that electricity is generated, priced and consumed in the region. From the introduction of private producers to cost reflective pricing to a renewed push for nuclear power to the creation of a Southern African Power Pool, changes appear to be geared primarily for the benefit of capital at the expense of affordable and sustainable energy for the poor. So too have large South African electricity actors - such as the massive state-owned Eskom - been expanding elsewhere on the continent, privatizing and commercializing electricity systems throughout Africa. This paper provides an overview of these developments, situated within a critical perspective of neoliberal reforms in Southern Africa more generally.

Keywords: electricity, Southern Africa, privatization, commercialization, energy, capital accumulation

Mary G. McDonald, University of Hawaii. Email: mcdonald@hawaii.edu; *Historical Land Systems in Japan: Knowing Time Through Space*

This paper traces changes in Japan's historical land systems in relation to knowledge and state projects. Periodizations of the Japanese past conform so closely to transformations in tenure systems that consciousness of history appears predicated on the knowledge of reconfigurations of land rights. That is to say, time is known largely through space. Knowledge of Japan's historical geographies has not been continuously accreted, but has been excavated and inserted into "order" for two millennia. Land systems and knowledge about them have long been state projects. Nineteenth century cadastral reforms marked an ontological and epistemological modernization and commoditization of space. The modern state must repeatedly reposition land in communitarian time and space while deploying land into circuits of accumulation and differentiation.

Keywords: land tenure, Japan, modernity, capitalism, economic geography, historical geography

Linda McDowell, University of Oxford. Email: linda.mcdowell@ouce.ox.ac.uk; *Exploring inequality in London's service sector labour force: looking after*

The growing diversity among migrant workers in the UK, especially since the expansion of the European Union in 2004, is opening up new questions about labour market segmentation based on class, ethnicity, age, gender and skin colour and the exploitation and opportunities for different groups of migrant workers. This paper explores the implications of this diversity for geographical analyses of the labour market based on different perspectives and spatial scales, attempting to bring together work on categorical inequalities with analyses of workplace-based performances. The argument draws on case studies of service sector employment in an hotel and two hospitals in Greater London.

Keywords: migrant workers, labour market, scale

Patricia F. McDowell, University of Oregon. Email: pmcd@uoregon.edu; Jim E. O'Connor, U. S. Geological Survey. Email: occonnor@usgs.gov; Pollyanna Lind, University of Oregon. Email: plind@uoregon.edu; *Holocene and historical floodplain development in the Sprague River, south-central Oregon*

To provide an understanding of river and floodplain processes for restoration decisions, we used historical aerial photographs and maps, LIDAR data, soil maps, and field stratigraphic investigations to map the floodplain and present and former channel positions for a 150km-long river section. The Sprague has alternating wide and narrow valley segments, with a high-sinuosity (1.5-1.9), low-gradient (

Hungary, culturally, geographically and linguistically has had a complex relationship with notions of "Europe" and "Europeanness" since at least the conversion to Roman Catholicism by St. Istvan in the 10th century. The vicissitudes of Hungary during the 20th century further complicated the picture.

Fifteen years on from the end of communism, the place of Hungary within Europe, as East, Central or just Europe still remains a salient point of conversation within and outside the country. This paper addresses the question of how foreign visitors to the Hungarian capital of Budapest interpret and understand the place of Hungarian culture within a larger “European” cultural context. Visitors were interviewed on the streets of Budapest regarding their pre-conceptions of what they would find in the city, their familiarity with Hungarian culture and their interpretations of a Hungarian cultural identity within the cosmopolitan cityscape of the capital. Other visitors were given disposable cameras and instructed to take pictures of the non-monumental parts of the city which for them seemed particularly or uniquely Hungarian. This paper will discuss the results of this research, interpreting perceptions of Hungarian culture against the larger backdrop of “Europe.”

Keywords: Hungary, Landscape, Culture, Europe

James Metzger, West Chester University. Email: jimatwcu@gmail.com; Using GIS to Model First Responder Communications System Antenna Placement

Police, Fire, and Emergency Services demand reliability for their radio communications systems while performing their duties. These systems rely heavily upon proper transmitter and receiver antenna placement to insure the highest quality of service. With the natural variations in terrain, antenna height and visibility are key factors in any radio system’s performance. Using digital elevation data and the terrain analysis tools in ArcGIS, the viewshed for a proposed system is shown. With the addition of transmitter power and antenna efficiency, the model can show coverage range. These results can be used to assess the dependability of an existing system, as well as being used as a planning tool for new and expanded systems. A CommunityViz interface is used to make dynamic changes for antenna and transmitter characteristics. The model makes use of map displays, using both aerial photographs and street maps, for presentation to the end user.

Keywords: geographic information systems, modeling, terrain analysis, spatial analysis, viewshed

Martin Meyer, SPRU - University of Sussex & SooS, K.U. Leuven. Email: m.s.meyer@sussex.ac.uk; The emergence of nanotechnology: Why can there be regional concentration without regional clusters?

Previous research indicated that research and development activity in nanoscience and nanotechnology is concentrated on a comparatively small number of regions. Policies in a range of countries have supported the creation of regional nanotechnology clusters. However, more recent work seems to suggest, at least for a number of cases, that networks of collaboration among nanotechnology firms are technologically driven rather than localised in individual regions. In other words, even though one can trace regional concentration of scientific and technological activity in this emergent area, collaboration at the regional level is not as forthcoming as one may have thought. This study seeks to explore some of the reasons for this situation and draws on a multi-method approach, examining bibliometric, patent and firm-level data. Our observations suggest that nanotechnology is still an area of loosely coupled, inter-related and overlapping rather than broadly converging technologies. One can still track quite distinct technological clusters. While a considerable number of nanotechnology firms cater to a range of markets, only very few firms could be identified that integrate nano-scale technologies. Before the background of these findings, the apparent paradox of strong regional concentration of R&D activity without a corresponding intensity of collaboration within the region seems less surprising.

Keywords: new technologies, regional innovation systems, technological systems

Sherry A. Meyer, University of Wisconsin - Milwaukee. Email: sameyer@uwm.edu; Placing the Putative within Policy: Environmental Illness and the Spatial Endeavor for Health

An emerging and contested condition, environmental illness (also known as multiple chemical sensitivity), remains putative. This situation presents challenges for anyone who comes face to face with it, whether doctor, lawyer, insurer, government employee, neighbor or the person living with environmental illness. Set against backdrops of site and situation, the present research examines the ways in which persons with environmental illness respond to and manage their illness within the bounds of space and scale, endeavoring to stabilize and restore their health. Analyses of the data may reveal patterns and processes which can inform policy makers.

Keywords: medical, cultural and political, disability, emerging, contested, environmental illness, multiple chemical sensitivity, putative, manage, bounds of space, endeavor, stabilize, restore, scale, health, patterns and processes, policy makers

Klaus J. Meyer-Arendt, University of West Florida. Email: kjma@uwf.edu; Jon Oravetz, University of West Florida. Email: jro8@students.uwf.edu; Chris Houser, University of West Florida. Email: chouser@uwf.edu; Geomorphic Impacts of Hurricane Katrina Upon the Mississippi Barrier Islands

The Mississippi barrier islands (Petit Bois, Horn, Ship, and Cat) are undeveloped and mostly within the Gulf Islands National Seashore. Originating via a combination of shoal emergence and westward longshore drift, today they appear to maintain themselves as independent sediment cells. Mid-latitude and tropical cyclonic storms have flattened dunes and re-shaped island morphology over the years, and this has rendered the islands more vulnerable during subsequent storms. This NPS-funded study documented geomorphic impacts of Hurricane Katrina and their effects upon island recovery and vulnerability to future storms. Subaerial morphologic change was documented by analysis of pre- and post-storm elevation profiles extracted from NOAA LiDAR data. Bathymetric profiles, spaced at 400m intervals and extended out 1 km on both the Gulf and Sound sides, were generated by echo sounder and compared with pre-storm bathymetric data. Subaerial and subaqueous profiles were lined up across the islands, and empirical orthogonal functions (EOF) analysis was used to identify characteristic island profiles. Results from Petit Bois Island indicate significant dune flattening and shoreline erosion. Despite the erosion, the Gulf bathymetry showed little change, but Sound bathymetric profiles revealed both scour and overwash deposition. Where pre-storm dunes were low (western end), storm surge overwash caused extensive scouring as evidenced by bathymetric ‘drop-off’. In areas of higher dunes (center) or forest (east), soundside deposition was more characteristic. For the Mississippi barrier islands, such morphologic change—and associated redistribution of sediment—is considered to be an important control on the rate and variability of dune and island recovery

Keywords: Hurricane Katrina, barrier islands, Mississippi, LiDAR

Nadia Mian, New School University. Email: nadie19@hotmail.com; The Redevelopment of Religious Institutions

This paper will explore the redevelopment activities of religious institutions in both the United States and England. In recent years, throughout the United States and England, decentralization, immigration, and new religious practices have led to the redevelopment of declining urban religious spaces. In order to raise funds, churches are entering into agreements with developers to sell their air rights and create spaces comprising of religious, residential and commercial activities. While each country has adopted a similar attitude towards dealing with the issue of declining churches, the method/process each utilizes differs. The Church of England has set up a system through which the Redundant Churches Commission deems churches “redundant” and deals with them accordingly. In the United States, no such hierarchical organizational religious body exists, and declining churches are dealt with on an individual basis by each parish. In addition, immigration, new methods of practicing religion, and spatial shifts in population have led to more religious diversity and triggered a demand for new religious spaces. The effects of this demand have led to the “shrinkage” of major churches and the commodification of religious spaces, with more and more religious institutions acting as financiers and developers. This paper will reveal how the transformation of the urban landscape has led to the need to examine how religious institutions re-utilize land in urban spaces, look for new sources of income from real estate, while at the same time attempting to minimize community conflict.

Keywords: religion, redevelopment

Franca Miani, University Of Parma. Email: miani@unipr.it; Urban Challenge in “Global” China

China’s urban growth represents a considerable geographical laboratory with remarkable political and social consequences. During the past decade the most important cities have experienced massive growth in economy, population, transport, consumption and land use. These changes are causing massive strain on metropolitan’s existing cores, and question the manner of expansion. To meet this challenge the essay, starting from a social-economic analysis, deals with a new interpretation of sub-urbanism with particular reference to the metropolitan area of Shanghai.

Keywords: China, urban growth, new towns

Changhong Miao, Center for Yellow River Civilization and Sustainable Development & College of Environment and Planning, Henan University, Kaifeng 475001, P.R.China. Email: chhmiao@yahoo.com.cn; Haitao Ma, Center for Yellow River Civilization and Sustainable Development & College of Environment and Planning, Henan University, Kaifeng 475001, P.R.China. Email: mhtaio@163.com; *Technological learning through networking in Chinese inland economic and technological development zones: case study of Zhengzhou, Henan Province*

Regional technological learning and global-local production network are the two stirring research themes in contemporary mainstream economic geography. Although a large recent body of work in the theoretical formations of and case studies on 'industrial districts', 'new industrial space', 'agglomeration', 'innovative milieus', 'regional innovation systems', 'learning regions' and 'clusters' has explored the driving forces to promote economic successes of some localities in mature capitalist economies such as 'Third Italy', 'Silicon Valley', 'Baden Württemberg', the natures and patterns of learning and networking and their relationships in other localities especially in less favored regions in developing countries remain relatively under-researched. This paper is based on a questionnaire of nearly 100 companies and some field interviews that capture the cooperation patterns of firms in Zhengzhou economic and technological development zone (ETDZ), a less developed one in 54 national ETDZs in China, to discuss the possibilities and difficulties for companies to make their technological upgrading and innovation by networking. The findings presented in this paper confirm that whereas both local and non-local networking with other companies, universities and public research organizations are vital for companies in Zhengzhou ETDZ to get new ideas and design new products, there exist different patterns and difficulties of networking for different companies with reference to their sizes, property rights and independent R&D capacities. Learning through cooperation with foreign companies is a complex bargaining process and successful technological upgrading and innovation depend on a set of requirements, not just networking.

Keywords: technological learning; networking; economic and technological development zone; China

Xin Miao, Missouri State University. Email: XinMiao@missouristate.edu; Melida Gutierrez, Missouri State University. Email: MGutierrez@MissouriState.edu; Elias Johnson, Missouri State University. Email: ; *Land Use and Land Cover Change Detection in the Rio Conchos Basin in Mexico using Multi-year TM images*

Land management in the arid areas in northern Mexico required extensive land use / land cover spatial information. In order to overcome the limitations in road accessibility and availability of detailed field data, four-year (2000-2003) Landsat Thematic Mapper (TM) images have been collected in the Rio Conchos basin. The Rio Conchos basin is part of the Rio Grande basin shared by Mexico and United States of America. The Rio Conchos is a major river in northern Mexico, flowing through the Chihuahuan Desert. Variations in the amount of water flowing from the Rio Conchos into the Rio Grande have been identified as the most important potential impact to the water supply of the lower Rio Grande basin. Environmental concerns arose because the non-native riparian vegetation salt cedar or tamarisk (*Tamarix ramosissima* Ledeb.) had started to invade along some tributaries of Rio Conchos. Salt cedar is considered a severe threat to the structure and stability of riparian plant communities, and it consumes tremendous amounts of water, drawing down ground water and drying up springs. Furthermore, its leaves are concentrated with salts, which when released on the surface can prevent colonization of many native plant species. The objectives of this study are (1) to investigate land cover / land use spatial information in the Rio Conchos Basin in northern Mexico through multi-year TM images, emphasizing non-native riparian vegetation salt cedar; (2) to conduct a land cover / land use change detection analysis to help improve the land management.

Keywords: Land Use Land Cover, Change Detection, invasive species

Bernardo A Michael, messiah college. Email: bmichael@messiah.edu; *Cultures of Governance and the Production of Space Along the Anglo-Gorkha Frontier, 1780-1814*

This paper seeks to understand how elite and subaltern actors produced space [territory] along the frontier separating the possessions of the English East India Company and the Himalayan kingdom of Gorkha (present-day Nepal) in the early nineteenth century. Territorial disputes between the two powers ultimately resulted in the Anglo-Gorkha War of 1814-1816. Historical research on the circumstances leading to this war provides valuable insights into the practices of governance that produced the space of the Anglo-Gorkha frontier. I will examine the activities of local elites like one Mirza Abdullah Beg whose shifting political loyalties to kingdoms?large and small?produced a fluctuating geography of state spaces. Moreover, the presence of a malarial forested frontier and a mobile labor force added even greater fluidity to the organization of territory along the Anglo-Gorkha frontier. Consequently many districts lying

along this frontier displayed discontinuous bodies and boundaries that remained inconstant. It might be argued that such spatial slippage exacerbated tensions between the British and the Gorkhalis and ultimately contributed to the outbreak of war in 1816. While this paper is based on research conducted at various archival holdings spread over north India, Nepal, and Great Britain, such a historical exploration places limits on the extent to which we can glean information to reconstruct the links between performative practices and the production of space in the not too recent past. [226 words]

Keywords: English East India Company, Gorkha, Mirza Abdullah Beg, space, territory

Kristen L. Michaud, University of Massachusetts-Amherst. Email: klm2905@yahoo.com; *Sense of Community: A Geographic Perspective of Japanese Exclusion During WWII*

The Japanese American community in pre-war times on the west coast was active and culturally vibrant. Their clustered communities were based on limitations set by American society as Japantowns and similar enclaves developed up and down the west coast. With the signing of Executive Order 9066 and the process of internment, Japanese American communities were forever changed. In light of this change, new communities inside the internment camps soon developed. Those stuck inside the barbed wire communities did what they could to sustain their way of life. This paper describes the change of a sense of community during internment. Focus will be placed on the period before the war, during the war, and after resettlement. The Japanese Americans in this period of US history were extremely resilient and intent on keeping their heritage and spirits alive. The sense of community for this particular group of people may have changed geographically, but their overall culture never wavered.

Keywords: cultural geography, California, historical geography, exclusion, World War II

Duffy Michelle, University of Melbourne. Email: med@unimelb.edu.au; Gordon Waitt, University of Wollongong. Email: gwaitt@uow.edu.au; Chris Gibson, University of Wollongong. Email: cgibson@uow.edu.au; Andrew Gorman-Murray, University of Wollongong. Email: andrewgm@uow.edu.au; *Get into the groove: the role of sound in generating a sense of belonging at street parades*

In this paper, we explore the role of music in constituting particular spaces and identities that arise within street parades. We examine the ways music can give us access to our emotional and affective states, and the significance of these states on formations of identity, community, as well as senses of belonging or exclusion. This particular case study raises issues around notions of the constitution of rural places, and the role of music in reaffirming or challenging accepted ideas of who inhabits these places. Two street parades from two different festivals in the same town are compared: one at the Daylesford ChillOut Festival (the largest non-metropolitan gay and lesbian festival in Australia); the other as part of the Daylesford-Hepburn Springs Swiss-Italian Festa. We focus on the bodily and emotional responses to the music and sounds of these street parades, and introduce the concept of rhythmic spaces as a way of understanding how music and sound constitute forms of non-verbal aural communication and subsequently shapes notions of belonging and community. Our article also discusses the importance of non-representational theory and methods in understanding the role of music in place-making.

Keywords: Belonging, community, identity, rural, emotion, affect

Akihiko Michimi, University of Connecticut. Email: akihiko.michimi@uconn.edu; *Regional Variations in Dietary Intakes of Black Urbanites: Empirical Findings from Public Health Surveillance Databases*

The health status of blacks has received increasing attention in public health to document health disparities. The scale of analysis, however, is often limited to the national level, due to confidentiality issues affecting dissemination of data. The Third National Health and Nutrition Examination Survey (NHANES III), implemented from 1988 to 1994, provides a nationally representative database on health and dietary intakes of the general population and data are disaggregated to the U.S. Census regions as well as urban/rural areas. Using data from the NHANES III, this paper examines the regional variations in dietary intakes of black urbanites in response to the South's vibrant economy and the recent North-to-South migration trends of African Americans. The African American migrants who move from northern to southern metropolitan areas are generally younger and have a higher socioeconomic status than those who stay in the North. Therefore, it is hypothesized that due to the positive addition of healthy migrants, Southern Black urbanites are likely to show dietary patterns that promote or maintain good health, compared to their counterparts in the North and to rural blacks in the South.

Keywords: minorities, health surveillance data, health geography, nutrition

Ryo Michishita, University of Utah. Email: ryo.michishita@geog.utah.edu; Bing Xu, University of Utah. Email: bing.xu@geog.utah.edu; Ikuho Yamada, University of Utah. Email: ikuho.yamada@geog.utah.edu; Time-series analysis of air passenger transportation networks in Japan 1985-2005

Due to the airline deregulation in 1985, a series of new airport developments in the 1990s and 2000s, and the reorganization of airline companies in the 2000s, Japan's air passenger transportation has been dramatically altered in the last two decades in many ways. In this paper, the authors examine how the network and flow structures of domestic air passenger transportation in Japan have geographically changed since 1985 with a focus on the impacts of these changes. For this purpose, passenger flow data in 1985, 1995, and 2005 are extracted from Air transportation statistical survey conducted by the Ministry of Land, Infrastructure and Transport, Japan. First, development of the network structure is evaluated via dominant flow, network density, and centrality (path length) analyses. Second, changes in the passenger flows over the network are examined with respect to their spatial and network autocorrelations. The passenger flow data are first examined as a whole and then divided into three carrier-based categories. The results indicate that a hub-and-spoke system has evolved from 1985 to 2005 in Japan and that excess concentration of flights and passengers on Haneda Airport, which serves for the Tokyo metropolitan area, is still increasing regardless of its shortage of departure and arrival slots.

Keywords: air transport geography, Japan, network analysis, time-series analysis, hub-and-spoke system

Barry Russell Middleton, geographer, United States Geological Survey. Email: bmiddleton@usgs.gov; Ed Pfeifer, United States Geologic Survey. Email: epfeifer@usgs.gov; Satellite-based monitoring of rangeland health on the San Carlos Apache Indian Reservation and comparison sites in southern Arizona and southwestern New Mexico

A significant part of the San Carlos Indian Reservation economy depends on grazing, and careful assessment and management of these semiarid grassland communities is important to the sustained utilization of this dwindling resource. Attention to rangeland health is becoming increasingly critical as desertification processes can be greatly accelerated during times of drought. Many of these desertification effects may prove irreversible, and timely information about trends in grassland health indicators could prove invaluable. Estimates on the health of reservation rangelands are being obtained by the analysis of calibrated multi-temporal satellite datasets (totaling over 100 "single-date" images) to quantify vegetative activity and gather phenological information on annual and perennial plant activity. Grassland areas most affected by desertification processes can be expected to show increased activity (relative to more "pristine" grasslands) during the spring annual, desert shrub, and nonnative grass growth periods and decreased activity during the late summer/early fall perennial native grass green-up. Calibrated vegetation indices derived from multi-temporal Landsat and Moderate Resolution Imaging Spectroradiometer (MODIS) satellite data collected over a 17-year period are being used to map and monitor the relative condition and productivity trends of the San Carlos tribe's primary grazing area on Ash Flat. Processed images highlight 750m-square areas that are becoming divergent from designated, lightly or nongrazed native grassland control sites within selected, well-managed grassland preserves in southern Arizona and southwestern New Mexico. This research attempts to provide reservation land managers with easily interpretable image products reflecting the effectiveness of their rangeland management practices over vast areas.

Keywords: rangeland, grassland, desertification, multi-temporal, phenology, Landsat, MODIS, remote sensing, vegetation monitoring

Beth Rose Middleton, UC Berkeley. Email: bethrose@nature.berkeley.edu; "We Were Here, We Are Here, We Will Always Be Here:" Activism, Identity, and Healing in Mountain Maidu Country

This project focuses on historic and current Mountain Maidu activism to protect, access, and control land and other natural resources. I demonstrate some of this activism spatially using previously unavailable GIS visualizations of Maidu allotment lands. The map represents a limited assertion of spatial representation, as it illustrates the racialized, gendered enclosure movement that accompanied colonialism. The map also raises current questions of access to, ownership, and use of sensitive property information in an arena fraught with conflict over historically unresolved land grants and takings. With the allotment era as one salient example, and drawing on information on activism during the land claims, termination, and self-determination eras in Federal Indian policy, what have been the scope and character of ongoing Maidu activism for natural resources? Why haven't efforts been successful for the community as a whole (recognized and unrecognized tribal members)? Theoretical perspectives from social movements literature, political ecology, and critical race theory inform this exploration of activism and identity, and help to answer whether Maidu activism can be seen as a source of healing from intergenerational trauma due to ongoing colonialism.

Preliminary results highlight the role of governance in creating the community capacity for effective action, and the challenges posed by historic representations of Maidu identity, including internal/external expectations of cultural purity. Finally, as a rural woman of color, I confront my own commitments to ideals of information sharing and justice, as I simultaneously negotiate conflicts over representation, governance, and resources within and outside of the community.

Keywords: Native American, indigeneity, GIS, representation, activism, healing, intergenerational trauma, political ecology, natural resources, race

Erin Middleton, UCSB. Email: erin@geog.ucsb.edu; School Choice and School Location: Why Families Choose

While school choice has often been debated in the education literature, seldom is the relationship between school selection and school location explored. To examine this topic, in-depth interview with parents were conducted in a small urban school district, with a majority enrollment of Hispanic students and a long history of public school choice. Based on these interviews, a tentative model of the school choice process is proposed. First, parents use information networks and school location to construct a list of potential schools. Next, parents gather information about this subset of district schools. Based on this new information, parents ultimately select a school. For one set of parents, it is the proximity of the school to their place of work, their home or their children's caregivers that dictates their final selection. These families generally have no stay-at-home parent, inflexible work schedules, limited housing choices due to living in apartments or subsidized housing, and are more likely to be Hispanic. For other parents, it is a school's prime location on their social network that influences where their children enroll. Due to one parent having a flexible work schedule or staying at home, these families are able to devote more time to transporting their children to school and volunteering at the school. Though parent's definition of "closeness" varies, each parent sent their children to their closest school.

Keywords: School choice, class, ethnicity, space, place

Jennie Middleton. Email: jennie.middleton@kcl.ac.uk; 'Dogs, babies and buses': the social dimensions of pedestrian movement

There are repeated claims within UK urban and pedestrian policy that walking encourages 'social mixing', 'community cohesion' and 'social interaction' (DfT, 2004; TfL, 2004, 2005). However, within these documents such terms are rarely unpacked as to what they actually mean or the specific role walking has in facilitating them. This paper draws on research in London investigating the many different types, forms and characters of walking and in doing so seeks to address questions that include; what are the nature of social interactions on foot? Who are they with, what initiates them and how do they unfold? And in what ways are the social dimensions of walking best understood and conceptualised? It is argued that urban and pedestrian policy oversimplify the relationship between walking and the social exchanges it is said to promote. Drawing upon Sack's (1992) concept of the 'ticket', dogs, babies and material objects are suggested as highly significant as initiators of social interaction on foot. In addition, 'integrative events' (Sacks, 1992) are also argued as key dimensions of exchange between pedestrian strangers. Attention is also drawn to the significance of walking in maintaining existing social relations as opposed to it creating new ones. This significance makes visible social relations beyond the immediate local area that are mainly ignored by urban policy as it engages with notions of 'community'. It is concluded that the social dimensions of urban pedestrian movement can only be fully understood in the context of a complex web of relational social networks.

Keywords: walking, social interaction, tickets, integrative events

Richard Stephen Middleton, Los Alamos National Laboratory. Email: rsm@lanl.gov; Optimization for carbon capture and sequestration

Many strategies exist for minimizing anthropogenic carbon dioxide (CO₂) emissions, such as use of alternative fuels. Because fossil fuels will continue to be a cheap and abundant source of energy (the United States, for example, has hundreds of years of known fossil fuel reserves), it is essential to develop 'clean' methods to, in particular, convert coal to electrical power. Carbon capture and sequestration (CCS) is the process of capturing CO₂ at its source and sequestering it in geologic reservoirs. To date, much effort has been devoted to both the capture and sequestration processes. However, little research has focused on linking the capture and sequestration processes; to maximize the benefit of CCS, CO₂ will be efficiently allocated from sources to sinks. I present an optimization/linear programming (LP) model that minimizes the cost of sequestering CO₂ (pipeline construction and maintenance, CO₂ flow and injection) between sets of CO₂ sources and carbon sinks. Further, I discuss future directions for this research, such as modeling the uncertainty of carbon reservoir capacities and consequent dynamic allocation of CO₂.

Keywords: optimization, CO₂, energy, linear programming

Mara Miele, Dr., Cardiff University. Email: MieleM@cardiff.ac.uk; Adrian Bruce Evans, Dr, Cardiff University. Email: evansa18@cardiff.ac.uk; *Animal welfare and ordinary consumption: towards an alternative ethic of embodied care.*

Many accounts of politico-ethical consumption adopt a traditional approach to ethics, which focuses on the intentional motivations behind consumer choices. However, these accounts do not sit comfortably with broader theorisations of consumption, which view everyday consumption practices as basically 'repetitive, intuitive and inventive' (Hermes 1993) and as practical-moral rather than abstract-intellectualised (Miller et al 1998). In this paper we seek to develop an alternative account of consumer responsibility/care that draws on Varela's (1999) contention that 'a wise (or virtuous) person is one who knows what is good and spontaneously does it.' More specifically, we draw on focus group research conducted in Italy and the UK, to argue that consumers often purchase animal welfare-friendly goods for practical reasons (such as taste, visual presentation and the specific characteristics of the space in which the product is encountered) rather than as a result of a highly reflexive ethical strategy. Crucially, however, we contend that although these practical desires are largely intangible and highly context-dependent, they still embody complex ethical, political and aesthetic dimensions that are worthy of further consideration (see Stati 1999). For example, we critically examine the notion of 'taste' by illustrating how this seemingly mundane and static sensation is influenced by wider performative settings (see Teil and Hennion 2004) and by showing how taste sensations can incorporate ethical values. Furthermore, we illustrate how consumption spaces (e.g. supermarkets, butcher shops and restaurants) materialise different values, which in turn provides consumers with a more experiential means of evaluating different ethical relationships to food.

Keywords: consumption, ethics, embodiment

Robert Mielke, Nicolet Area Technical College. Email: rmielke@nicoletcollege.edu; Paul O. Ehlers, Nicolet College. Email: pehlers@nicoletcollege.edu; *Finding Home: Using GIS to Delineate a Vernacular Region*

Geographers have long used the "regional" concept to organize Earth into manageable units. A "vernacular" region is said to exist in the minds of the people who live there: people know where they live. As with all regions, delimiting the boundaries of Wisconsin's "Northwoods" is problematic. One technique is to assume business names determine the sense of a place and its limits. The business would want to capture the sense of loyalty and belonging of the inhabitants by using regional identity as part of its name and marketing efforts. Business names containing "northwoods" and their zip codes were located using yellowpages.com, manually entered into a Microsoft Access database, and joined with a zip_usa.shp file. Zip codes containing "northwoods" business names were color differentiated and a visual display of the vernacular region of the "Northwoods" was viewed. The students created their boundary delimiting the "Northwoods" and created a map of their region.

Keywords: cultural geography, geography education, GIS, regional geography

Monika Mihar, University of Memphis. Email: mmihar1@memphis.edu; Thad A Waskiewicz, University of Memphis. Email: twsklwcz@memphis.edu; *A Comparison of Arid and Humid Debris Flow Fans with the Aid of High-resolution DEMs*

Regional climatic differences have spurred debates over environmental controls on fan evolution. Early hypotheses proposed formative processes were different for "dry" (arid and semi-arid) and "wet" (humid) environments. Dry fans were characterized as being dominated by debris-flow processes, whereas fluvial processes dominated humid fans. Numerous studies have disputed this earlier notion as well as provided new insights into the role of regional variability in fan dynamics. However, the research conducted to date has been based on qualitative observations, planimetric measures, and stratigraphic relations between fans in different environmental settings. There have been no studies conducted that used quantifiable measures of 3D form (surface complexity) to determine if relationships exist. Combined geomorphometric parameters extracted from high-resolution DEM values are generated for comparison of surface complexity of debris flow fans from Japan and Death Valley. The preliminary results indicate the spatial patterns of surface complexity do not differ despite considerable differences in the environmental setting of the fans. The results indicate the impacts of regional variability are not a driving factor in determining surface complexity.

Keywords: DEM, geomorphology, surface variability, surface complexity, terrestrial laser scanning

Rhiannon Mihld, Cal State University Fullerton. Email: rhiannon@fullerton.edu; *Living Beyond Our Means: A study of housing prices versus income levels in Los Angeles*

The issue of rising home costs presents a new field of research which examines many different levels of real estate patterns including reasons for market spikes and the history of home buying in specific urban and suburban geographical regions. When combined with a comparison of home owner income levels, there lies a new dimension of research comparing home owners who can afford the houses they live in, and home owners who simply can't. As the market for houses in the Los Angeles area rises beyond average affordability, the logical assumption would be that people would stop buying houses. This certainly has not been the case. In order to reside in metropolitan Los Angeles, a rapidly growing majority of home buyers push beyond their financial means and often pay much more than they can afford. A healthy amount of income spent on a house payment per month, according to budget guidelines, is one third of the buyers' income. In most cases, we will see home owners over burden themselves to extreme lengths, far above the one third mark, in order to live in the Los Angeles area. Using GIS, I will explain these patterns and map the areas of metropolitan Los Angeles where home owners are more and less financially over extended. Are people more willing to live beyond their means in Santa Clarita or Santa Ana, Manhattan Beach or Laguna Beach, Beverly Hills or Anaheim Hills?

Keywords: housing costs, housing affordability, income levels, Los Angeles, GIS

Paul Milbourne, Cardiff University. Email: milbournep@cardiff.ac.uk; *Socio-natural Belongings and Exclusions: young people's experiences of environmental regeneration in ex-industrial spaces in Britain*

This paper explores the position of children and young people within community forest projects in Britain. These projects have sought to engender both socio-economic regeneration and environmental restoration in areas characterised by high levels of socio-economic disadvantage and considerable environmental degradation linked to the previous operations of extractive capital. The paper draws on findings from recent locality studies in three of these forests - two in England and one in Scotland - which have involved group discussions, depth interviews and ethnographic research with different social groups. In particular, it discusses findings from the work with school children and youth groups in these localities. Attention is given to young people's perceptions of and interactions with their local socio-natural environments, their attitudes towards local mining activities and their feelings towards and involvements with the community forest projects. The research findings not only highlight young people's multiple and conflicting constructions of their local environments - as spaces of inclusion and exclusion, of safety and fear, and of freedom and constraint ? but also the complex connections that exist between social and environmental forms of (in)justice in different localities.

Keywords: environmental regeneration, disadvantage, young people's experiences

Anelia Milbrandt, NREL. Email: anelia_milbrandt@nrel.gov; Margo Melendez, NREL. Email: margo_melendez@nrel.gov; *Hydrogen Infrastructure Demand and Development*

Infrastructure development analysis plays a critical role in understanding the best methods and techniques to use in the nascent hydrogen economy to foster hydrogen use in transportation. Most alternative fuel experts agree that infrastructure issues have been among the top barriers to transitioning to alternative transportation fuels. Matching emerging hydrogen vehicle demand with emerging infrastructure is critical to a successful transition. Because demand varies spatially, using a geographic information system (GIS) method to differentiate demand across the country is advantageous in assisting hydrogen stakeholders in targeting key markets. Key attributes of consumers, fleets, and policies were identified as critical for market acceptance of hydrogen vehicles. Consumer attributes are those that describe the consumer themselves, such as income, education level, and the number of vehicles they own. Fleet attributes are those that describe the location and size of fleets. Policy attributes are those that are the result of external factors that influence the market for hydrogen vehicles, such as government incentives and local air quality. These attributes lay the foundation for analysis of how these efforts combine, resulting in the most preferred or likely locations for hydrogen demand to grow. The attributes were spatially quantified using GIS. They were combined with other attributes to illustrate hydrogen demand across the United States, within regions and metropolitan areas.

Keywords: hydrogen, alternative fuel, transportation, GIS

Monica J Milburn, Texas State University, San Marcos. Email: mm1560@txstate.edu; *Niche outlets and local communities: what our local shopping malls say about us.*

In this study I seek to understand how socioeconomic factors influence the make-up and design of large-scale local shopping centers. My study uses a mixed-method approach to research why particular unique uses/niche development occurs in shopping malls in Texas. Dallas, Houston, and San Antonio were chosen as test sites due to their cultural and socioeconomic diversity. In each city, three to four shopping malls with differing socioeconomic status of their clientele were investigated. This study looks at whether variety and numerical occurrence of unique uses is tied to higher levels of socioeconomic status and conversely communities with lower socioeconomic status will have more homogeneous unique uses/niche development in their malls.

Keywords: Shopping Mall, Specialty Retail, Texas

William Milczarski, Ph.D., AICP, Department of Urban Affairs and Planning, Hunter College-CUNY. Email: wmilczar@hunter.cuny.edu; Laxmi Ramasubramanian, Ph.D., Department of Urban Affairs and Planning, Hunter College-CUNY. Email: laxmi@hunter.cuny.edu; Jochen Albrecht, Ph.D., Department of Geography, Hunter College-CUNY. Email: jochen@hunter.cuny.edu; Maria Boile, Ph.D., Department of Civil and Environmental Engineering, Rutgers University. Email: boile@rci.rutgers.edu; Stephanie Camay, Department of Urban Affairs and Planning, Hunter College-CUNY. Email: stephaniecamay@mac.com; *Criteria for Site Selection for Waterborne Transportation Facilities in the New York Region*

The New York metropolitan area, like other urban areas in the US, suffers from severe highway congestion. And, like other metropolitan areas, congestion in the New York region is forecast to only get worse. As one part of dealing with this problem, the region is exploring the expansion of waterborne transportation for both freight and passengers. The New York Metropolitan Transportation Council (NYMTC), the Federally-designated Metropolitan Planning Organization (MPO) for the New York City area, is one of the key players in studying the potential of an increased role for waterborne transport. We have recently contracted with NYMTC to assist them in the assessment and evaluation of both the current and future potential of sites suitable for the development of facilities to support waterborne transportation of people and freight. Specifically, the study focuses on the development of assessment criteria to optimize under-utilized marine transportation resources and services. In the study we review previous research about the waterborne transportation needs of the region; interview local experts who are responsible for the development and maintenance of waterborne transportation infrastructure; develop criteria to assess the viability of existing and potential sites that can be used for the development of facilities and infrastructure to support waterborne transportation; and evaluate and prioritize sites for development. In our interactive short paper presentation we will report on the progress of our work.

Keywords: water transportation; waterborne transportation

B. Lynne Milgram, Ph.D., Ontario College of Art & Design. Email: lmilgram@faculty.ocad.ca; *Negotiating Urban Activism: Street Vending, Space and Class in the Northern Philippines*

Throughout regions of the South, structural adjustment policies and the changing economic base from agriculture to industry have created new work opportunities for some and instances of constraint for others. In the northern Philippines, such social and economic transformations are particularly visible in the growing number of street vendors who, through their trade, have reconfigured the urban streetscapes (sidewalks and roadways) of Baguio City - the region's administrative and only highly industrialized center. In this paper, I focus specifically on women's work as street vendors to argue that female entrepreneurs sustain this new livelihood by engaging in everyday forms of activism that unsettle essentialist categories of work, class and space. That many of their new livelihood projects take place on urban streets or within civic spaces often reserved for "public" rather than "private" use further challenges the very existence of these activities. Indeed, in May 2006, Baguio City Hall issued new by-laws banning all vendors from public venues. Street sellers, many of whom are unskilled and have migrated to the city from rural provinces may appear to be unlikely candidates for labor organizing. I demonstrate, however, that female street vendors have maintained their captured landscape by organizing into associations while forging alternative linkages with government and non-government sectors. In so doing, women's activism thus engages a "distinctly gendered politics of place" (Mills 2005) that has enabled them to mobilize despite the constraints they face.

Keywords: Gender, Economy, Philippines

Constance I Millar, USDA Forest Service, Sierra Nevada Research Center. Email: cmillar@fs.fed.us; Robert D Westfall, USDA Forest Service Sierra Nevada Research Center. Email: bwestfall@fs.fed.us; Diane L Delany, USDA Forest Service, Sierra Nevada Research Center. Email: ddelaney@fs.fed.us; John C King, Lonepine Research. Email: lonepine@bigsky.net; *Complex Responses of Subalpine Forests to Climate Change*

High elevation biota, including subalpine tree species and associated treeline, are commonly assumed to respond to global warming by migrating upslope. This assumption generates a conservation hypothesis that habitat will be lost as available area diminishes approaching mountain summits, with extirpations and extinctions as likely consequences. In recent years we have been studying recruitment, demography, and mortality of high-elevation forests in the Sierra Nevada, CA and Great Basin ranges, NV in response to paleoclimatic variability (past 3500 years) and to 20th-century warming and decadal variability. Conclusions from these studies suggest that subalpine forest responses to warming climates are more complex than simple movements upslope. Using examples from our studies, we propose the following types of responses to warming temperatures: I. Subalpine Forest Densification (no treeline change) A. General Subalpine Forest Infilling B. Treeline (Ecotonal Zone) Infilling C. Colonization of Formerly Persistent Snowfields D. Colonization of Subalpine Meadows II. Change in Tree Growth & Form (no treeline change) III. Change in Patterns of Forest Mortality (no treeline change) A. Change in Drought and Insect & Disease Effects B. Change in Genetic Diversity & Adaptation C. Change in Fire Relationships IV. Change in Geographic Aspect of Forests (no treeline change) V. Change in Elevation of Forests (with treeline change) A. Differential Shifts in Elevation by Species (individualistic) B. Shifts Down in Elevation C. Synchronous Shifts in Elevation by Multiple Species

Keywords: climate change, subalpine forests, treeline, alpine forest tundra ecotone

Susan W.S. Millar, Syracuse University. Email: swmillar@maxwell.syr.edu; *Climate effects on winter snowpack and stream response in Central New York*

Historic changes in the hydroclimatic regime and its relation to hemispheric-scale atmospheric indices are examined for central New York for the period 1950 to 2006. Mean winter (Nov-Mar) temperature, winter precipitation, winter snow water equivalent (SWE), and snow to precipitation ratio (S/P) were obtained from the National Climate Data Center for Syracuse, Utica and Lowville. Winter (Nov-Mar) discharge, spring (Mar-May) discharge, and the winter/spring center of volume (WSCV) were obtained from USGS gauging stations on Oneida Creek and Independence River. Hydrological and climatological data were compared to indices for the North Atlantic Oscillation (NAO), the Pacific North American (PNA) Oscillation, the Pacific Decadal Oscillation (PDO) and the Southern Oscillation (SOI). Regional climate signals were derived using a Principal Components Analysis. Pearson correlation analyses with the PCs indicated that cold and snowy winters are negatively correlated with a negative NAO and positive SOI, greater stream discharge in spring, and later WSCV dates. Warm and wet winters are negatively associated with the PNA and PDO, experience earlier WSCV dates, and have greater winter discharge. Historic trends were examined using the Mann-Kendall test, and indicate that winter discharge in both streams has increased over the study period, and that SWE in Syracuse has decreased over the same period. It is likely that central New York is moderately influenced by the state of the NAO, and that this has a non-linear effect on hydroclimatology due to its impact on the contribution of lake effect versus mid-latitude cyclone-derived snow to the winter snowpack.

Keywords: lake-effect snow; central New York, hydroclimatology; hemispheric-scale oscillations

Ashley S Miller, . Email: miller60@students.rowan.edu; Joseph T Pantiliano, . Email: pantil93@students.rowan.edu; *Who Sprawls Most, North Jersey or South Jersey?*

Sprawl has become a major issue in New Jersey due to a vast increase in the popularity of the suburban lifestyle. Changes visible in the land use and landscape of the nation's most densely populated state suggest that sprawl has crept its way into all corners of the Garden State. The purpose of this poster presentation is to analyze the patterns of sprawl in both the northern and southern regions of the state of New Jersey. By utilizing the New Jersey Department of Environmental Protection (NJDEP) digital Land Use/Land Cover data set, state-wide patterns of urban and suburban growth were delineated and evaluated. The data sets used were from 3 different dates, 1986, 1995, as well as the newest set for 2002. The study evaluates the urbanization patterns and assesses the differences in these patterns between the northern and southern regions of the state. By looking at the number of acres of land consumed, the population growth, and the categories of

residential type developed, the results demonstrate that there is a significant difference in development patterns between northern and southern New Jersey.

Keywords: sprawl, njdep, new jersey, landuse

Byron A. Miller, University of Calgary. Email: byron.miller@ucalgary.ca; *Neoliberalism, Resistance, and Multi-Scalar Governance: Complexities and Contradictions in Calgary*

Calgary is often considered to be a leader in neoliberal governance among Canadian cities. Many of the policies of the City of Calgary and the Province of Alberta have been oriented toward the imposition of market rationalities. The downloading of responsibilities from the provincial and federal governments, without corresponding capacity to fulfill those responsibilities, has exacerbated social and economic hardship. Yet neoliberal policies are frequently contested, sometimes drawing on market rationalities of self-interest, other times challenging market rationalities at their core. Neoliberal governance and resistance to it is further complicated by the scalar structuring of governance and conflict, influencing the geographic constitution of identities and interests. Drawing on the regulation, governmentality, scale, and network literatures, a theoretical hybrid is proposed to help begin to make sense of this complex and often contradictory political landscape.

Keywords: neoliberalism, resistance, regulation, governmentality, scale, networks

David Neal Miller, The Ohio State University. Email: miller.3@osu.edu; *Falling into Brooklyn: Real and Imagined Jewish Space*

Literature of Brooklyn often enough is framed by passages to or from Brooklyn. This act of framing is largely independent of the actual narrative content of the works. This paper examines the notion of Brooklyn as alternative geographic reality, one requiring acts of passage. Discussion will raise theoretical issues concerning notions of fictiveness, narrative reliability, and imagined space. The paper examines works of diverse generic provenance (film, poetry, narrative prose) within an Ashkenazic Jewish cultural context.

Keywords: Brooklyn, Ashkenazic, Jewish, narrative, poetry, prose, film, passages, imagined space

Harvey J. Miller, University of Utah. Email: harvey.miller@geog.utah.edu; *Time Geographic Fields: A Continuous Theory for Time Geography*

Time geography is a powerful framework but until recently has been conceptual rather than analytical. Over the past decade or so, researchers have improved the rigor of time geography through re-formulations suitable for computational implementation. Towards this end, the author developed a measurement theory for time geography that provides analytical definitions of basic entities such as the space-time path and prism suitable for high-resolution measurement using location-aware technologies as well as simulation using agent technologies. While rigorous and general, the theory retained one of the harshest assumptions in classical time geography, namely, the uniform velocity assumption. This paper extends the time geographic measurement theory to the case where travel velocities vary continuously across space. Using the continuous transportation modeling approach pioneered by researchers such as Beckmann, Puu, Angel, Hyman and Mayhew, I extend analytical definitions of the path and prism to the case where unobserved components are characterized by minimum cost curves through an inverse velocity field rather than straight line segments based on a uniform velocity. This paper also illustrates the approach using a computational implementation based on the Cova-Goodchild object-field data model. The extended theory is more realistic and also links time geography to the continuous space modeling tradition in geography and regional science. In addition to theoretical relevance and elegance, the time geographic field approach provides a synoptic summary and visualization technique that can provide insights to space-time accessibility patterns.

Keywords: Time geography, transportation, GIS, urban fields

Jason Matthew Miller, MA candidate, University of Connecticut. Email: jason.miller@uconn.edu; Melinda Daniels, PhD, University of Connecticut. Email: ; Tim Byrne, PhD, University of Connecticut. Email: ; *Geomorphic Analysis of the Hsuehshan Range, Taiwan.*

This study will quantify and relate several geomorphic parameters across the Hsuehshan Range in Taiwan. Parameters include hypsometry, stream long profile, stream gradient, stream order, and basin geometry. The primary focus of the study is to determine any tectonic indications in the basin landscapes that point to the presence of a basement indenter acting on the accretionary wedge mechanics of Taiwan. Relative rates of uplift and erosion can be assessed quantitatively through application of the geomorphic parameters to each of the Hsuehshan basins. These parameters are studied on the scale of individual basins, groups of basins, and the entire range to enhance pattern recognition in the data. In addition to this primary objective the study will address issues in the applica-

tion of certain parameters such as the quantitative definition of a mountain front in a dynamic relief landscape. Adjusting these methods becomes important because the topography of the Hsuehshan range does not easily fit simplified models of mountain uplift. A 30-meter digital elevation model is used to analyze the basins for specific geomorphic attributes systematically extracted using a combination of GIS software (ESRI ArcMap and RIVIX LLC RiverTools).

Keywords: geomorphology, GIS, taiwan, Hsuehshan Range, hypsometry

Jennifer E. Miller, PhD Student, University of Texas At Austin. Email: jennifer.miller@mail.utexas.edu; *Scaling Urbanization: Consequences for Wildlife in Changing Watersheds*

Increasing urbanization results in increased impervious surface cover. However, the spatial-temporal pattern of impervious surface cover degrades water quality and alters wildlife habitat in scale-dependent ways. Stream plethodontid salamanders are widespread, abundant, and are effective bioindicators of water quality. This study was designed to investigate the effects of impervious surface cover and forested riparian buffer width on the abundance of larval southern two-lined salamanders (*Eurycea cirrigera*). Fifty-meter reaches of forty-three low-order streams were sampled to represent the range of impervious surface cover and forested riparian buffer width combinations across Wake County, North Carolina, USA. Larval abundance decreased with increasing impervious surface cover at the watershed scale. Further variation in abundance was explained by site-scale measurements, including percent detritus cover, percent pebble substrate, and the interaction between intermittency and substrate interstice sedimentation. Larval abundance was not affected by forested riparian buffer width measured at the site scale, as typically measured for regulation. To minimize the effects of urbanization on stream salamanders, (1) forested riparian buffers should be managed at the watershed scale, requiring complete buffers without drainage bypasses, (2) sediment pollution should be minimized, especially as caused by new construction, and (3) further research should be conducted as to the role of impervious surface cover in reducing stream base flow.

Keywords: Impervious Surface, Stream, Urbanization, Watershed, Wildlife

Wendy E. Miller, Ph.D., Washington College. Email: wendy.e.miller@gmail.com; *Using GIS across the Curriculum in Liberal Arts Higher Education*

Geographic Information System (GIS) technology provides students of many disciplines with the ability to understand complex problems. Many educational institutions are expanding the use of GIS outside of the geography department to economics, biology, chemistry, and even foreign languages. One example of a successful interdisciplinary program is in place at Washington College, a small liberal arts school on the Eastern Shore of Maryland. Three GIS courses are offered for students, including a competitive internship program that matches students with faculty who are interested in using GIS in their research. In addition to the GIS-specific courses, students in many courses are introduced to GIS through lectures, assignments, and on-campus activities. Students at all levels are given the opportunity to work on real-world projects that allow them to see their work being used in other courses, in faculty research, published in local brochures, or placed on websites. This use of active and experiential learning, as well as interdisciplinary cooperation provides students with a well rounded education and opportunities to see what life after college will be like.

Keywords: GIS, education, active learning, liberal arts, interdisciplinary, curriculum

William R Miller, ESRI. Email: bill_miller@esri.com; *Geo-Design: Designing Entities in Geographic Space Using GIS*

All organizations, large or small, public or private, do three things: they get and manage information (data); they evaluate, assess or otherwise analyze that information for some purpose (analysis); and they ? using the information and the results of their analyses ? create and/or recreate goods and/or services (design). Geographic information systems have played a highly active and beneficial role in the acquisition, management and analysis of spatial information. Their utility with respect the creation of goods and/or services (design) has been negligible. This paper explores the role of GIS as a design tool and demonstrates, through the use of some new geo-design tools, how designers (urban planners, landscape architects, natural resource managers, disaster response planners, etc.) can now do their creative work in geographic space. The paper shows how designers are using the new geo-design tools to rapidly and easily create, visualize, and analyze spatial designs (land use plans, land management plans, disaster response plans, etc.) much as they would if they were drawing those plans (their designs) using pen and paper.

Keywords: Design GIS

Christine Milligan, Dr, Lancaster University. Email: c.milligan@lancaster.ac.uk; Liz Bondi, Prof, . Email: ; Nicholas Fyfe, Prof, . Email: ; Wendy Lerner, Prof, . Email: ; Richard Kyle, . Email: ; *Contradiction or conformity? Voluntary sector activism in the UK - a grassroots perspective*

In this paper we draw on material from the first phase of a cross-national study that seeks to examine the material importance of place for understanding the interrelationship between government, voluntary organisations and activists. Drawing on extensive questionnaire and interview data we seek to explore the extent to which organisations operating within the fields of mental health and community safety view themselves as being activist in intent and how this may have changed over time. Importantly, we examine how these voluntary organisations understand the concept of 'activism'. In a political climate that increasingly leans toward the development of partnership working and governance over government, we ask whether organisations are shifting away from those more demonstrative forms of activism prevalent in the latter half of the 20th century to more subtle and nuanced activist pursuits. In doing so, we also consider whether those new spaces of political governance that have emerged within local authority jurisdictions in recent years are recognised by activist organisations as key sites for the direction of their activity, or whether they continue to pursue more traditional avenues. In examining these issues we explore the extent to which there is apparent conformity in organisational views on activism and the focus of activist activity as well as some of the apparent contradictions. Finally, we consider some of the gaps in responses to ask whether these in themselves may be viewed as the performance of active resistance.

Keywords: Voluntary sector, activism, mental health, community safety

Andrew Millington, Dr, Texas A&M University. Email: millington@geog.tamu.edu; Conservation, Poverty and Geography

At what scales should we look for linkages between conservation and poverty? Drawing on examples from Bolivia, I will attempt show that poverty-conservation linkages exist at many geographical scales. Nonetheless I argue that that poverty-conservation literature is dominated by small-scale studies. and hypothesize the reasons for this. These small scales studies (should) serve development well if we consider bottom-up approaches to be a relevant model for development. But what of poverty-conservation linkages at larger scales: do these have any relevance in development?

Keywords: Conservation, Poverty, Bolivia

Steve D. Millington, Manchester Metropolitan University. Email: s.millington@mmu.ac.uk; Tim Edensor, Manchester Metropolitan University. Email: t.edensor@mmu.ac.uk; Contested landscapes of Christmas: illuminating urban and suburban space

Over the past decade, the controversial practice of adorning the exteriors of British homes with bright illuminations during the Christmas period has increased, causing much comment in the media (for example, see Save Our Christmas Illuminations Daily Mirror 8.12.05, p20). This paper therefore investigates whether and in what ways these decorations constitute a new expressive mode of imprinting identity and status upon (sub)urban landscape, expressing identities associated with class. In this context, we want to explore how these academically overlooked sites of illumination may be variously conceived (or contested) within Greater Manchester as violations of suburban aesthetics, expressions of community, individual assertions of status, places of vernacular creativity, minor tourist attractions or charitable acts.

Keywords: creativity, class, identity, community

Marco Millones, Clark University. Email: marcomillones@clarku.edu; Robert Gil Pontius, Doctor, Clark University. Email: rpontius@clarku.edu; Follies and fixes of commonly used indices of categorical map comparison in land change simulation models.

Two most common applications for map comparison indices are to measure overall change in land cover between maps from different dates, and to assess the accuracy of simulated or modeled maps with respect of a reference or 'truth' map. Although many indices exist, the Kappa Index has become the most popular global statistic to quantify the agreement between categorical maps. Despite its popularity, many scholars have pointed out that Kappa can be misleading in at least two ways: (a) it uses the incorrect expected-correct proportions due to chance, and (b) confounds the two main components of agreement and disagreement in map comparison: quantity (i.e., estimation of the correct amount of pixels of a given category), and location (i.e., allocation of pixels of a given category in the correct location, given a quantity). In response to these concerns, variations on Kappa were created, most notably, a Kappa for location, and two Kappas for quantity. In spite of these efforts, global agreement indices like these still carry some of the flaws of the original Kappa and thus misguide the final users. This paper aims to expose the problems of Kappa and its variants in land change models, and to overcome these limitations by proposing

an improved and more fundamental method. We show how Khisto, Kquantity and Klocation can be misleading. We endorse the more basic and primary methods that we call budget of components of agreement and disagreement and thus, provide a clearer indication of the comparison between maps.

Keywords: remote sensing, accuracy, map comparison, gis

Amy Mills, Ph.D., University of South Carolina. Email: amills@sc.edu; Geographies of Memory: Minority Narratives of Istanbul from Israel

Istanbul, Turkey once had a multiethnic urban culture shared by its historic Greek Orthodox, Armenian, Jewish, and Muslim communities. By the 1970s, most remaining non-Muslim minorities had emigrated. Recently, in Istanbul, a nostalgic cultural memory of tolerant cosmopolitan urbanism has emerged. Minority history in Istanbul is a very difficult topic to research as minorities are hesitant to speak, archives are closed, and the press faces censorship. In July 2006 I conducted ten days of interviews and a survey with former residents of Istanbul who live in Tel Aviv, Israel. The narratives from Tel Aviv communicate a lot of information which was untold in Turkey. They also reveal the interconnectedness between places through which diasporic identity is constituted. What can the geography of memory reveal about the work of nationalism? What do Jewish place narratives about Kuzguncuk, Istanbul, work to do - as they tell of self, of belonging and difference? how do they illuminate the teller's position within the interstices of power relations that constitute the national context in Turkey, and then, in Israel? In this paper, I discuss but one theme in the narratives: the remembering of anti-minority nationalist events in Turkey which reveal how nationalism worked at various scales; in the bodies of people, as neighbors, on the street, with the use of words or moments of assistance, help, and also discrimination and violence.

Keywords: Turkey, memory, place, identity, nationalism

Jacqueline W. Mills, Ph.D., Louisiana State University - Disaster Science and Management Program. Email: jmills5@lsu.edu; LSU Geographers on the Frontlines of Katrina and Rita: Exploring Solutions for Community-Centered Response and Recovery

Much has been written about and spoken about Hurricane Katrina and it is doubtful that these commentaries, reports, articles, books, conferences, meetings, and discussions will end any time soon, nor should they, as the events that comprise this catastrophe deserve our full attention in the hope that we learn and apply a few of her lessons. However, for those geographers who served sleepless days in the Emergency Operations Center (EOC), spent many dark and uncertain hours on Red Cross disaster assessment teams driving through a landscape that had been familiar, brought organization and efficiency to branches of our state and federal government in a time of confusion and devastation, and looked earnestly and found easily ways to put their skills to work to make substantive improvements to the response, Katrina is more than an academic opportunity for analysis, publication, and publicity, though certainly these aspects have their place. For these geographers, Katrina, followed by often-neglected Rita, has provided opportunities to practically demonstrate the relevance of many facets of geography. A unifying theme in these experiences is the power of geography in creating solutions for community-centered disaster management. From this work, a sample of cases will be presented focusing on the three new regions of coastal Louisiana: Katrina-impacted parishes, Rita-impacted parishes, and the "near miss" parishes.

Keywords: Hurricanes Katrina and Rita, geography, disaster, community

Andrew A Millward, Assistant Professor, Ryerson University, Geography. Email: millward@ryerson.ca; Colin Squirrell, Graduate Student, Ryerson University, Geography. Email: colsquirrell@gmail.com; Physical influences of landscape on forest regeneration following ice damage

The 1998 ice storm was broad in spatial coverage and produced a patchwork of tree damage severity across much of the northeastern United States and eastern Canada. Previous research, using image differencing of field-calibrated Landsat TM derived vegetation indices, was conducted within a 2045 square kilometre study location in New York State's Adirondack Park. Results of this work provide location and intensity data for canopy damage from which forest regeneration can be quantified and monitored over time. This study employs multi-temporal Landsat TM and ETM+ imagery (1998, 1999, 2001, 2002, 2005) to identify forest regeneration in locations that experienced moderate to severe damage intensity resulting from the 1998 storm. The principal question driving our investigation is: are landscape physical features correlated with the regenerative success of ice-damaged forest? Coupled principal component and change vector analyses are applied to a time-series of satellite-derived vegetation and moisture indices. Geovisualization is used, in conjunction with line graphs, to illustrate trajectories of forest recovery. Physical landscape features have been shown to be strongly correlated with coverage and intensity of ice damage. We hypothesize that these same features (e.g., elevation, aspect, forest boundaries) play a role in the space-time recovery of damaged trees; evidence of this has

important implications for understanding forest dynamics and organizational processes occurring across a broad spatial extent.

Keywords: ice storm, forest regeneration, ecological disturbance, remote sensing

Nicole Ann Milne, University of Hawaii Manoa. Email: nmilne@hawaii.edu; Consuming Communities, Consuming Nature: Anticipating Native Hawaiian Use of Honu, the Pacific Green Sea Turtle (*Chelonia mydas*)

Native Hawaiian cultural use of honu, the Hawaiian green sea turtle (*Chelonia mydas*), came to a halt in 1978 when U.S. populations of the Eastern Pacific green turtle were listed as Threatened under the Endangered Species Act. The green turtle has traditionally played an important role in Polynesian and Micronesian cultural, religious, and ceremonial practices, however modernization of island cultures in the region, coupled with declines in green turtle populations, have decreased the turtle's cultural importance to island residents. While conservation and management measures designed to protect turtles have benefited local populations of honu in Hawai'i, a political ecology approach examining the interface between science and politics surrounding sea turtles in Hawai'i, illuminates instances of disempowerment in local communities. As populations of honu increase and their delisting becomes imminent, the potential exists for conflicts between proponents for traditional use of honu, the tourism industry, younger generations, and other island residents.

Keywords: political ecology, sea turtles, conservation, native rights, traditional use, cultural use

John D. Milton, Department of Geography and Environmental Studies, Carleton University, Ottawa, Canada. Email: johnmilton@rogers.com; Farmer-bred Varieties in India: A Response to Anitha Ramanna and the 'Tragedy of the Anticommons'

In 2001, India passed The Protection of Plant Varieties and Farmers' Rights Act. This Act provides intellectual property rights protection to crop varieties and represented one condition for India's entry into the WTO. However, this Act went further than most plant breeders right legislation by providing protection to varieties created by public sector institutions and farmers. Furthermore, the criteria for recognition under these new categories of crop varieties are not based upon the commonly applied DUS, or Distinct, Unique and Stable, criteria. To Anitha Ramanna (2003, 2006), the creation of these categories of rights, and recognition of a new set of holders of these rights, could lead to the underutilization of resources resulting from the excessively high transaction costs in securing the necessary genetic materials from these various holders of rights. This situation she described as an 'anticommons.' However, through the national competitions held by the National Innovations Foundation in India, a corpus of farmer-breeders have emerged whose varieties are being recognized for the dramatic impact these are having on local agriculture. This paper argues that, not only should the intellectual property rights of these grassroots breeders be recognized and protected, but also that these individuals represent a new dimension in crop breeding activities and possible partners with formal crop breeding institutions and corporations. As such, the dangers of an 'anticommons' could well be offset by the new opportunities for partnerships between grassroots breeders and formal public and private institutions involved in crop breeding.

Keywords: plant breeder's rights, farmer-bred varieties, India

Claudio Minca, Royal Holloway, University Of London. Email: claudio.minca@rhuk.ac.uk; Biopolitica: or the spatial translation of people into population

This paper presents an interpretation of the workings of biopolitics, drawing on a number of contemporary Italian examples and Giorgio Agamben's theory of sovereign power. In particular, I will look at the ways in which an implicitly racialised view of social reproduction can prepare the ground for the most pervasive and invasive forms of biopolitics. I will also discuss how race (and all its associated metaphors) is deployed as a device that, among many other things, is used to translate people, real people, into the concept of population - that is, into potential subjects of biopolitics. The paper will conclude by showing how this translation is based on a set of spatial concepts and ideas.

Keywords: Biopolitics; Agamben; Italy; Race; Population

Thomas Minckley, University of Wyoming. Email: minckley@uwyo.edu; Stephen T. Jackson, University of Wyoming. Email: jackson@uwyo.edu; Vegetation Stability in a Changing World? Reassessment of the Paleoenvironmental History of Cuatro Ciénegas, Mexico

The Cuatro Ciénegas basin, contains a massive wetland complex in the southern Chihuahuan Desert of Coahuila, México, underlain by extensive Quaternary peats and marls. Desert wetlands like Cuatro Ciénegas constitute an underutilized resource for paleoenvironmental information in arid and semi arid regions of North America. Paleoeological explorations of desert wetlands largely

ceased with the advent of rich macrobotanical records from packrat middens. In the case of the Cuatro Ciénegas basin, this shift in focus has left an enigma in the paleoenvironmental history of North American deserts. Pollen studies from the 1970s suggest that vegetation in the Cuatro Ciénegas valley remained stable during the past 30,000 years while contemporaneous records from other North American desert regions suggest woodland expansion during glacial periods and contraction during the late-glacial/Holocene transition. Our analysis of a 17,000-year-old fossil packrat midden collected from

Keywords: Climate Change, Biodiversity, Vegetation Change, Pollen, Macrofossils

Jason Minderlein, Rowan University. Email: Minder53@students.rowan.edu; Analyzing Farmland Loss in the Garden State

This poster presentation analyzes the status of farmland and its development in rural southern New Jersey. Utilizing the NJ Digital Land Use/Land Cover data set for the South Jersey Bay Shore region, the study examines farmland for three separate years, 1986, 1995, and 2002. The research evaluates the current status of farmland, farmland preservation, the loss of farmland as a whole, and the loss of prime farmland to residential and commercial development. The analysis characterizes and quantifies agricultural land use patterns over the past 15 years providing a measure of impact of urban and suburban growth on the most significant remaining agricultural area remaining in the Garden State. Lastly this presentation will project the current rate of loss and pattern of farmland loss to provide insight into the future condition of the South Jersey farming community.

Keywords: Land use, farmland, GIS, New Jersey

J. Toby Minear, University of California - Berkeley. Email: tminear@berkeley.edu; Matt Kondolf, PhD, University of California - Berkeley. Email: kondolf@berkeley.edu; Estimating Reservoir Sedimentation Rates: Long-Term Implications for California's Reservoirs and Future Dam Removals

Reservoirs are continually filling with sediment by reservoir sedimentation, resulting in decreased water storage capacity and in some cases complete filling of reservoirs. Surprisingly, there have been decreasing numbers of sedimentation surveys and few large-scale compilations of sedimentation records. In addition, current reservoir sedimentation models are inadequate for efficiently estimating large-spatial scale (1,000 km²) and long-temporal (100+ yrs) scale reservoir sedimentation. Using California as a case study, we developed a new type of reservoir sedimentation model that incorporates the spatial relationship of different reservoirs to one another through time, while accounting for varying trap efficiency. First, we compiled published reservoir sedimentation records and determined the median rates for different geomorphic regions; we then applied the median rates to unmeasured reservoirs. We found that the state-wide water storage capacity (47.2 billion cubic meters) has likely decreased by 4.2% due to sedimentation of 2.0 billion cubic meters of sediment. Annually, approximately 2.4 million cubic meters of bedload material is trapped within the state's reservoirs. Simpler sedimentation models over-predicted sedimentation amounts between 160% and 410%. Compared to other models, our method provides a relatively simple way to improve estimates of large-scale, long-term reservoir sedimentation.

Keywords: California, sedimentation, reservoir, dam removal, sediment yield, geomorphology, gis

Troxl D.N. Miner, B.S., University of Nebraska at Omaha. Email: tminer@mail.unomaha.edu; Sites of Tragedy within Nebraska's Cultural Landscape: An Analysis of Transition in Segregated Space

Sites of tragedy are recognized by geographers to be significant examples of landscape modification. This research considers historical sites of tragedy within Nebraska's Great Plains landscape, classifying them according to process and modification. The classification scheme is designed to develop a model which may be used in other geographic contexts as well. Historical evidence is documented to provide temporal data reflecting transition, and field research provides the majority of the data. The study area encompasses an intriguing variety of sites, considering places associated with the Starkweather murders, Native American displacement, natural disasters, and pioneer mortality; to name only a few. Methodology relies upon purposeful sampling to ensure maximum variation, and utilizes both qualitative and simple quantitative analysis technique. The study is designed to contribute to a historical base of knowledge, and evaluate the impact of tragedy upon the unique character of the cultural landscape.

Keywords: Social geography, place attachment, Great Plains - Nebraska

Julian V. Minghi, University of South Carolina. Email: minghi@sc.edu; *Borderscapes : A Tentative Classification*

The literature of political geography has been enriched by many classifications of boundaries - some based on form, some on function, and still others on the human geography of the region at the time the boundary was first drawn. More recently, especially over the past two decades, many new ideas have appeared in the literature on the distinctive characteristics of actual border regions, that is of borderlands. This paper steps beyond this large body of research in an attempt to identify distinctive borderscapes - the artifacts and behavior patterns discernable in the landscape near boundaries. Must we classify borderscapes into categories that relate directly to the boundaries and borderlands generating them, or are borderscapes better understood as separate and independent phenomena? With illustrations drawn from fifty years of research, the tentative classification may improve our understanding of the concept of borderscapes.

Keywords: borderscapes, borderlands, boundaries, classification

Leandro Minuchin, UCL. Email: l.minuchin@ucl.ac.uk; *Engineering exception: the limits of a bio-political notion of urban space*

For the Italian philosopher Giorgio Agamben, the political is reduced to the constitution of a sovereign power capable of securing the passage from a 'territorial space' to a 'population space': the transition that takes a natural life into a civic realm. However, Agamben signals that this political process is always unstable and incomplete: the meaning of life never ceases to be challenged and reviewed. As a result, the consistency of modern cities is defined by the proliferation of spaces of exception, where power confronts unprotected and bare-bodies, inscribing excluded social circles within the bounded totality of urban realm. For Agamben, the production of modern space is organized around the exceptions inscribed by a sovereign power that can no longer align forms of life and juridical rules in a determinate space. In this presentation I would like to explore the limits of Agamben's notion of urban space. I will describe how by reducing the moment of crafting the polis to a juridical relation, the essential political passage from zoe to bios treats space as a subordinate and pre-given entity. I will argue that the inscription of a political realm, implies not only a problematization over the value of life, but also about the modes of assembling and producing space itself. Exception needs to be engineered: how and which materials can be joined and gathered is also part of the political. The notions of materiality and assemblage will be used to illustrate this point.

Keywords: Agamben, cities, exception, materiality, assemblages

Eric Minzenberg, PhD, Miami University. Email: minzeneg@muohio.edu; *The Importance of Subsistence Hunting in Amazonian Frontier Communities in the Transition to Market-Based Economies*

Rural householders in the Amazonian frontier are transitioning to increasingly market-based economies with individualized systems of production and consumption. The individualized market system serves to decrease social engagement between households in the community. Social relations enacted in hunting extend, and maintain, a household's contact with neighbors in the community, and it is this social interaction that joins households together. Community social relations expressed in hunting through both social conflict and cohesion bind households and community social structure is reinforced by the non-market exchanges enacted in hunting practice. In this paper I explore the significance of the hunting practice in Brazil's first sustainable development settlement, Projeto de Desenvolvimento Sustentável (PDS - Sustainable Development Project) São Salvador, in maintaining a sense of community in the western frontier of the Amazonian state Acre. Using the framework of political economy with ethnographic data, I argue that hunting in the settlement binds households together through conflict and cohesion within an increasingly individualized market-based agricultural economy. Non-market exchanges entailed within hunting (meat exchange, hunting together) are important mechanisms in the community's social structure. The hunt serves to reinforce familial ties across households wherein both men and women are important actors. Kinship connections act as a regulatory mechanism in the exploitation of game resources in the settlement. Conservation and development planners should seek strategies that build upon community kinship ties in their effort to link social and ecological sustainability.

Keywords: hunting, Amazon, conflict, cohesion, kinship, meat exchange, Acre

Debby F Mir, Prof., Northeastern Illinois University. Email: debbymir@yahoo.com; *Preparing Future Environmental Studies Teachers through the Illinois MSTQE Program*

This study presents experience with the MSTQE program preparing future math and science teachers to present environmental science, in response to the chronic deficit of skilled teachers trained in the pedagogy or content developmentally appropriate for middle schools students. Students were taught content,

research skills, and exposed to a variety of field, multi-media approaches and techniques addressing scientific, policy and social aspects of environmental issues. The program was aligned to the Illinois State Content Standards for Teachers of Science and designed to empower pre-service teachers to take an integrated and meaningful approach to teaching. For example, a role-playing exercise assessed the safety of school children after a chlorine spill using the EPA "ALOHA" computer model. The diversity of the students was reflected in their initial and changing perception towards environmental issues and relevance to future classroom practices. Students came to appreciate the scientific, policy, social and geographical aspects and significance of environmental issues and proposed solutions (e.g. urban sprawl, city parks and gardens, alternative energy, restoration) for an urban or a rural middle school audience, and learned to research and design relevant lesson plans that incorporate local human and institutional resources.

Keywords: Environmental, Middle School, Teacher, computer, Modeling, MSTQE, ALOHA,

Faranak Miraftab, Dr., University of Illinois, Urbana-Champaign. Email: faranak@uiuc.edu; *Modern Gold Mines Right Downtown: Resistance and Real Estate Boom in Cape Town*

This paper examines a neoliberal urban revitalization strategy implemented in Cape Town, South Africa, known as Business or City Improvement Districts (BIDs or CIDs). Analyzing discursive and spatial practices of Cape Town Partnership, the managing body of downtown CIDs, the paper reveals its difficulties in stabilizing the socio-spatial relations of this neoliberal urban strategy. It highlights how CIDs are challenged from both within and without their managing structures by contentious local issues, and in particular by vast social inequalities and citizens' historical struggle for inclusive citizenship and the right to the city. Whether and how CIDs' inherent limitations can be overcome to address socio-spatial inequalities is an open question.

Keywords: Business Improvement Districts, South Africa, urban revitalization, neoliberal spatiality, governance

Ashish Misra, Mr., Department of Earth Sciences, IIT Roorkee, Roorkee - 247667, India. Email: ashish.misra80@gmail.com; Ravi Prakash Gupta, Professor, Department of Earth Sciences, IIT Roorkee, Roorkee - 247667, India. Email: rp.rpgesfes@gmail.com; Amit Kumar Sen, Dr., Department of Earth Sciences, IIT Roorkee, Roorkee - 247667, India. Email: senakfes@iitr.ernet.in; *Relative and absolute atmospheric correction techniques for ASTER satellite data - a comparative study using data over an Indian area*

Atmospheric-topographic correction and radiometric calibration of remote sensing image data are important for change-detection studies, time-series analysis, multi-sensor data integration and intercomparison, and parametric comparisons between image and field data. It is necessary that the data be first converted into physical units (in reflectance or radiance) for a more accurate quantitative and dependable analysis. Techniques for atmospheric correction and surface reflectance estimation are grouped as either absolute (radiative transfer models, image-based DOS models, etc.) or relative (dark-pixel subtraction, log-residuals, IARR, etc.). Accurate physical models to simulate atmosphere and hence its removal exist, but require contemporaneous collection of atmospheric data at the time of scene acquisition. This is mostly difficult and often impossible for historic data. On the other hand, relative atmospheric correction methods, which are image-based, are often too inaccurate to meet specific requirements. Hybrid models using both absolute and relative methods together provide the best results. Advance Spaceborne Thermal Emission and Reflection radiometer (ASTER) records electromagnetic radiation in 14 bands, with 9 bands in solar reflective region (0.56-2.40 μm) and 5 bands in the thermal infrared region (8.13-11.65 μm). An ASTER image of Khetri Copper Belt, Northwest India, was corrected for atmospheric effects using a physical model (MODTRAN-FLAASH) and image-based Dark Object Subtraction (DOS) model (Chavez method) to obtain absolute surface reflectances. Relative reflectance methods, like log-residuals and Internal Average Relative reflectance (IARR) were also tested. A combination of FLAASH and IARR produced a surface reflectance product with the best match with laboratory spectra of known materials in the area.

Keywords: Atmospheric correction, surface reflectance, ASTER, FLAASH, Chavez method, IARR, log-residuals, hybrid correction

Allyson A Mitchell, PhD. candidate, York University. Email: mail@allysonmitchell.com; *Bodycentric Spaces and Fat Body Knowledge: Reading the Work of Cindy Baker*

In the burgeoning body of research around geographies of fat, it has been acknowledged that moving through public spaces in a fat body can be a highly emotional experience (Colls, 2004, 2006). Not all spaces are created equally, however; some seem to engender a broader range and depth of emotion than others. In particular, spaces such as nightclubs, swimming pools, food courts,

change rooms and gyms are cited by many fat women as difficult spaces in which to locate themselves. I suggest that these are 'bodycentric' spaces, and are significant in their salience as sites of knowledge production and embodiment. Emotional responses to these spaces, then, are evocations of 'fat' knowledge gathered, created and, in some instances, resisted over the course of a lifetime. This paper focuses on a handful of those resistant instances presented by Canadian performance artist Cindy Baker. In particular, the strategies Baker invokes in her performance "Fashion Plate" to subvert and resist the gaze(s) directed at fat women's bodies (including those set forth by other fat women) will be considered for their spatial-epistemological significance. In commanding and controlling the scrutiny of the fat woman's body, and simultaneously presenting and troubling her body as a spectacle, I argue that Baker effectively alters the meaning of 'fat' via space and resistance. Baker's performance work, then, will be understood as one incarnation of the transgressive/libratory potential of using an embodied knowledge of fat against itself to revalue/reconfigure the 'bodycentric' space.

Keywords: bodycentric space, fat, resistance, spectacle, transgressive performance

James K. Mitchell, Professor, Rutgers University. Email: jmmitchel@rci.rutgers.edu; *Reinventing disaster recovery for the 21st century*

Serious flaws in American post disaster recovery efforts have been highlighted by troubling new public policies adopted in the wake of 9/11/01 terrorist attacks and by the national experience of hurricane Katrina. A review of the current research literature about disaster recovery provides a point of departure for consideration of potential alternatives both in the United States and elsewhere. Particular attention is devoted to holistic strategies for recovery that are being pioneered in several parts of the world. In the USA, the entire concept of disaster recovery requires reinvention and reinstitutionalization if the country is to successfully engage existing and emerging hazards of the 21st century. Three principles of reform are identified. These include: (1) expansion of the recovery agenda to address issues of ambiguity as well as issues of uncertainty and to incorporate perspectives on the functions of communities at risk as well as their form and material content; (2) development of larger and more permanent constituencies in support of hazards policies; and (3) accommodation and exploitation of surprises that occur during the post-disaster recovery period. Prospects for achieving these reforms are assessed and evaluated.

Keywords: hazard, disaster, policy, models, resilience, decision making, Katrina, 9/11, USA, international

Lynne Mitchell, Oxford Brookes University. Email: lmitchell@brookes.ac.uk; Elizabeth Burton, Oxford Brookes University. Email: ejburton@brookes.ac.uk; *Streets for Life*

The ageing of the population is a global phenomenon yet the design of the built environment continues to focus mainly on the needs of the young and healthy. People do not generally experience a diminishing desire for independence, choice and social contact as they age but unless the needs of older users in the outside environment are taken seriously many will be restricted in their ability to get out and about. This is particularly the case for people with dementia, whose numbers are growing, as they tend to remain in their own homes at least during the mild to moderate stages and face particular environmental barriers due to both their physical and mental deterioration. This paper presents design principles and recommendations for producing outdoor environments that are easy for older people with dementia to understand, to feel safe and comfortable in and to find their way around. These are based on the findings of a three-year research project, funded by the UK Engineering and Physical Sciences Research Council, which sought to identify the outdoor design needs of people with dementia through interviewing people with dementia living at home or in sheltered accommodation and by going on accompanied walks with them around their local neighbourhoods. The research led to our developing the concept of 'Streets for Life', which help people with dementia to maintain a quality level of independence and social contact and to prolong their ability to remain in their own homes.

Keywords: older people, dementia, streets, neighbourhoods, design

Phillipa Mitchell, University of Auckland. Email: p.mitchell@auckland.ac.nz; *A Long Way from Home? The Role of Information and Communication Technologies in South Korean and South African Migrants' Experiences as they Settle in Auckland, New Zealand*

Migrants face many challenges in moving to a new country, particularly one as geographically isolated as New Zealand. This paper investigates the role of information and communication technologies in the experiences two disparate migrant groups, the South Koreans and the South Africans. Interviews were conducted with individuals of different ages and who emigrated at different times, to explore what, if any, difference our increasingly coded world has meant how they settle in New Zealand's largest city, Auckland. As expected there were

distinctive differences in the use of technology by the two groups, however, there were also several common themes. Email, the internet and mobile phones have radically altered their ability to connect. Feelings of alienation and isolation are being mediated both by the ability to find out much more about the destination country and the ease with which they can maintain contact with their country of origin. All of the migrants described a tapering off of their need to communicate with 'home' over time even though it is now considerably easier and cheaper. Most have made the conscious choice to stay in New Zealand and identified that these new technologies empowered them simply by being accessible, even if their use has declined. Those that emigrated pre internet were extremely aware of how their experience would have differed, agreeing that these technologies would have lessened their sense of dislocation. Information and communications technologies are altering the way individuals interact with spaces and this has significant implications for geographical research.

Keywords: technology, information, communication, migrants, isolation, empowerment

Matt Mitchelson, University of Georgia. Email: mmitchel@uga.edu; *Imprisonment as a Spatial Process: Counting and Mobility in Penal Space*

The illusory permanence of the steel bars and fortress-like walls frequently employed by U.S. prisons belies the reality that prisons are actually the loci of considerable, though less-visible, population mobility. This multi-method project redresses the widespread misidentification of the U.S. prison population as a static, readily countable, sub-population of citizens in cells. I argue that cross-sectional population counts, which are often labeled 'the' prison population, are analytically insufficient and must be placed within a broader spatio-temporal context of state-imposed migration: the production of penal space. Hence, this project is designed to interrogate the contradictions between significant and interrelated spatial moments?origins, destinations, and conduits?within the carceral geography of the United States. The paper proceeds in two parts. First, using the Georgia Department of Corrections as a case study, the inherently spatial mechanics of 'inmate classification' are investigated via the formation of state 'power/knowledge' in the Georgia Department of Corrections Inmate Classification Unit. In-depth interviews of Department of Corrections employees, as well as direct observation of the Inmate Classification Unit in Atlanta, Georgia, are used to collect primary data. Second, an analysis of the U.S. Census Bureau methodology for counting prisoners in Census 2000, and analysis of current legislative debates concerning proposed methodological alterations for the 2010 census, is presented. The presentation is complemented by spatial and statistical analyses of Census 2000 data; hence, the census is an object of analytical inquiry on two ontological levels.

Keywords: prison, mobility, power/knowledge, Census geography

Beth Mitchneck, University of Arizona. Email: bethm@u.arizona.edu; Joanna Regulska, Rutgers University. Email: regulska@rci.rutgers.edu; *IDPs and Governance Environment: The case of Georgia*

Since 1990, the number of armed conflicts and the number of refugees have declined worldwide, yet the number of internally displaced persons (IDPs) has remained stable. The large number of IDPs and their physical location increases their vulnerability to decreased human security. Consequently, the development of coping mechanisms and strategies for the accumulation of resources for livelihood, by forced migrants, become dominant activities. We argue that through these actions forced migrants become part of a larger governance environment that surrounds the post-conflict situation and frames the social context of the management environment. We theorize further that the nature of social relations and interactions within the governance environment fundamentally shapes the construction of social networks and in turn individual and household livelihood strategies. Governance suggests that forced migration is neither the sole domain of institutional actors nor of individuals, but rather a political-economic process in which many individuals and institutions participate. The scope of government then extends far beyond the simple enactment of laws and management of the economy to a set of other cultural and economic processes. This paper will examine how IDPs use social networks in the construction of their livelihood strategies and how through their actions they construct a governance environment within which they live and function. In this paper, we will report on the preliminary findings from our fieldwork in Georgia, where a series of civil wars beginning in the early 1990s, created an estimated 260,000 IDPs.

Keywords: migration, IDPs, Georgia

Chandana Mitra, University of Georgia. Email: chandana@uga.edu;
Assessment and modeling of urban sprawl in Kolkata, India

The Kolkata megapolis, beginning with a population of 100,000 in 1735 and moving up to the present 7 million, can boast of unlimited, uncontrolled growth over the past 300 years. This sprawl has stagnated the city's development. There is past empirical evidence to show that all over the world, ever increasing population in the cities and adjoining suburbs has restricted the planned development of a burgeoning city. This is more prominent in the developing countries, where unplanned urban sprawl along with its unprecedented effects changes the overall environment, climatic pattern and ethical character of the city. In this poster presentation, we will assess the extent of urban sprawl over the years in Kolkata and characterize its growth pattern. The first objective is to conduct an analysis using historical maps and satellite images to delineate the extent of the urban sprawl. The second objective is to place Kolkata's urban growth within the context of different factors that have contributed to this population explosion and moulded its growth. The natural and political factors which have profoundly influenced the sprawl in the 20th century will be highlighted. The last objective is to project the impact of future urban sprawl on the city using urban modeling strategies. Our assessment will pay particular attention to how environmental factors such as the urban heat island and pollution will affect weather/climate patterns as Kolkata transforms from 'the City of Joy' into a concrete jungle.

Keywords: Urban sprawl, Kolkata, Urban Heat Island,

Yoshitaka Miyake, University of Hawaii, Manoa. Email: daikeiryosyo@hotmail.com;
New Policies for Land Consolidation from Market Liberalization in Japanese Agriculture

Agricultural liberalization is restructuring social/spatial relations in agrarian land in Japan. Japan's agricultural land reform after WWII limited farmland ownership to farmers and equalized ownership among small farmers in Japan. This landscape has been under contestation for fifty years. The recently decreasing rice price with the rice market liberalization has affected this situation. Since WWII, the government controlled channels of rice trading from producers to consumers. The government kept the rice price high to appease farmers until the 1960s only to find it too expensive with rice over-production. Government policies started to liberalize the market to let the price of rice decrease. Allowing the import of rice in the 1990s after the GATT agreement pressured the price to decrease much further. The Japanese government has supplemented the income of farmers to decrease the rice supply and at the same time tried to increase the efficiency of agriculture to keep farmers competitive. Along with the modernization of farm practices, the government emphasized land deregulation to facilitate the consolidation of landownership. Currently, the government proposes to designate farmers and farm organizations which have consolidated enough lands individually or by organizing their communities. The government will supplement the income of designated farmers if the decreasing price of rice, soybeans, or wheat results in a loss. This new agricultural policy may change the ownership and management of agricultural lands and labor. Pressures for land consolidation drive a re-assessment of rice farming, farm households, rural communities, and equality of landholding.

Keywords: Japan, agriculture, land reform, agrarian transition, market liberalization

Ines M. Miyares, Professor of Geography, Hunter College. Email: imiyares@hunter.cuny.edu;
Landscapes of Opportunity: New Mexican Geographies in Honolulu County, Hawaii

Honolulu County has experienced significant growth in its Mexican community between 1990 and 2000, increasing from 10,288 to 13,362 or 29.9%. Hidden among Hawaii's many ethnic groups, the Mexican community is still somewhat invisible. This study explores the emerging Mexican landscapes of opportunity that are beginning to appear in Honolulu's Asian-dominated ethnic milieu. I examine settlement patterns, economic incorporation, and Mexican cultural and service agencies, as well as the opportunities that are drawing Mexicans away from the mainland.

Keywords: Mexicans, ethnic geography, cultural landscapes

Kazuharu Mizuno, Graduate School of Asian and African Area Studies, Kyoto University, Japan. Email: mizuno@jambo.africa.kyoto-u.ac.jp;
Vegetation Succession in Response to Glacial Recession on Mt. Kenya

Dramatic changes are taking place in the glacier-covered high mountains of Africa. The glacial area of 2002 on Kilimanjaro is only half as large as it was in the 1970s. The Tyndall Glacier on Mt. Kenya, which retreated at approximately 3 m/yr from 1958 to 1997, retreated at 9.8 m/yr from 1997 to 2002 and at 14.8 m/yr from 2002 to 2006. The air temperature increased about 2°C from 1963 to 2005 at the 1890m point of Mt. Kenya. Leopard's remains were discovered at Tyndall Glacier in 1997. The radiocarbon dates of ca. 900+-100yrs BP correspond to the shift from a warm period to a cool period and the age of the Tyndall

Moraine. Pioneer species such as *Senecio keniphylum*, *Arabis alpina*, mosses, lichen, and *Agrostis trachyphylla* have advanced over areas formerly covered by the glacier. The rate at which this vegetation migrated up the former bed of the glacier (2.1-4.6 m/yr from 1958 to 1997) is similar to the rate of glacial retreat (2.9 m/yr). In the interval from 1997 to 2002, *Senecio keniphylum* of pioneer species advanced at 8.8 m/yr, while the glacier retreated at 9.8 m/yr. In the interval from 2002 to 2006, *Senecio keniphylum* advanced at 14.0 m/yr, while the glacier retreated at 14.8 m/yr. Rapid glacial retreat has been accompanied by rapid colonization of plants. Pioneer species improve soil conditions and make habitat suitable for other plants.

Keywords: Mountain, Vegetation, Environment, Glacier, Africa

Fujio Mizuoka, Hitotsubashi University, Tokyo, Japan. Email: fmizuoka@econgeog.misc.hit-u.ac.jp;
Kunashiri-to (Ostrov Kunashir) - 60 years since Soviet Occupation

The leaders of the US, UK and USSR agreed in Yalta that on the condition of Soviet entry into the war against Japan, the USSR will get South Sakhalin and the entire Kuriles. Kunashiri-to (Ostrov Kunashir in Russian) has then been under Soviet and subsequently Russian rule since September 1945. Since 1950s, Japan has made futile demand on return of the 'Northern Territory'; and when the Soviet Union under perestroika opened up these islands to foreigners in 1989, Japanese government called upon the Japanese citizen not to visit them on Russian visa. The network of settlements has changed significantly after the Soviet Occupation of Kunashiri. At the end of Japanese rule, there were ca. 88 fishing and agricultural hamlets, which were grouped into two municipalities - Tomari and Ruyabetsu. Tomari was the highest-order central place under Japanese rule, with ferry connection to Nemuro on Hokkaido mainland, and had administrative functions for the entire island and a shrine. After Russians expelled all the Japanese people out of the island, Tomari lost these functions and declined, as other fishing hamlets, most of which were totally deserted. Soviet Union built the new administrative centre after image of a European city on the barren hill overlooking Furukamappu, a small fishing hamlet, and named it Yuzhno-Kurilsk. Tomari, renamed as Golovnino by the Russians, was relegated to a small hamlet supporting border guard and military functions. The former village of Ruyabetsu lost all functioning hamlets, and now constitutes a part of heavily protected nature reserve.

Keywords: Kunashir, Yuzhno-Kurilsk, central place, Russia, Japan, the Kuriles

Cary J. Mock, University of South Carolina. Email: mockcj@sc.edu;
Historical Climate Reconstruction, Paleoclimate, and Society

Historical climatic reconstructions provide detailed information at decadal to subdaily timescales. Although such research is more known from reconstructions conducted on Europe, much unexploited documentary evidence and early instrumental records exist in North American archives. Much of the nineteenth century in particular, possesses high temporal and spatial resolution of data to reconstruct "natural climate variability" which is significant, as this is a time when anthropogenic influences on fire, land use, and fluvial systems became prominent. This paper provides an overview of the current status of historical climatic research and its linkages with other paleoclimatic proxies, referring to selected examples scattered over North America. Specific aspects discussed include precipitation frequency, growing season length, selected time series of temperature, case studies of flooding, and synoptic mapping. Recent research developments also demonstrate documentary climatic reconstructions to help 1) provide further insight on climatic variability on North America extending back several hundred years, 2) integrate these results with other high resolution proxies for selected time slices during extreme events (e.g., ENSO, extreme flooding events, 1849) and for calibration purposes, 3) provide a continental-scale climatological perspective with modeling and statistical aspects when utilizing both marine and terrestrial data sources, and 4) assess details on the linkages between climate change and society (e.g., Civil War drought). Future American historical climatological research should specifically consider the quality and quantity of historical materials useful for climate reconstruction, the locations of specific sites useful for assessing particular modes of climatic variability, and interdisciplinary perspectives on historical climate impact studies.

Keywords: historical climatology, paleoclimatology, climate impacts

Ali Modarres, California State University, Los Angeles. Email: amodarr@calstatela.edu;
Jennifer Kitson, California State University, Los Angeles. Email: jkitson2@calstatela.edu;
From Immigration to Integration Policies: The Role of Community Based Organizations in a Multicultural Metropolitan Area

In the absence of a national immigrant integration policy, voluntary associations, philanthropists, religious organizations, and unions have historically provided immigrants with the services and safety nets necessary to participate fully in American society. Recent literature has pointed to Community Based

Organizations (CBOs) as the newest manifestation of non-government integration facilitators. Because social, cultural, economic, and political integration occurs at the local level, in this paper we explore how the place-based emphasis of Community Based Organizations can be aligned with an articulated policy of integration in the U.S. In our research, we explore the relationship between CBOs and immigrants in three ways. First, we compare the distribution of CBOs to that of the foreign born population in Los Angeles County, California in an effort to identify their spatial relationship. Social geography of the county will be closely examined, in order to develop a more accurate spatial model for explaining the distribution of the CBOs in the County. To understand whether particular needs contribute to the burgeoning of specific types of CBOs, our second set of analyses will closely examine the relationship between the location of each organization and the services it offers. Third, we explore the degree to which CBOs in Los Angeles County are operated by immigrants. The paper will conclude with an examination of policy alternatives for inclusion of the CBOs in formally articulated integration policies.

Keywords: Immigrant integration, Community Based Organizations, Los Angeles County

Tyler Gage Moe, University of Wisconsin - Eau Claire. Email: MOETG@uwec.edu; Derek Christopher Hagen, University of Wisconsin - Eau Claire. Email: hagenc@uwec.edu; Kelly Marie Erickson, University of Wisconsin - Eau Claire. Email: erickskm@uwec.edu; Ross Joseph Guida, University of Wisconsin - Eau Claire. Email: guidarj@uwec.edu; Timothy Todd Bawden, Ph.D, University of Wisconsin - Eau Claire. Email: bawdent@uwec.edu; *Defining the Cultural Characteristics of the Driftless Region in Wisconsin*

The state of Wisconsin has a very distinct region of its physical land called The Driftless Area and it is located in the southwestern portion of the state. The unique physical characteristics, not found in any other region in Wisconsin, help to define this multi-feature region. The ethnic peoples who settled this area created a culture which has adapted in order to survive and thrive here. The Cultural Map of Wisconsin, that this study is based upon, displays 1200 important cultural and historical places in the state. Along with this map, additional research has been gathered through scholarly journals, web resources and field research in order to help define the cultural history and physical attributes.

Keywords: Wisconsin, Cultural, Driftless Area

Harold Moellering, Ohio State University. Email: moellering.1@osu.edu; *Developing a North American Profile for the World Spatial Metadata Standard*

In recent years many countries have developed a National Spatial Metadata standard. In 1994 the USA Federal Geographic Data Committee (FGDC) developed the Content Standard for Digital GeoSpatial Metadata (CSDGM). In the following years a world effort by ISO/TC211-Geographic Information developed a world spatial metadata standard. This standard was issued in 2003 and named the ISO 19115 Geographic Information - Metadata. Since that time, most countries have been busy harmonizing their national spatial metadata standard with that of the world standard. This situation has presented the opportunity for the Canada and the USA to develop a North American Profile-Metadata that can serve both countries in common. This paper will review recent work relating to the development of the North American Profile - Metadata.

Keywords: spatial metadata, spatial data standards, analytical cartography, geomatics, GIS

Alexander Moffett, University of Texas - Austin. Email: amoffett@mail.utexas.edu; Sahotra Sarkar, University of Texas - Austin. Email: sarkar@mail.utexas.edu; *Modeling Disease Vulnerability: A Global Malaria Risk Map*

Of emerging interest globally is the differential susceptibility of human populations to disease and the concomitant ecological and climatic conditions associated with those disease origins and vectors. In this paper an attempt is made to model such susceptibility through the creation of a worldwide malaria risk map. A database of georeferenced records of those species of mosquito capable of transmitting malaria is created using data collected from an extensive literature search. Niche modeling using a maximum entropy method is then used to predict the geographic distribution of these species using environmental data collected from the WorldClim database. Data drawn from the Gridded Population of the World database is used to determine the relationship between these distributions and that of human populations. The different risks posed by each species are modeled via species-specific parameters representing the abilities of the species to function as malarial vectors. An overall measure of risk is determined by combining a measure of the overlap of vector and human distributions with a representation of the ability of the vectors to transmit malaria. The methodology developed here is suitable for customization and

application to the modeling of other vector borne diseases.

Keywords: infectious diseases, malaria, mosquitoes, niche modeling, risk maps

Sandhya Mohan, West Virginia University. Email: smohan@mix.wvu.edu; Jonathan R Cumming, West Virginia University. Email: jcumming@wvu.edu; *Investigation of short-term drought effects on urban and non-urban sugar maple trees.*

Urban areas are characterized by anthropogenic stresses such as elevated temperature and higher levels of pollutants such as CO₂ and ozone. These stresses may make urban trees more susceptible to natural stresses such as drought and frost damage. Sugar maple was chosen to study the possible differential effects of drought on trees growing in and outside urban areas, with its recorded sensitivity to environmental stresses as well as ecological importance in the Northeastern US. Dendrochronology was used to analyze sugar maple growth in Morgantown, WV, a small city (population < 50,000) in the mid-Atlantic region. Sixty randomly selected sugar maples were cored from suburban regions, small urban and larger peri-urban woodlots. Average ring width differences and annual basal area increments (BAI) five years before and after three drought events (1966, 1988, 1998) were compared among the three sites. Trees were more stressed after drought at smaller urban woodlots and in suburban trees (13% and 20% less ring width, respectively; $p = 0.0201$) than in larger woodlots. Mean annual BAI was significantly higher in suburban trees ($p = 0.0360$), probably indicative of less competition and additional water availability than trees in the woodlots. We believe that urban trees that are not actively managed, especially those in remnant woodlands in the urban matrix, are more susceptible to decline due to climatic stresses, a factor that gains importance in view of the projected change in global climate. Future management efforts may need to include tree species that are not as sensitive to stress.

Keywords: Urban ecology, sugar maple, dendroecology

Rama Mohapatra, University of Wisconsin Milwaukee. Email: rama@uwm.edu; Richard Shaker, University of Wisconsin Milwaukee. Email: rrshaker@uwm.edu; Changshan Wu, University of Wisconsin Milwaukee. Email: cswu@uwm.edu; *Landscape Ecology and Cellular Automata: Investigating Patch Transition in Exurbia*

Since the end of World War II, there has been significant population growth causing development to radiate outward from the traditional urban core, metabolizing large areas of rural countryside with sprawling suburbs and exurbs. Sixty plus land classes were reclassified into five land patch categories that included: agriculture, developed, excluded, fallow/open/transition, and woodland for historical land use data of Southeastern Wisconsin. Using Markovian spatial simulation techniques and four landscape ecology metrics (e.g., contagion, edge density, fractal dimension, patch density) as influencing factors, patch transition in exurbia was simulated. This modeling approach is potentially a significant model for simulating landscapes beyond the urban fringe. In the selected study area, the model proved to be 72 percent accurate showing a rate of change of land patches as: -9.7%, 6%, 2.4%, 6.6%, -1.3% for agriculture, developed, fallow/open/transition, and woodlands, respectively.

Keywords: Exurbia, Cellular automata, Landscape ecology, landscape metrics, Waukesha

Rhett L. Mohler, Kansas State University. Email: rlmohler@ksu.edu; *Historical Channel Change on Vermillion Creek, Kansas, 1857-2002*

The importance of rivers and streams to both human and natural systems is great. Understanding these relationships is critical not only to comprehending how landforms themselves are created, but also to understanding the complex interaction of human and natural systems. This study examines channel change on Vermillion Creek, Kansas in the context of both human and natural causal agents. Analysis in this study consisted of examining aerial photographs and historical surveys. Vermillion Creek was found to be relatively stable through major land-cover changes during the late 19th century, and relatively unaffected by climate between 1891 and 2002. A channelization event near Vermillion Creek's confluence with the Kansas River, however, likely caused channel migration away from the cutbank, or opposite of the expected direction established from the historical survey. Furthermore, based on absolute migration distance values, Vermillion Creek currently seems to be in its most dynamic state since at least 1857. Because other change agents (climate, land-cover) can essentially be ruled out, channelization is likely responsible for most of the change found in this study.

Keywords: Fluvial Geomorphology; Channel Change; Channelization; Aerial Photos

Imelda K Moise, University of Illinois at Urbana-Champaign. Email: imeldamoise@yahoo.com; *GIS and Spatial Modeling of HIV Prevalence in Zambia*

While there has been a surge in research on statistical and mathematical approaches to HIV/AIDS modeling, there is little research that has used such models in analyzing local and scanty HIV/AIDS epidemiological data from developing countries. This study uses scanty sero-surveillance data obtained from testing pregnant women attending antenatal clinics to characterize the spatial pattern of HIV prevalence in Zambia for 1994, 1998 and 2002. A geographical information system (GIS) based analyses involving spatial interpolation, spatial econometric methods in GeoDA and UNAIDS' Estimation and Projection Package techniques are used to characterize the geographical distribution of HIV prevalence in Zambia and to predict current and future HIV prevalence.

Keywords: Medical Geography

Sami Moiso, Academy of Finland. Email: sami.moiso@utu.fi; *State, territory and the expansion of market-place society in Finland: towards a framework for analysis*

We live in an era of the rapid transformation of the European states. States are taking new forms rather than being disappeared or hollowed out. This phenomenon refers to the question of the interaction between the state and territory. A growing need to conceptualize these changes in statehood from historical perspective exists in various European margins. This paper aims at providing a context sensitive theorization about the gradual transformation of the Keynesian welfare-state spatiality in Finland rather than repeating the existing theories of the spread of the neo-liberal statehood. At all times, certain modes of arguing, seeing and thinking of the state space have governed the regional political practices. These historically contingent modes of reasoning are conditioned not only by domestic politics but also by the changing discursive structures of world affairs and international political economy. We suggest that the idea of the "central governmental problem" of state administration, in this paper called the "state paradigm", is constituted in these discursive structures. For the authentication of these arguments, we have used documents and statistics representing the Finnish state's public investment policy as a historical example of the expansionist Keynesian welfare-state construction - a state form which aimed to build up a specific capitalist mode of accumulation in order to spatially prevent the spread of communist political ideology in Finland.

Keywords: Neoliberalism, margins, statehood, scale, hegemony

Diana Mok, The University of Western Ontario, Dept. Of Geography. Email: dmok3@uwo.ca; *The Spatiality and the Cost of Language Identity*

This study examines the role of language as a source of social identity and its spatial implications. It describes how language acts as a source of social identity and motivates individuals to sort themselves by residential location. It further examines the extent to which economic factors such as housing values and institutional factors such as the provision of language schools reinforce social identity and influence residential location. It uses census geographic data of Montreal, Toronto and Vancouver to conduct comparative case studies and to provide empirical evidence.

Keywords: household sorting, language identity, housing value

Laura M. Moley, Ph.D., Kansas State University. Email: lmoley@ksu.edu; *Aridisol in Suburbia: Salinity and Soil Water Management Practices in the Las Vegas Valley*

Suburban development, particularly for amenity and "lifestyle" landscape choices, presents specific management challenges for soil sustainability. These challenges are multiplied in arid environments, and salinity is a primary concern. This paper will examine current water resource and soil management practices in the Las Vegas valley and the lower Colorado River basin, including traditional water budgeting methods and more recently popularized efforts to "flush" saline from aridisols using over-watering techniques under conditions of scarcity. I will explore short and potential long-term effects on soils, with particular focus on local aridisols, under several typical landscaping regimes.

Keywords: soils, water resources, suburban development

Irene Molina, . Email: irene.molina@ibf.uu.se; *Place and nation in racial formation - The Swedish suburb*

The article attempts to identify particular aspects of Swedish racial formation. Starting from the Swedish suburb, contemporaneous discourses and mechanisms of structural racial discrimination it attempts to put spatial racialized politics at the local level within the historical frame of the production of racist knowledge. An ethnographic case study in Gottsunda, a suburb in the middle sized city of Uppsala is the scene for the discussion on the roots of Swedish racism. A presentation the modern and current story of the suburb, in which processes of stigmatization and segregation are being replaced by re-representation and gentrification follows. New housing production for white middle class households

in the outskirts of Gottsunda, has changed local power relations. The formerly stigmatized immigrant population is now being confined to some segments of the area and made invisible. The text goes then back to the twenties, when the Uppsala Institute of Race Biology, with the internationally prominent figure of Herman Lundborg, specialized itself in the production of racist theories through extensive empirical works of cranium and other bodily measuring. The efforts of racial biologists in order to show a sort of regionalized and class divided Swedish racial hierarchy are discussed in relation to current representations of immigrants living in segregated suburbs.

Keywords: racialization, racism, Sweden, Uppsala, Gottsunda, segregation

Sharlene Mollett, Ph.D., Dartmouth College. Email: sharlenemollett@hotmail.com, sharlene.mollett@dartmouth.edu; *A "Racialized Common Sense"? Miskito Natural Resource Conflicts in the Honduran Rio Platano Biosphere Reserve*

The Honduran Rio Platano Biosphere Reserve has become a place of struggle over natural resource access and property rights. The Miskito Indians, the Reserve's most populous indigenous group, currently seek the formalization of their customary territorial rights from the Honduran state. However, Miskito claims have been persistently challenged by outside interests, both indigenous and non-indigenous and the state itself. Through ethnographic participant observation, semi-structured interviews, historical data collection, and with a focus on discourse, this paper examines the ways in which Miskito territorial struggles are racialized. A particular focus concerns the ways that historical, pervasive and contradictory discursive constructions of indigenous and afro-indigenous peoples and their habitats are presently re-constructed and infused in contemporary natural resource struggles. Such processes appear taken-for-granted in the Reserve where ladino, indigenous and afro-indigenous representations come to be normalized and serve as effective tools in the re-ordering of Reserve land. Building upon the insights of political ecology and critical racial studies, this paper encourages increased attention to the entanglement of race and space in the arena of international development and environmental conservation.

Keywords: race, indigenous peoples, protected areas, land legalization, Latin America

Bernard P Momer, University of British Columbia Okanagan. Email: bernard.momer@ubc.ca; Donna Senese, University of British Columbia Okanagan. Email: donna.senese@ubc.ca; *From Production to Consumption: The Cultural Diffusion of Wineries and the Redefinition of Rural Economies in North America.*

The origins of winemaking in North America reflect colonial migration patterns of settlers and clergy members. The early diffusion of wineries across the continent therefore followed traditional relocation models. However, with the evolution of wine making into a full-blown wine industry over the last 25 years, the spatial diffusion process of wineries became intertwined with the redefinition of the rural economy. An analysis of the opening dates and geographical distribution of North American wineries indicates that the recent spatial diffusion of the wine industry responds to socio-cultural changes based on neo-localism and Epicureanism, more so than to the classic spatial diffusion models. The data collected have been triangulated with personal interviews with wine industry stakeholders to reveal the importance of the value added tourism based sector of the industry, where wine consumption now outranks agricultural production in these landscapes. Our findings will contribute to an understanding of the localised processes involved in the adoption of the wine industry as a mean to create and recreate a regional identity based on the consumption of wine landscapes.

Keywords: Wine, diffusion, cultural landscape

Janet H. Momsen, Univ of California. Email: jdmomsen@ucdavis.edu; *Fair Trade versus Unfair Trade: the Windward Island banana industry in the face of WTO restrictions*

During the 1990s Latin American producers challenged the protected market for ACP bananas in Europe resulting in WTO proceedings initiated by the USA and Latin America in 1996. In February 2002 a compromise was reached opening the European market to non-traditional, that is non-Caribbean producers, and the new EU banana regime came into force on 1st January, 2006. The Windward Islands have been dependent on bananas as their main exports for over four decades but as high cost producers they cannot compete with the cheaper Latin American bananas. The trade uncertainties of the 1990s led to lack of investment in the Windward Island industry and four years were spent in educating producers and consumers about the concepts of Fair Trade. The export of Fair Trade bananas to Europe from the Windward Islands began in 2000 with 466 growers in Dominica, St Lucia and St Vincent. In 2005 a strategic decision was made to convert all Windward Islands fruit exports to Fair Trade. By the end of November 2005 2640 banana farmers were registered as Fair Trade producers. This paper examines the role of British NGOs and supermarkets in encouraging

Fair Trade banana production and exports. It also looks at the gender of Fair Trade banana producers and the impact of the social premium, an integral part of Fair Trade, on local island communities.

Keywords: Caribbean, trade, bananas, Windward Islands

Salim Momtaz, Senior Lecturer and Deputy Head, Centre for Sustainable Coasts and Catchments, University of Newcastle, Australia. Email: Salim.Momtaz@newcastle.edu.au; Shahalam M.N. Amin, Associate Professor, Department of Geography and Geosciences, Bloomsburg University of Pennsylvania, USA. Email: samin@bloomu.edu; Md.Humayun Kabir, Assistant Professor, Department of Geography and Environment, University of Dhaka, Bangladesh. Email: ; *Involving Community in Environmental Decision-Making in Developing Countries: the Case of Ramsar Wetland Management in Bangladesh*

Community participation in environmental decision making has been recognized as a prerequisite for sustainable development. This democratic process has its origin in the publication of 'Our Common Future' by the World Commission on Environment and Development in 1987 and the declarations and documents that emerged from the Rio Summit in 1992. Inspired by the world events, the governments in developed countries have provided legislative mandate to community participation and made it a requirement for environmentally and socially significant decisions. While community consultation and participation in development projects funded by donor agencies is often a precondition for developing country governments, it has yet to attain a legal status in most South Asian countries. Based on the results of extensive field survey in the Ramsar wetland sites of northern Bangladesh, this paper will examine how communities can be better involved in the management of wetlands. Recently, we have seen the adoption of Vroom-Yetton normative decision model in developing guidelines for managers that allow them to determine the level of public involvement in natural resource decision making. This paper will explore if a modified version of Vroom-Yetton model can make any meaningful contribution to deciding the extent to which local communities may be incorporated in decisions relating to wetlands management. The paper will further strengthen our understanding of the necessity of involving community in all facets of resource management - from inception of planning to the implementation and monitoring of program.

Keywords: Bangladesh; community participation; the Ramsar Convention on Wetlands; Vroom-Yetton Model.

William Monfredo, Ph.D., University of New Orleans. Email: wmonfred@uno.edu; Katrina—Surveying the Damage in the Lower Ninth Ward

This presentation briefly discusses hurricane history along the Gulf Coast, introduces observations and meteorology associated with Katrina, and compares events of this nation's costliest natural disaster with 1969's Hurricane Camille. Katrina's Sea-surface temperatures, wind shear, rainfall, and storm surge are considered. Results of a damage survey conducted in the Lower Ninth Ward are shown; quality black-and-white photographs reveal an intriguing aspect. Unlike New Orleans' Lakeview district, widespread and intense flash-flooding occurred east of the Industrial Canal—damage similar to an F4/F5 tornado ensued. Using prior strength, duration, & areal extent of storms to aid the prediction of maximum storm surges appears prudent. In the future, studies indicating whether and how increasing levels of atmospheric carbon dioxide might contribute to both SST variations and upper-air patterns favorable for the growth of large and dangerous storms would prove useful in lieu of ongoing global-change debates.

Keywords: flood, hurricane, Katrina, New Orleans, storm surge

Janice Monk, University of Arizona. Email: jmonk@email.arizona.edu; Patricia Manning, University of Arizona. Email: pmanning@u.arizona.edu; Catalina Denman, El Colegio de Sonora, SON, Mexico. Email: cdenman@colson.edu.mx; Elsa Cornejo, El Colegio de Sonora, SON, Mexico. Email: ecornejo@colson.edu.mx; *Gender and Health at the Mexico-US Border: Places, Positionalities, and Priorities*

This paper draws on interviews with health experts engaged in public policy making and implementation, including legislators, federal government administrators, community health administrators, and health advocates, on both sides of the Mexico-US border. It explores how they conceptualize "women's health," "gender," and "the border" in discussing priorities for health policies and programs. Their framings of the border reveal strong influences of individuals' specific geographic locations and professional roles (their place and positionality). Interpretations of women's health issues frequently conflate biological "sex" distinctions with "gender" as a socio-political concept. We compare discourses across both national and professional boundaries and raise questions about ways in which feminist scholars can work to improve women's health across these borders.

Keywords: women's health, gender, Mexico-US border, policies

Mark Monmonier, Syracuse University. Email: mon2ier@maxwell.syr.edu; *Sea Level Rise and the Fourth Shoreline of Coastal Cartography*

Maps of sea level rise are of potential interest to map historians because they represent the emergence of a fourth distinct type of cartographic shoreline, the oldest of which is the high-water line, captured initially in the offshore sketches of mariners and global explorers and used for centuries to promote wayfinding at sea as well as frame continents on geographical maps. The second shoreline is the low-water line, which marks the horizontal position of the tidal or sounding datum, while the third shoreline portrays the plausible landward reach of storm surge. Like these second and third depictions, which warn respectively of near-shore navigation hazards and coastal flooding, the fourth cartographic coastline relies on measurement and modeling to advertise another environmental hazard, namely, the combined impact of the local subsidence or emergence of Earth's crust and the imminent global rise in sea level associated with climate change and the possible disruption of glaciers in Greenland and Antarctica. Unlike such distant cousins as Alfred Wegener's 1915 graphic hypothesis of continental drift and the didactic depictions of oceanic invasions in nineteenth-century geology textbooks, maps of sea level rise assumed the important role in public discourse of informing skeptical or ideologically biased citizens about an imminent yet uncertain hazard with a slow onset and potentially catastrophic impact. An inexact time frame and complex causes promote diverse renderings of the fourth coastline, which include small-scale forecasts of massive inundations of coastal lowlands and larger-scale depictions comparing the consequences of different strategies for managing coastal wetlands.

Keywords: History of Cartography, Coastal Mapping, Propaganda Maps, Wetlands

Robert Monnar, Department of Geography, University of Nevada, Reno. Email: monnar@unr.nevada.edu; Peter Hartsough, Hydrology Program, University of Nevada, Reno. Email: phartsou@scsr.nevada.edu; Simon Poulson, Department of Geology, University of Nevada, Reno. Email: poulson@mines.unr.edu; Keirith Snyder, Department of Forestry, University of Nevada, Reno. Email: kasnyder@unr.edu; Franco Biondi, Department of Geography, University of Nevada, Reno. Email: fbiondi@unr.edu; *Diurnal Cycles of Leaf Water Stable Isotopes in Two Pine Species*

The diurnal cycle of stable isotopic values in leaf water has not been studied extensively, and the few reports published in the peer-reviewed literature show large fluctuations, particularly during the summer growing season. We therefore collected lodgepole (*Pinus contorta*) and Jeffrey (*Pinus jeffreyi*) pine samples from Little Valley, Nevada to study leaf water exchanges over a 24-hour period. The focus of this study is to determine the diurnal fluctuation of hydrogen (dD) and oxygen (d18O) water stable isotopes as it relates to evapotranspiration during the growing season and into the dormant season. Additionally, we evaluated diurnal photosynthetic activity using a LICOR instrument. Diurnal sampling from four trees per species took place on: (1) October 15-16, 2005, with a total of 12 samples per tree. (2) June 19-20, 2006, with a total of 16 samples per tree. Two spot check sampling events took place on June 14, 2006 and October 16, 2006. Other sampling included: precipitation, xylem, branch, soil, and stream water. Other observations included: diurnal cycles of canopy relative humidity, air temperature, hourly air temperature, and solar radiation from the Little Valley weather. The diurnal variation for the dormant season in dD and d18O of leaf water reached a minimum (-70 and 0.72, respectively) at midday, reached a maximum (-51 and 9.07, respectively) in the late afternoon/early evening, and decreased in the morning. The diurnal variation for the growing season is currently being analyzed. The diurnal cycle of stable isotopic values is graphically presented and its implications are discussed.

Keywords: Stable Isotopes, Leaf Water, Nevada

Enrique L. Montano, MS, University of New Mexico. Email: tresmont@unm.edu; Karl Benedict, PhD, University of New Mexico, Earth Data Analysis Center. Email: kbene@edac.unm.edu; Bob Parmenter, PhD, Valles Caldera National Preserve. Email: bparmenter@vallescaldera.gov; *Proactive Grazing Management in the Valles Caldera National Preserve Using Internet Mapping Services and Remotely Sensed Forecast Models*

The Valles Caldera National Preserve (Preserve) is a unique experiment in sustainable management, multiple use, and self-sufficiency. The use of portions of the Preserve as a working ranch is an integral part of the management mandate and continues a long tradition of cattle grazing on the Valles Caldera. The Preserve currently performs active and innovative management of these grazing lands through adaptive stock size and day-to-day monitoring of activity and impacts. The purpose of this presentation is to explore the internet mapping service developed by the Preserve in conjunction with the University of New Mexico's Earth Data Analysis Center to address the needs of active management.

The current service is used to deliver daily Normalized Daily Vegetation Index (NDVI) data from the MODerate Resolution Imaging Spectroradiometer (MODIS). To further address the needs of active management and proactive management, the Preserve is implementing a forecast model of NDVI values as part of the internet mapping service. The forecast model is the result of the combination of high-temporal frequency remote sensing products from MODIS with precipitation products from the NEXt Generation RADar (NEXRAD). The model provides a foundation for future research in biomass estimates from NDVI, refinements to the discrete temporal resolution of the model, and season-wide simulation models. The presentation of these spatial tools allows managers to see what is occurring and forecast potential impacts of management practices.

Keywords: gis, remote sensing, modeling, mapping services

Roberto Luís Monte-Mór, Ph.D., Associate Professor, UFMG, Universidade Federal de Minas Gerais. Email: montemor@cedeplar.ufmg.br; *Extended Urbanization and Production of Space in Metropolitan Brazil*

In 1950, only 36% of the Brazilian population lived in urban areas. In two decades, industrial development and intense urbanization led to an urban population of 56%, in 1970, mostly concentrated in regional and industrial cities. Since then, metropolitan and urban growth spilled over middle size cities and small towns and the urban population reached 81.2%, in 2000. Metropolitan regions further extended urban-industrial infrastructure and services, along with market areas, much beyond cities and towns to create complex urban-rural patterns throughout the country. Such intense and extended urbanization process took the urban-industrial conditions of production (and reproduction) beyond cities and towns and produced the urban form that characterizes contemporary Brazil. Extended urbanization also carried within it the specificity of the city, and of the polis - citizenship; politics; urban social praxis. This paper looks at Brazil's recent socio-spatial restructuring from such a perspective and focuses on its two outermost manifestations: metropolitan regions and the Amazonian frontier.

Keywords: urbanization, metropolitan, Brazil

Daniel R. Montello, Ph.D., Univ of California Santa Barbara. Email: montello@geog.ucsb.edu; *Climate Change and Cognition: Introduction and Overview*

The causes and consequences of ongoing global warming are to be found in both biophysical and human geography, and responding to global warming will require human action at many levels, from individuals to institutions. In this session, we explore the idea that understanding human responses to climate change requires understanding human cognition about climate and climate change?what people believe about how climate works, and how weather relates to climate; whether people think climate change is occurring, and what they think causes it; what people expect the consequences of climate change will be, including the spatial and temporal characteristics of these consequences; and what, if anything, people think can be done to respond to these changes and attenuate their negative impacts. Furthermore, it is relevant to consider cognition about climate change from the perspectives of various groups of people, including climate scientists, lay people, and policy makers. How do climate scientists understand climate and climate change, and how do they communicate their understanding to lay people and policy makers? How do the values, beliefs, and attitudes of individuals and organizations shape public concern and support for climate-change mediation and policy? In this paper, I introduce and overview potential research topics concerning the cognition of climate and climate change.

Keywords: climate change, cognition, perception, behavioral geography

Alesia Montgomery, Ph.D, Michigan State University, Dept of Sociology. Email: montg143@msu.edu; *The Pursuit of "Natural" Spaces by Black Middle Class Mothers*

The social reproduction of the middle class requires not only vast quantities of parental time but superior qualities of neighborhood space. Drawing upon visual data and in-depth ethnographies in Detroit and South Los Angeles, this paper frames the spatial bind of black middle class mothers: Distant from the amenities enjoyed by white middle class mothers in affluent suburbs, these mothers often reside in low-income, racially stigmatized areas that have been hit hard by urban restructuring. The dearth of resources for acquiring (dominant) cultural capital and the lack of spaces (fresh produce stores, public parks) to safely consume "nature" in these areas make it hard for these mothers to adopt middle class patterns of consumption and cultivate middle class advantages for their children. Ironically, while upwardly mobile African American mothers have acquired middle class tastes, some of them feel that they have less favorable surroundings to satisfy their tastes than they did in their working class childhoods. The efforts of these mothers to distance environmental risks while maintaining kin and community ties increase their time burdens, intensify their

stresses, and draw them into racial, class and gender conflicts. This study contributes to theorization of the co-construction of urban environments and gender practices.

Keywords: black middle class, gender, daily rounds, nature

Mariana Montoya, University of Texas at Austin. Email: mariana.montoya@mail.utexas.edu; Kenneth R. Young, University of Texas at Austin. Email: kryoung@mail.utexas.edu; Kelley A. Crews-Meyer, University of Texas at Austin. Email: kacm@uts.cc.utexas.edu; *Contested landscapes of the Pastaza and Corrientes Rivers of the Peruvian Amazon*

Indigenous groups located in the northern Amazon of Peru find their lands and resource zones embedded within or among landscapes designated by the national government for nature conservation, for possible future timber concessions, and for oil exploration and extraction. This project uses spatial data such as titled community lands, settlements, petroleum concessions, watersheds, and protected areas to evaluate the overlaps among the differing formal and informal land claims affecting the Achuar, Kandozi, and Kichwa, plus their other neighbors including long-term settlers. In most cases, recent land titling projects have begun to clarify some land tenure concerns, but have not resolved other instances of environmental injustice including water contamination from upstream sources. As a result this area has become of concern to social and environmental activists, to decision makers, to nongovernmental organizations, and to the governing bodies of the indigenous groups. Vulnerability of the indigenous people is a result of exposure and susceptibility, type of contaminant, resource scarcity, and their degree of self-governance.

Keywords: Amazon, indigenous groups, contested landscapes, petroleum, concessions

Aaron Moody, Univ of North Carolina. Email: aaronm@email.unc.edu; R Todd Jobe, University of North Carolina. Email: ; Nick Haddad, North Carolina State University. Email: ; Jeff Walters, Virginia Tech. Email: ; *Creature Space - Geographies of Animal Movement*

As the landscapes of everyday or life-cycle activities are transformed through various forces, the movements of individuals are affected positively, negatively, or not at all, depending on their particular movement niche. The movement niche, which varies more between than within species, includes aspects of an individual's behavior (including social behavior), life-history, environmental sensitivities, and trophic vulnerability. The movement niche is enacted in what might be called movement space, or more generally, the landscape. In many cases, for example in urbanized landscapes, humans have transformed movement spaces (along with habitat) without considering which species would benefit and which would not. No theories or general principles exist for describing how biological communities existing in human dominated landscapes have changed (or will) due to the modification of movement spaces. In this paper we present empirical data on landscape characteristics and movement behavior for the red-cockaded woodpecker (RCW) and the St. Francis satyr (butterfly). These data have been collected for 18 radio-tracked juvenile female RCW during their dispersal period, and through in situ observation of St. Francis satyr and experimental release experiments using a surrogate species (Appalachian brown satyr). We analyze our data along with other studies of animal movement and present a framework that attempts to generalize about how wildlife communities are affected by the interplay between landscape structure and animal movement.

Keywords: wildlife, movement, dispersal, landscape, bird, butterfly

Jerker Moodysson, Lund University. Email: jerker.moodysson@keg.lu.se; *Spatially distributed life science systems: epistemic communities as global lifeworlds*

This paper deals with the geography of knowledge collaboration. Particular attention is paid to how the different rationalities of actors in various situations underpin their choice of collaborators. Biotechnology is a good example of a platform that encompasses various types of actors and activities that embraces several sectors, which makes it a good case for an analysis of the rationalities behind local and non-local knowledge collaboration. Such an analysis requires a shift in focus, from the level of systems (e.g. RIS) as unit of observation to an approach also considering the specific characteristics of the actors and their activities. Based on a study of 10 life science research groups and 10 dedicated biotech firms located in the Swedish part of the Medicon Valley bioregion, the following findings deserve to be highlighted: Local knowledge exchange underpinned by 'lifeworld' rationality is a rare phenomenon in biotechnology. To the extent that knowledge spillovers and social interaction stimulating these spillovers exist at all, they are as frequent on a non-local scale as on a local. Most of the knowledge that is to be exchanged is organized, formalized, and structured. Non-local knowledge collaboration is not entirely based on 'system' rationality, but on a mix of lifeworld and system rationalities, characteristic for

so called epistemic communities.

Keywords: Regional innovation systems, knowledge, interaction, biotechnology, Sweden

Debnath Mookherjee, Professor, Western Washington University. Email: debnath.mookherjee@wwu.edu; Perspectives on Urbanization and Development in India

How does development relate to urbanization? Based on census urban data (2001) and the current comparative performance data for the states, as presented in India Today (2006), the relationship between certain urban characteristics and developmental criteria is explored.

Keywords: urbanization, development, India

Eli Moore, Syracuse University. Email: ebmoor01@maxwell.syr.edu; Research and mapping in a context of conflict: The parallel relevance of participatory action research principles

In this paper I consider how participatory action research (PAR) principles enabled a still-flawed research process to occur in an area of heightened socio-political conflict in rural Colombia. Key moments in a research process that included video production are contrasted with reflections by local organizers about their participatory mapping processes. The comparison demonstrates how PAR principles apply differently to the cartographic and video research processes. I acknowledge important tensions between viewer/participant subjectivities as they are distinctly mediated by the two research media. I also argue that the different positionalities of outside researcher/video producer, local organizers and participants shaped the way PAR principles applied to building safety, trust and reciprocity.

Keywords: research methodology; participatory mapping; Colombia

Francesca P L Moore, BA MSc MPhil, University of Cambridge. Email: fplm2@cam.ac.uk; Regulating Motherhood: Governmentality and Reproduction in Industrial Britain

Foucault has argued that in the 18th and 19th centuries the female body was designed as a maternal body. He believed this was because the bourgeoisie needed maternity as a social institution. Assumptions of the essential 'maternal' character of women were reflected in the law, such as the Offences Against the Person Act. I intend to explore the regulation of women's reproductive behaviour to expose the social control strategies behind the legal norms. I intend to explore the significance of the unborn child in regulation and evaluate the position of the life of the unborn child in relation to that of the woman that carries it. I will argue that the regulation of reproductive capacity confirmed women's marginalisation in industrial society, reinforcing gender and class discrimination and put them at the bottom of a hierarchy of power.

Keywords: Motherhood, Abortion, Governmentality

Jason W. Moore, University of North Carolina, Chapel Hill. Email: jasonwmoore@earthlink.net; Empire, Enclosure, & the Political Ecology of the Long Wave: The World Ecological Revolutions of the Long 17th Century

Imperialism is back in vogue. And with it has come a newfound interest in Marx's concept of "primitive accumulation." After more than a decade when everything - even within critical historical circles - seemed to turn on the market, the new debates on empire and enclosure make clear that capitalism survives as much by the march as by the market. Unfortunately, these new debates have been constructed on exceedingly limited historical foundations. Much as the globalization literature before it, analysts of imperialism and "accumulation by dispossession" have pronounced its novelty with clocklike regularity. Taking the environmental history of primitive accumulation as its angle of vision, I argue that coercive-intensive accumulation is a cyclical phenomenon of capitalism. From this standpoint, primitive accumulation appears dialectically bound with those capital-intensive accumulation strategies ? pivoting on rising productivity and market forces ? typically regarding as "normal." The argument is advanced by exploring the era of Dutch hegemony during the long 17th century (1570-1790s). Exploring the environmental histories of imperial and domestic "enclosures" (broadly conceived), I advance a historical reconstruction of the era's two great moments of resurgent primitive accumulation ? the first crystallizing during the Braudel's "Age of the Genoese" (1570s-1640s), the second during the subsequent, Dutch-led financial expansion (1730s-1790s). In both instances, capitalist and territorialist agencies, within but not limited to the ascendant hegemonic power (United Provinces, Great Britain), intensified coercive-intensive relative to capital-intensive accumulation strategies. Such a world-historical perspective will allow us to discern what is genuinely novel about the present conjuncture.

Keywords: capitalism, imperialism, political ecology, globalization, environmental history, historical geography

MacKenzie K.L. Moore, M.A., UC Berkeley Department of History. Email: macmenzy@gmail.com; Unfamiliar Terrain: Place, Ideology, and the Conquest of Nature in the Jacksonian West

Jacksonian Americans who traveled on the great plains in the middle decades of the nineteenth century attempted to interpret their environment through many lenses - Romanticism, Primitivism, Environmental Racial thought, and the Great Chain of Being. I argue that travelers encountered a landscape in the Great West that challenged dominant Jacksonian thought, and therefore confounded men and women who relied on popular ideology to interpret their experiences ? and their purpose ? in the West. Once disabused of their trusted interpretive tools travelers embarked on a project of sense-making that was constantly in dialogue with the landscape. Though these experiences might have destabilized travelers' rationale for Western conquest, my evidence demonstrates that this process actually strengthened their determination to conquer the land beyond the frontier. The most important mechanism travelers used was to associate Indians with animals. By intermingling the environmental context of the plains with reorganized older ideas, early Western travelers were able to construct an idea of the Western Indian as equally connected to the environment and the place of the West as were animals. The stigma of animality not only reaffirmed the inferiority of Indians as compared to White men, but also specifically elucidated their destruction as a prerequisite for successful and total conquest. Once the United States set the plains Indians in their sights, they would not stop until every Indian was severed from the environment of which he seemed so much a part.

Keywords: American West, Perception, Interpretation, Nature, Native Americans

Susan Moore, Dr., Cardiff University, Wales. Email: MooreS6@cardiff.ac.uk; Rearticulating notions of public/private in the provision of residential built environments

Planning and market interests are largely cast in antagonistic relationships within studies of urban development. The built environment is often seen in functional terms as the end result of the tug-o-war between planners and developers in the normative pursuit of affordable housing, sustainable communities, smart growth and the like. The exaggerated distinction between public interests and private market forces in explanations of urban change and land transformation belies the situated hybridity of all forms of building provision. Such constructions of state/market or public/private say little of the assembly of actors within relational contexts of action, which constitute geographically and socio-politically specific development practices and rationalities. This paper illustrates the blurring of 'private' and 'public' processes, roles, and actors within the complexities of housing provision by drawing upon primary research of master-planned communities in Canada and the UK. Rather than articulating public/private as the primary analytical categories in distinguishing between key actors and events in the development process, the intent of the paper is to shift attention toward how these constructions themselves are perpetuated through relations of context, practices and rationalities; and how the latter might be used to devise a new framework for researching built environments.

Keywords: public/private; residential development; planning; context; practices; rationalities; built environment

Toby Moore, American University. Email: moore@american.edu; Measuring the Impact of Tougher ID Laws on U.S. Voters

Perhaps the most controversial area of election reform is the drive to require voters to show photo identification and prove their citizenship status at the polling place. Georgia, Missouri, Arizona and Indiana are among the states which have passed such laws; slightly different ID measures passed in both the U.S. House and Senate in 2006, although it has not become federal law. Supporters cite the need to prevent voter fraud; opponents say the laws are discriminatory and ineffectual. Despite extended litigation battles and legislative debates, reliable data is scarce. Estimates of the number of voters who lack photo ID and proof of citizenship vary widely, and attempts to match drivers' license databases with voter registration rolls have proved unsatisfactory. Under a grant from the Smith Richardson Foundation, the Center for Democracy and Election Management has initiated an innovative effort to determine how many people lack photo ID and proof of citizenship, who these people are, and what impact such laws have in the polling place on Election Day. The study will use statewide telephone surveys, localized "snowball" surveys and election observing in an effort to determine the impact of requiring photo ID and proof of citizenship. This paper presents tentative findings from the study.

Keywords: elections, voting, United States

Zachary A Moore, Ph.D. Student, National Geographic Society. Email: za-moore@txstate.edu; Issues Affecting Geographic Education in America's K-12 Public Education System: An Historical Perspective

Over the past one hundred and twenty-five years, geographic educators have published a plethora of articles exposing numerous issues that affect K-12 geography. An analysis of contemporary literature reveals three prominent concerns - pre-service training/teacher education; instructional material/teaching methods; geography's position within K-12 education - that affect geography education in the current education system. Based upon these themes, the author examined literature from the nineteenth century to present in order to document historical trends or commonalities in these contemporary themes. Results indicate scholarly works routinely mimic concerns brought to the forefront by scholars around the turn of the twentieth century.

Keywords: geographic education, geography curriculum, geography education, K-12 education, pre-service education, historical geography

Sharon Moran, State University of New York - Env. Science and Forestry, Syracuse, NY. Email: smoran@esf.edu; Following the dirty water down the drain: political ecology and the nonhuman

Recent work on the nonhuman provides several different ways for geographers to explore the relations of authority that exist among the composite entities we know as people, places, and things. One of the most provocative aspects of these ideas is that they illustrate how the "ethical-political horizons of the 'self' are now seen to extend across multiple spatio-temporal networks" (Braun 2000) which manifest possibility of change and transformation in various locations. In order to interrogate the utility of the concepts articulated by authors including B. Latour, S. Whatmore, B. Braun, and others, I use a case study approach. The paper examines a wastewater management challenge in a small lakeside community where the lake also serves as a reservoir for a more distant city. I track the recursive process through which the challenge was characterized, actors became involved, and technologies were (re)deployed. This case is examined in connection with three aspects of idea of the nonhuman - its ontological commitments, its theorizing of the micropolitics of capitalism, and its framing of governmentality - and the paper concludes that the conception of the nonhuman both illuminates and frustrates greater understanding.

Keywords: political ecology; wastewater management; technology

Barbara Morehouse, Inst for the Study of Planet Earth. Email: morehoub@u.arizona.edu; Socio-Ecological Resilience, Habitus, and the Practice of Everyday Life

Resilience theory, as developed by Folke, Berkes, Gunderson, Holling, and others, is by its very nature political in that it requires close socio-ecological coupling to achieve desired ends. However, establishing socio-ecological resilience requires not only changes in policy. It also requires recognition by individuals that non-humans are, in important ways articulated by Latour, actors in their own right. Accepting this epistemological approach may be difficult enough for researchers involved in interdisciplinary resilience research. Even more difficult is introducing it into political structures and practices. Bourdieu's concepts of habitus, field, and reflexivity, combined with deCerteau's views on the practice of everyday life, offer an avenue for exploring how to overcome such barriers and how to refine resilience theory's conceptual foundations.

Keywords: resilience, habitus, politics, environment

Rachel Morello-Frosch, Brown University. Email: rmf@brown.edu; Manuel Pastor, University of California, Santa Cruz. Email: mpastor@ucsc.edu; James L Sadd, Occidental College. Email: jsadd@oxy.edu; The 'Riskscape' and the Colorline: Examining Geographies of Inequality in Environmental Health

Race, as a social construct and mechanism of classification, has historically defined and continues to shape the distribution of power, privilege, and economic resources in American society. Myriad forms of past and present discrimination in the U.S. are imprinted onto our landscape, as evidenced by the persistent spatial separation of diverse communities along racial/ethnic and class lines. Researchers, policy-makers, and environmental justice advocates argue that communities of color who are segregated in neighborhoods with high levels of poverty and material deprivation are also disproportionately exposed to physical environments that adversely affect their health and well-being. Examining these issues through the lens of racial residential segregation provides insights into the junctures of the political economy of social inequality with discrimination, environmental degradation, and health. More importantly, this line of inquiry highlights whether observed pollution - health outcome relationships are modified by segregation and whether segregation patterns impact diverse communities differently. This paper examines theoretical and methodological questions related to racial residential segregation, economic inequality, and environmental health disparities. We begin with an overview of race-based segregation in the United States and propose a framework for understanding its

implications for environmental health disparities. We then discuss applications of segregation measures for assessing disparities in ambient air pollution burdens across racial groups and go on to discuss the applicability of these methods for other environmental exposures and health outcomes. We conclude with a discussion of the research and policy implications of understanding how geographies of inequality shape environmental health disparities across diverse communities.

Keywords: segregation, health, environmental justice

Christopher M. Moreno, San Diego State University. Email: cmoreno@mail.sdsu.edu; Stuart C. Aitken, San Diego State University. Email: saitken@mail.sdsu.edu; Deleuzian Geographies of Drug Addiction in Darren Aronofsky's Requiem for a Dream

This paper, explores a variety of Deleuzian geographies of drug addiction in Darren Aronofsky's Requiem for a Dream. Initially, we connect Deleuze and Guattari's notion of a 'drug using assemblage' to 'becoming' to express drug using bodies in terms of their enabling (good) or blocking (bad) attributes as 'bodies in motion' and potential to 'become other.' We then draw on Aronofsky's poly expressive montage depictions of 'drugged bodies' in the film as a way in which to visually and affectively express these ideas. And finally, we further address the film's affective qualities in terms of creating what Deleuze calls 'zones of intensity' or 'media fields' where the filmic and social spaces of drug addiction come together and affect one another. (Keywords: Body, Drug Addiction, Film, Gilles Deleuze).

Keywords: Drug Addiction, Gilles Deleuze, Media, Body

Diego Moreno. Email: diego.moreno.sierra@gmail.com; Dominique Badariotti, . Email: dominique.badariotti@univ-pau.fr; Arnaud Banos, . Email: arnaud@lorraine.u-strasbg.fr; Introducing morphology and accessibility in urban cellular automata models: a graph-based approach

Cellular Automata (CA) models have proved their usefulness in urban studies, especially those aimed at exploring the influence of spatial structure on the global behavior of the urban system. However, the standard representation of the urban structure in cellular automata models, i.e. by a regular lattice, may be relaxed to fit more complex relationships in the city. Designing irregular lattices, overstepping the classical assumptions about isotropy and stationarity of space, then requires the description of neighborhood structures by other formalization than the simple contiguity of spatial units. Geo-Algebra and graph-based cellular automata models are two key perspectives we decided to adopt and enrich in this work. We recently proposed a graph-CA model based on urban network accessibility, the REMUS model. This model allows the computation of a functional graph representing network-time-distances between buildings (the cells of our automata), according to a given transportation mode. The derived neighborhood graph, constructed by selecting a certain distance threshold, is then used in REMUS to define the neighborhood of each spatial unit (building) in the cellular automata to be constructed. The purpose of this communication is to move a step further. Indeed, we propose to explore the behavior of a very classical model (Schelling's neighborhood segregation, 1971) when applied to more realistic urban patterns. More precisely, the application to a real city (Pau, France) may reveal the sensibility of segregation processes to urban structure, defined both by its morphology and network accessibility.

Keywords: Graph-based cellular automata, urban graph, segregation model

Rafael Moreno, University of Colorado at Denver. Email: rafael.moreno@cudenver.edu; Richard Streeter, Stratus Consulting Inc. Email: richardstreeter@earthlink.net; Hovik Sayadyan, Armenian Agricultural University. Email: hovik_s@yahoo.com; Determining the forest cover extent in Armenia

The forests in Armenia are both scarce and essential for the sustainable development of the country. Since its independence in 1991 (coinciding with the collapse of the USSR), Armenia has experienced multiple social, economic, and environmental hardships. The country has been unable to conduct a forest inventory with national coverage. The most recent reliable information on the condition and extent of the forests dates back to the last Soviet Armenia National Forest Inventory in 1988. The transition to a market economy and the recent war with Azerbaijan have put tremendous pressure on the forests as sources of income and fuelwood. There is an urgent need for more recent estimates of the forests extent and for estimates of recent deforestation rates. This paper presents the results of estimates of the forest cover extent for the periods 1987-1988 and 2000-2001 using LANDSAT TM and +ETM images. Accuracy assessments indicate a high degree of precision in discriminating forest vegetation from other land cover types. Our estimates indicate a forest cover of 246 098 hectares for the year 2000, and 294 135 hectares for 1988.

Keywords: deforestation, forest cover, Armenia, Eurasia

Raquel Moreno-Penaranda, Doctoral Candidate, Energy and Resources group, University of California Berkeley. Email: raquelmp@berkeley.edu; Shared Natures, Uncertain Communities: reconstructing the forest commons in the shifting socio-economic landscape of Spain.

Collectively owned forests are widespread throughout the inner provinces of Spain. Most of those forests have remained productive till today by relying on community-based management systems deeply rooted in customary law - for example, by guaranteeing access to the forest goods and services to local community residents only, excluding outside residents with legal rights. The broader, often abrupt economic and social transformations that Spain has been experiencing over the past century have resulted in the severe depopulation of rural areas. As a consequence, local communities are severely depopulated, and forest property rights are fragmented among an enlarged, geographically dispersed population of community descendants. The new nation wide forest law intends to accommodate the challenges of community forest management under this conjuncture. Among its novel features are the "management boards"? small assemblies constituted by accredited legal owners residing or not in the community. The board is entitled to manage the forest and to allocate its revenue among the owners, which overwrites the customary local residency requirement to do so. The paper focuses on a case study in a local community hosting a pilot project for the implementation of the new forestry law. I argue that beyond the managerial challenges deriving from geographic dispersion, outdated legal rights, and local depopulation, the uncertainties emerging from a shifting broader socio-economic context (raise of rural tourism, new capital-intensive rural residential developments) plays a crucial role in the direction that CNRM might take in the near future.

Keywords: forests, common property, socio-economic change, future, uncertainty

Fraser Morgan, University of Auckland. Email: f.morgan@auckland.ac.nz; David O'Sullivan, University of Auckland. Email: d.osullivan@auckland.ac.nz; Understanding the human dynamics of neighbourhood re-development with agent-based models

Within New Zealand's local government system, local councils are at conflict with property developers over their preference of greenfield type development. Larger New Zealand cities, such as Auckland, have expanded substantially over the last 30 years resulting in urban sprawl and developmental issues around the city fringes. While councils provide incentives for re-development within existing neighbourhoods, most developers still continue to focus on the ever increasing fringe. Developers who are interested in neighbourhood re-development are subject to pressure about the location of their development from lenders based upon a risk and reward profile, pressure which potential homeowners who wish to purchase in the same area and developers focusing on the city fringes do not encounter. A change in the lenders risk/reward profile, based upon variables such as an increase in owner occupied dwellings, could allow developers into a neighbourhood. Agent-based models provide a framework to investigate the interactions between householders, developers, and lenders and the spatial patterns which result. This talk will present a conceptual framework of an agent-based model to investigate the human dynamics of the varied agents within neighbourhood re-development.

Keywords: Agent-Based Models, Property Developers, Neighbourhood Re-development

John W Morgan, Dr, Futurelab. Email: John.Morgan@futurelab.org.uk; "Building up a detailed picture of our lives": Theorising Teacher-Child relations in school settings.

Holt and Holloway (2006) suggest that a central achievement of childhood studies has been to 'illuminate and critique dominant conceptualisations of childhood and youth'. Much of this work has gone beyond the ethnographic impulse to 'write other people's lives' and sought to theorize the processes that construct children and young people as 'less than adult' or 'human beings'. In this literature however, it is striking how little of this work focuses explicitly on the experience of young people in schools and classrooms where a particular form of adult-child relationship (teacher-pupil) is enacted. Often it is assumed that school classrooms are experienced as a space where children's agency is muted or at best limited to acts of 'resistance'. This paper will attempt to show that there is much more going on in schools and classrooms. It is derived from an on-going curriculum project - Enquiring Minds? which is seeking to explore ways in which children's experiences and interests might be given centre stage in formal secondary schooling (aged 11-18). This interest in 'student voice' has gained the interest of educational policy-makers in the UK (Fielding 2004). Teachers in the project have explicitly tried to reconfigure the routines of the classroom and develop a 'pedagogy of listening' that seeks to make visible and recognise pupils' own experiences and interests (Dahlberg and Moss 2005). This paper will explore the theoretical and political implications of this work,

particularly in relation to how teachers and children negotiate the co-construction of schooled identities.

Keywords: Children, education, culture

John T. Morgan, Emory & Henry College. Email: jtmorgan@ehc.edu; Home-cooking Restaurants and Local Garden Crops

The U. S. South might best be defined by the traditional foods found in the region. Some foods are present throughout much of the region whereas other foods appear only in certain parts of the South. This paper seeks to determine if vegetables served in local restaurants reflect traditional food crops produced in area gardens. For this research, a survey of a study area's garden crops will be compared with vegetable offerings at home-cooking restaurants in the area. If results show a positive correlation, the study will be replicated in another part of the South. Ultimately I hope to be able to generalize about the relationship between local restaurants and regional foods in the South.

Keywords: U. S. South, food, restaurants

Cory Morin, University of Arizona. Email: corywm417@aol.com; Andrew C. Comrie, University of Arizona. Email: comrie@arizona.edu; Dynamic Modeling of Mosquito Populations with Climate Data

Climate is an important control on populations of mosquito disease vectors such as *Aedes Aegypti*. Improved understanding and modeling of climate effects on mosquito populations is needed to help predict disease epidemics. There is a surprisingly limited number of mosquito models with a climate component reported in the literature. The majority of these are empirical and statistical, and in particular, there are no dynamic simulation models. In this study we report on the development of a dynamic mosquito population model driven in part by climatic data. Model inputs include temperature, precipitation and relative humidity that influence mosquito population development through maturity and mortality in relation to temperature, population density, and water availability. These factors are considered through all phases of mosquito life cycle development from mosquito ovulation through each instar level to pupae and finally adult. In addition to climate data, the model also incorporates the land use and land cover of the area. Temporal resolution is daily, and the model can be calibrated for specific mosquito species and locations. We use the model to evaluate the role of climate variability in mosquito populations, using Tucson, Arizona as a case study. Using different versions of the model we examine the relative behavior of the species of mosquito most likely to dominate the mosquito population given a specific area and climate. This relationship is important for determining the nature of risk for an epidemic.

Keywords: Climate, Model, Mosquito

Inka Moring, . Email: inka.moring@helsinki.fi; Spatial Genealogies of Post-Europe: 'Citizenship,' Public Space and Econocracy

The formation of "New Europe", containing post-communist Eastern and Central European countries, provides close to laboratory conditions for the observation of societal change and media. However, the new spatial formation of the unified East/West does not follow a conventional centre-periphery pattern. This paper focuses on the accelerating spatial structuration and detachment of the new political and journalistic elite in the capitals of the new EU-member states. The focal question is how media and the new elites interact, and in which way the new citizenry is produced in Eastern 'econocracies' through domestication of a "European" project. Theoretically the Habermasian revised concept of "public sphere" will be contrasted with the Foucauldian genealogical reading of transforming collective understandings of the "new" Eastern part of Europe. The paper introduces the concept of 'citizenship' which is starting to replace the older linkages between state and citizen with one of place and dweller transforming the understanding of democratic practices. The paper draws also on theories within urban theory, human geography and theories of social remembering. Empirically, the paper builds on interviews carried out with leading politicians and journalists in Estonia, Hungary, Latvia, Lithuania, and Finland. Methodologically, these issues are addressed through thematic interviews, statistics on economic development and comparative media system analysis. Themes that are addressed are: how discourses on power, territory and identity emerge and what the characteristics of argumentation are, relating economic interest (business- and market) to national interest and European common good in the global contexts?

Keywords: media geography, public sphere, borderland, econocracy

Masatoshi Morita, Graduate student, Nagoya University. Email: mm19781002@hotmail.com; Kei-ichi Okunuki, Department of Geography, Nagoya University. Email: nuki@lit.nagoya-u.ac.jp; A study on edge effects in spatial analysis of points on a network

In spatial analysis, to define the edge of a study region often becomes a problem because it influences the results of analysis. In point pattern analysis, for instance, it is possible for a set of points that a tendency of their randomly

distributing is found in some cases of edge definition but it is not in the others. In the literature, the edge effect problems are considered not on a network but on a plane. On a network, a new additional edge effect problem occurs because the edge of a region restricts the paths between some pairs of points. In this study, these edge effect problems are considered on a network not only theoretically but also empirically. First, a framework to consider these edge effect problems is shown. Second, a simple mathematical model is formulated for examining how the results of point pattern analysis such as the K-function method are affected by the defined edges of a region of a network on which a set of points distribute. Third, an empirical study is conducted for a real road network on which urban facilities exist. Through this study, a new method is proposed for obtaining a guaranteed result in any case of edge definition, and its empirical application is also shown. Last, the direction for future work is discussed.

Keywords: spatial analysis, point pattern analysis, edge effects, network, K-function method

Richard L. Morrill, University Of Washington. Email: morrill@u.washington.edu; Lawrence Knopp, University of Minnesota-Duluth. Email: lkknopp@umn.edu; *How stable are Red and Blue America*

How stable are Red and Blue America? The 2006 elections. Richard Morrill and Larry Knopp Since the 2000 elections are yet to occur, this abstract can only suggest (riskily) what we might expect. Our analyses of the 2000 and of the 2004 presidential elections and of 2000 to 2004 change broadly supported a dual socio-economic-cultural and geographic polarization - between a more 'traditional' south and a more modern' north and west, and between a more tolerant and liberal metropolitan and a more conservative non-metropolitan America. Still we found anomalous exceptions to any simple division. We dare to predict that these broad divisions will remain, driven by twin concerns for security and 'traditional' values, but that trends between 2000 and 2004 which suggest some shifts in a progressive direction in some regions and in some kinds of places, even in the south, or in rural areas, will shift the electorate marginally 'leftward', in turn revealing that not everyone is immovably Red or Blue. Whether we are correct or not, our paper will assess whether the 2006 results amplify the somewhat subtle shifts that occurred between 2000 and 2004, or whether a deeper realignment may be in process, or whether 2006 just represents an across-the-board shift toward the Democrats, leaving the broad dimensions of a Red and Blue America unchanged.

Keywords: Red and Blue, elections

Aaron O. Morris, Department of Geography, University of Cincinnati. Email: [morrissa8@uc.edu](mailto:morrisa8@uc.edu); *Where you want to go to get away from it all: Theoretical Models of Cruise Tourist Behavior*

We examine several theoretical models of tourist behavior in order to explain the increasing popularity of the cruise vacation. According to the United Nations World Tourism Organization (UNWTO) tourism has an "average annual growth rate of more than 4%." (Yarnal & Kerstetter 2005:368) Projections indicate that by 2020 there will be over 1.6 billion international tourists. As the numbers of tourists continue increasing, the numerous tourism sub-industries will grow as well. Researchers classify cruise tourism as "one of the fastest-growing segments of the tourist industry" (de Blij & Murphy 1999:320) with studies showing that the average annual growth rate has been "in excess of 8% since 1980." (Yarnal & Kerstetter 2005:368) This increased popularity is physically evidenced by increases in the number of active cruise ships and the number of berths per ship. However, the increase in popularity of the cruise industry has not been adequately explained. Thus far, the main foci of study have been on "economic analyses and environmental impact studies." (Yarnal & Kerstetter 2005:368) Other perspectives, such as anthropological, geographical, psychological, and sociological have yet to be fully explored. This paper uses theoretical models of tourist behavior in order to explain the rapid increase in cruise popularity. In addition, these models will also be applied to cruise passengers in order to explain trends in cruise destinations and shore excursion activities. Based on preliminary analyses, we expect to find a positive correlation with the increasing popularity of adventure and sports tourism.

Keywords: Tourism-Cruise, Behavior, Caribbean

Jesse Morris, University of Utah. Email: jesse.morris@geog.utah.edu; Andrea Brunelle, University Of Utah. Email: andrea.brunelle@geog.utah.edu; *Sedimentological Signals of Disturbance from the Wasatch Plateau, UT*

In subalpine forests across the intermountain west, widespread bark beetle infestations are as ecologically significant as wildfire. In spruce/fir forests, it has been suggested that that bark beetles are the primary agent of forest maintenance, not fire. During the 1990s in central and southern Utah, outbreak populations of spruce bark beetle (*Dendroctonus rufipennis* Kirby) caused high mortality in thousands of acres of subalpine forests. This research examines

sedimentary records of fire, beetle occurrence and vegetation change in hopes to better understand forest disturbance relationships in Utah. In addition to bark beetles and fire, human impacts on subalpine ecosystems in Utah are important agents of change. Grazing, logging, introduction of exotic species, and fire regime modification have taken place in the study area over the last 150 years. Possible relationships between human impacts and beetle outbreaks are also examined through the use of sedimentological proxy, with specific attention to vegetation change as indicated by pollen.

Keywords: pollen, spruce bark beetle, charcoal, grazing, wildfire

Nina J Morris, Institute of Geography, University of Edinburgh. Email: N.Morris@ed.ac.uk; *'Greetings to you, you who are sunlovers!': naturism and nudity in inter-war outdoor culture*

In recent years, a small number of theorists across the social sciences have begun to focus their attention on the practice of social nudity in Western cultures. Whilst the resulting literature has started to uncover the complex, often fragmentary, geographies and histories of naturist practice, and has contributed to recent debates on nature, the body (including its exposure and adornment), the politics of the gaze, and the sometimes contradictory moral frameworks through which the naked body is conceptualised and understood. I argue that they have largely neglected the sensory and embodied geographies of naturism, and specifically the ways in which naturists have conceptualised, valued and attached meaning to the body in nature. Drawing upon literature published in the 1920s and 1930s, at the dawn of the British naturist movement, this paper will offer a fresh perspective on naturist practice, highlight the international cross-fertilisation of ideas which occurred in this period, and contribute an added empirical dimension to the study of inter-war 'outdoor cultures'.

Keywords: naturism, cultural geography, historical geography, body, nature

Stacy Randolph Morris, University of Utah. Email: stacy.randolph@geog.utah.edu; Andrea Brunelle, University Of Utah. Email: andrea.brunelle@geog.utah.edu; *Using paleoecology to reconstruct site abandonment at Range Creek Canyon, Utah.*

Over the past decade the effect of climate variability on prehistoric human settlement patterns has emerged as an important field of study. Site abandonment and changes in settlement patterns due to drought and subsequent agricultural decline has gained particular credibility in examining native populations in southwestern North America. Paleoecology offers the opportunity to interpret archaeological settlement patterns and site abandonment's by providing information on agriculture practices, climate change and fire regimes from sedimentary proxy. Fossil pollen and charcoal accumulations entrained in wetland sediments are proxies specifically relevant to these types of reconstructions. Paleoarchaeological research being conducted in Range Creek, Utah seeks to examine climate mechanisms that may have directly to or at least contributed to site abandonment around 1250 AD. A sediment core was obtained from a wetland called Cherry Meadows and analyzed for fossil pollen, fossil charcoal, magnetic susceptibility and loss on ignition. Stratigraphic layers surrounding the years of abandonment (1250 AD) were examined at higher resolution and radiocarbon dated, whereas -abandonment (900 AD - 1250 AD) and post-abandonment (after 1250 AD) sections of the core were examined at lower resolution to establish baseline influx data for pollen and charcoal.

Keywords: Paleoecology, Archaeology, Paleoarchaeology

Jennifer Morrissey, Oxford University. Email: jennifer.morrissey@sjc.ox.ac.uk; *Making it count: Ethical and practical implication of carrying out research with young people*

In the past 10 years the academic agenda has shown increasing concern for the lives of young people and how they are experiencing life in the 21st century. This is set in the context of debates about economic restructuring, advances in technology and changing societal and gender relations. This paper discusses my experiences of researching young people making transitions from school to work in a specific local labour market. I will consider how to recruit, interview and represent them in a way that contributes and 'makes it count' towards both political and academic agendas. By analysing the factors which make transitions problematic, such as involvement in criminal activity and socio-economic factors e.g. class and local labour market opportunities I have faced a number of ethical and practical concerns which have been at times intimidating and challenging which I will also discuss.

Keywords: Young people, qualitative research, policy,

John Morrissey, National Univeristy of Ireland, Galway. Email: john.morrissey@nuigalway.ie; *US CENTCOM and the Middle East: Grand Strategy and the Exceptional Spaces of the Global War on Terror*

A central player in the advancement and management of the so-called 'global war on terror' is United States Central Command (US CENTCOM), whose

'Area of Responsibility' in terms of US 'total world surveillance' encompasses Afghanistan, Iraq and the greater Middle East region (US DoD, CENTCOM, 2006). In this paper, I want to use Giorgio Agamben's (2003) notion of the 'state of exception' to offer a critique of the projection of American military and geopolitical power in the Middle-East by US CENTCOM. I make particular use of CENTCOM's published strategy paper on the Middle-East 'Shaping the Central Region for the 21st Century' to interrogate the specific ways in which the US military's grand strategy invokes and perpetuates a series of 'states of exception' in both the imagining and functioning of US geo-strategic interests across the region.

Keywords: US CENTCOM; Middle East; Global War on Terror

Veronica Mort, . Email: vmort@ksc.mailcruiser.com; *Quantifying Intangible Benefits in Dam Removal Decisions*

As dams in the United States age and become obsolete, the occurrence of dam removals has increased. Feasibility studies serve to point out the costs and benefits of such proposed dam removals, however most do not consider intangible benefits and costs to the community in a cost/benefit analysis. In order to consider these intangibles in a dam removal process and compare their relative benefits, they must first be monetized. In this research, a willingness to pay survey was used to assign a monetary value to intangible goods associated with the proposed removal of a historic dam on the Ashuelot River in southwestern New Hampshire. The survey was distributed to residents throughout the community, and documented environmental, historic, and existence values associated with the dam. Environmental issues like improving water quality and restoring fish populations were valued higher in willingness to pay results, while the historic and existence values of keeping the dam were significantly lower. This shows that the values currently being omitted from this dam removal decision would increase the cost effectiveness of removing the dam.

Keywords: dam removal, contingent valuation method, New Hampshire, cost/benefit analysis

Catriona Mortimer-Sandilands, York University. Email: essandi@yorku.ca; *Le Petit Dérangement: Expropriation, Ethnicity, and The Politics of Landscape in Cape Breton Highlands National Park*

In 1934, R.W. Cautley advocated to Canadian Parks Commissioner J.B. Harkin that the community of Cap Rouge be displaced for the development of a new national park, Cape Breton Highlands. Expropriation was a common practice in Canadian parks into the 1970s. Here, the presence of this community inside park boundaries did not suit the park's desired presentation of rugged, "uninhabited" cliffs. In addition, however, Cap Rouge was dissolved even though other communities of similar size remained intact; these latter communities were primarily English or Scottish, underscoring what historian Ian McKay has called "Tartanism," meaning the systematic "Scottification" of the Nova Scotia landscape. This paper investigates the founding of Cape Breton Highlands National Park and the aesthetic/ethnic politics that effectively destroyed a subsistence community of large, Acadian families. It also examines the ways the event of the expropriation has been incorporated into the park's current interpretive agenda. A recreation of an Acadian fishing shed now graces the beachfront, and a trail has been developed along the bench where most of the Cap Rouge families had their homes. These interpretive presences reinforce the legitimacy of the expropriation: The Acadians of Cap Rouge appear as an overpopulated, destitute anachronism that "naturally" gave way to the "progress" of resettlement, and to the bourgeois achievement of a national park that can reflect on the difficulties of its own creation as if these origins did not involve violence, racism, and the overt imposition of whiteness onto the social nature of Cape Breton.

Keywords: Cape Breton, nature, whiteness, national parks

Brian J. Morton, Ph.D., Center for Urban and Regional Studies, Univ. of North Carolina. Email: bjmorton@unc.edu; Daniel Rodriguez, Ph.D., Dept. of City and Regional Planning, Univ. of North Carolina. Email: danrod@email.unc.edu; *Improving Regional and Intra-Urban Public Transit for the Poor in Cuenca, Ecuador: Methodology, Data, and Recommendations*

In 2006, we conducted a comprehensive investigation of the mobility of the poor residents of Cuenca and developed recommendations for improving regional and intra-urban public transit services. Our study was commissioned by The World Bank in conjunction with its US\$ 25 million loan to Cuenca to fund the bus transit- and pedestrian-oriented Urban Transportation Project. Cuenca is a textbook example of a central place: the spatial interaction between Cuenca and its environs is intense because the city is the locus of traditional markets, the tourist trade, essential services, and several large manufacturers. The goals of our paper are, first, to describe the policy framework we developed to assess the implications of the UTP and, second, to summarize our recommendations for changes that would enhance Cuenca's public transit. We were particularly concerned with equity: impacts on the poor, women, the elderly, and children.

We will identify the planning database that we sought to obtain and the one we did obtain - create is actually a better word because of the active role we played in expanding the local concept of the planning database by including information on poverty and bus riders' travel experiences. We will summarize our recommendations for better coordinating regional and intra-urban transit services, rationalizing operators' operating and reimbursement schemes, improving bus drivers' courtesy and riders' security, and coordinating transit and land use planning. Our conclusion will be that our policy framework and the structure of our planning database are applicable to other medium-size cities in developing countries.

Keywords: Transportation, developing country, equity, Ecuador, public transit, planning

Jan Mosedale, University of Otago. Email: jmosedale@business.otago.ac.nz; *Commodity Chains and the Mobility Turn in Tourism*

The macro-level has received little attention in research on economic development. However, changes occurring in the organisation of economic activities in the tourism production system (such as the emergence of large integrated tourism corporations via mergers and acquisitions in European markets and an increasing internationalisation of tourist flows) require an analysis that transcends state boundaries yet realises that economic systems are unevenly contained by these boundaries. Castells (2000), for instance, declares that the world is increasingly composed of flows or constitutes of a 'space of flows' as opposed to a 'space of places'. Perhaps more accurate is the perspective that the world is made up of both spaces of places and spaces of flows, thus posing the question on the relationship between these spaces and the implications for actors in the economic system. This paper presents a larger analytical picture of tourism economic development by drawing on corporate geographies of integrated tourism companies and argues for a research agenda that is more adequate to the study of global or cross-border and mobile economic activities. It explores the use of commodity chain research, arguing that it provides a suitable conceptual framework for researching the connections between flows and places and offers a nuanced analysis of the spatial distribution of production. An examination of the vertical assembly of the tourism product beyond national and regional boundaries links the 'coal face' with the wider economic structure of the tourism industry at other geographical scales and situates production in relation to local economic organisation.

Keywords: commodity chain, tourism, economic geography, mobility

William G. Moseley, Macalester College. Email: moseley@macalester.edu; *Fighting the Fire with a Broken Tea Cup: South Africa's Land Redistribution for Agricultural Development Programme*

South Africa revised its land reform policy at the start of the Thabo Mbeki Administration, moving away from a model of land redistribution for poverty alleviation, towards one aimed at promoting a class of black commercial farmers. The major vehicle for this effort is the Land Redistribution for Agricultural Development (LRAD) Programme, which largely replaced the Settlement/Land Acquisition Grant (SLAG). This paper explores the first five years of the LRAD policy (2001-2005) and compares it to the record of the SLAG program by examining 1) design and conception at the national level and 2) practical application within the context of two very different provinces: Limpopo and the Western Cape. Limpopo is one of South Africa's poorest provinces, with a largely black African population that has a history of subsistence food production, and a small, but significant commercial farming sector. The Western Cape is the historical hearth of commercial white farming in the country with a large (mostly coloured) farm worker population and little to no recent history of subsistence food production. The authors report that the LRAD programme is running into similar troubles that afflicted SLAG in both provinces. Failures are linked to a common set of design flaws as well context specific issues in each province. The results are based on interviews with policy makers, commercial farmers and land redistribution beneficiaries.

Keywords: land reform, agriculture, poverty

Susanne C. Moser, National Center for Atmospheric Research. Email: smoser@ucar.edu; *Shaking Hands with the Govenator: A Science-Practice Blockbuster Called California*

In recent years, the state of California has emerged as a leader in climate change policy. One of its unique efforts is a state-funded research program which aims to produce science in support of the state's climate policy and risk management. In June 2005, Governor Schwarzenegger signed an executive order, which - among other things - requested periodic updates on the state of climate change science and climate impacts. In addition, he requested reviews of the state's greenhouse gas mitigation efforts and how well prepared California is to deal with the unavoidable impacts from climate change. As part of the first of these periodic science updates, I contributed a study on the preparedness of

California's coastal managers to the Governor's Climate Scenarios report of 2006. Rather than simply report on the findings of this study, this paper will summarize and reflect on the impacts it has had in various policy contexts. I will conclude with some lessons about what interactions between science and practice are needed but not yet or insufficiently happening.

Keywords: science-policy interface, California, climate change, adaptation

Ngakaemang Ben Mosiane, Mr., Syracuse University. Email: nbmosian@maxwell.syr.edu; Citizens, Chiefs and Subjects: Contradictions of Flexibility and a Challenge to Construct a Viable Urban Culture.

It is well documented that the movement of capital, bodies, goods and information across space continues to make and unmake particular places, and that in the case of the developing world, such processes have often been 'met, engaged and countered by social actors whose own histories and geographies enabled and called forth broad and differentiated material social practices'. But a fascinating encounter with capital by the people of Rustenburg, South Africa remains terra incognita to geographers. My paper examines the more contemporary, competing and often conflicting actions of a local ethnic community and immigrants, as they reposition themselves in an emerging democratic South African urban space. It particularly discusses the ways in which the 'corporate ethnic state' and migrant households negotiate socio-structural transformations, including those of the newly legislated mineral rights and communal land administration. The paper hopes to shed some light on some of the contradictions of flexibility and the challenge for cities - the co-presence of multiple spaces, multiple times and multiple webs of relations - as dynamic spatialities that are potentially transformative.

Keywords: flexibility, culture, urban

Ellen Mosley-Thompson, Ohio State University. Email: thompson.4@osu.edu; Lonnie G. Thompson, The Ohio State University. Email: thompson.3@osu.edu; Abrupt Climate Change (Past and Present): Evidence from the Ice

The Earth's ice fields, from the polar regions to the equator, continue to provide unique multi-proxy climate and environmental histories. Some glaciers and ice caps provide long records at the expense of temporal resolution, while others provide shorter, but highly detailed histories. The latter are invaluable to unraveling the history of abrupt climate changes. A single ice core can provide a rich array of proxy information, reflecting both global to regional scale processes. An abrupt climate change has been defined as occurring when the climate system is forced to cross a threshold that triggers a transition to a different state at a rate that is controlled by the system and is faster than the forcing mechanism. From a societal perspective, an abrupt climate change occurs when it is so rapid and unexpected that human and other natural systems have difficulty adapting to it. Ice core evidence reveals that naturally forced abrupt climate changes have occurred in the past. Multiple lines of glaciological evidence argue that the current global-scale warming and the widespread retreat of glaciers, unprecedented in some regions for the last 5,200 years, constitute an abrupt climate change that will challenge the adaptive capacity of both human and other ecological systems. This paper will review ice core evidence for abrupt climate change with emphasis on three lines of evidence for such changes, past and present, in the tropics.

Keywords: paleoclimatology, global climate change, ice cores

Pamela Moss, University of Victoria. Email: pamelam@uvic.ca; Fatigue as a symptom of contested illness

Contested illness framed as illegitimate by researchers, health practitioners and policy-makers operating within conventional paradigms of knowledge, comprises a host of disabling conditions, as for example, Environmental Illness (EI), Myalgic Encephalomyelitis (ME), and Multiple Chemical Sensitivity Syndrome (MCS). Even when science supports or courts legislate the existence of contested illness in conventional terms, health practitioners, insurance companies, and employers remain skeptical. Each contested illness is defined by a set of symptoms a person experiences and by the detection of skewed or disrupted conditions of bodily systems (circulatory, neurological, etc.). One common symptom in many types of contested illness is fatigue. As an experience, fatigue is multidimensional ranging from daily tiredness, through excessive sleeping, to immobilization when awake. Because of similar manifestations of symptoms with other types of illness accepted by the medical community, as for example, depression, irritable bowel syndrome, and allergies, many people experiencing the symptoms associated with contested illness are diagnosed with and treated for secondary, partial, or unrelated conditions. This inquiry is more than just a definitional foray. Understanding the framing of one symptom, fatigue, in various contexts can show how multiple sets of relations shape the social practices associated with awareness, diagnosis, and treatment. For this presentation, I explore the meaning of fatigue. I draw on three contrasting sets of data - Canadian women's magazines from the 1980s, Irish women's experiences of

fatigue who were diagnosed with ME, and treatment of fatigue among soldiers in a Canadian psychiatric field unit during the D-Day invasion.

Keywords: chronic illness, contested illness, fatigue, gender, soldiers, women

Thomas L. Mote, University of Georgia. Email: tmote@uga.edu; An Integrated Use of Microwave Instruments for Assessing of Snow Cover

Snow cover is an important component of the climate system and is also particularly sensitive to changes in climate. Numerous methods of monitoring continental-scale snow cover have been developed. For example, multiple algorithms of snow depth and snow water equivalent (SWE) have been proposed using past and existing passive microwave satellite instruments (SMMR and SSM/I). These algorithms may also be used to determine snow extent. Efforts are underway to develop depth and SWE algorithms for the latest passive microwave instrument (AMSR). More recently, NOAA has used AMSU sounder data to monitor snow cover. Meanwhile, active microwave instruments, particularly Ku-band (NSCAT) and C-band scatterometers (ERS), have been shown to be useful for monitoring of snow. Yet, few comparisons have been made between the snow extent and depth from the combined use of these instruments and in situ observations. This work evaluates several microwave instruments used to monitor snow depth and extent by comparison to in situ snow depth and SWE observations. Additionally, passive active and microwave-derived snow cover extent is examined by comparison to gridded in situ snow depths and weekly NOAA snow charts, which are primarily based on visible satellite imagery. The potential for active microwave systems and sounders to augment the passive microwave snow products is presented as well as possible applications.

Keywords: snow, remote sensing, cryosphere

Tamar Eve Mott, Ohio State University. Email: mott.21@osu.edu; Coming to America: The Role of Voluntary Resettlement Agencies in the Adjustment of Refugees

This paper builds upon current theories of assimilation, specifically considering two research questions: 1) what are the adjustment patterns of African refugees? And, 2) what role do voluntary resettlement agencies (VOLAGs) play in the adjustment patterns of African refugees? Based on the analysis of in-depth interviews with African refugees from different countries and ethnic groups, in addition to service providers, this research found that many of the refugees who were doing well attributed their success to not only personal factors, but to contextual factors - in particular, VOLAGs played an important role in their adjustment. Refugees are a unique group, as contextual, controllable, forces may play a role in their adjustment. VOLAGs can counteract some of the barriers to adjustment that refugees face. Money and social services allocated to refugees, in addition to the locations where VOLAGs choose to "place" refugees impact in what way, and how fast adjustment occurs.

Keywords: Adjustment, Africa, Immigration, Refugees, Resettlement, VOLAGs

Oli Mould, Creative Industries Observatory. Email: oli.mould@gmail.com; Freelancers and the Firm: A Relational Account

In an increasingly Castellan networked society aided by the march of technology, it is becoming easier for creative individuals unattached to a traditional firm to contribute to the economic landscape. Specifically, the creative industries of cities have seen a proliferation of freelance workers, and can now be seen to have a substantial contribution to the productivity of the various industries. The interaction between freelancers and traditional firms is becoming increasingly important in the construction of economic spaces and the processes involved in these interactions, often informal and intangible. In this paper, using specific examples, I will argue that interaction between freelancers and other freelancers as well as traditional firms are creating relational economic spaces that cannot be theorised using scale or other social constructionist narratives. Instead, it is a landscape of process, of which scale is a by-product. Theorisations of the 'global' and the 'local' create constrictive boundaries which obfuscate these processes, and therefore should be ignored in favour of a more topological spatial formation of space.

Keywords: Freelancers; Relational Geography; Creative Industries; Sydney.

Keith R. Mountain, University of Louisville. Email: krmoun01@louisville.edu; Surface Energy Balances on the Summit of Mt. Kilimanjaro, Africa

The retreat of tropical glaciers has been well documented over the past 20 years. The existing ice on Mt. Kilimanjaro (19,335'; 3° S.) has undergone substantial retreat since the turn of the last century and predictions suggest total disappearance by the year 2015. Surface energy balance measurements were carried out in February of 2000 over the surface of the northern icefield and simultaneously on the non-ice surface approximately 0.5 kilometers from the edge of the glacier. Measurements included wind speed, humidity, and temperature at two levels and solar and net radiation at one level. Calculations identify

evaporation as a major component of the surface energy balance. Complete energy budget analyses between these two fundamental surface types indicate the remaining ice masses on Kilimanjaro can not survive under the current climate conditions

Keywords: Energy balance, climate change, radiation

Giorgos Mountrakis, State Univ. of NY - College of Environmental Science and Forestry. Email: gm@esf.edu; *Moving Towards Collaborative Remote Sensing Analyses: An Impervious Surface Detection Paradigm*

Human-constructed impervious surface area (ISA) is an important indicator expressing human alterations to natural environments and ecosystems. ISA reduces or eliminates the capacity of the underlying soil to absorb water, and has a significant impact on the environment and human health, therefore playing an important role in land use decisions. Having better information on the amount and locations of impervious surface would further enable us to analyze its direct effect on runoff and sediment delivery. With this paper we tackle ISA monitoring through remote sensing analysis. Our Landsat image classification method is composed of multiple context-based processes, each designed to perform a targeted classification (e.g. distinguish dark soil from dark ISA). All processes are tied together through a hierarchical tree structure facilitating high accuracy with an easy to interpret/evaluate/correct system. The overall goal of our detection method is to perform the training at a regional scale but have a solid enough algorithm that could be easily generalized for a national simulation. Initial simulations at the Las Vegas, NV training site exhibit a 90% classification accuracy. An additional benefit of having different processes is creation of spatially-explicit uncertainty metrics associated with the ISA detection, warning potential scientists using our ISA maps of problematic areas. Our approach can be extended to other remote sensing analyses methods, where i) scientists can collaborate by addressing specific sub-problems, and ii) where advanced uncertainty metrics are desirable (e.g. if the detection product will be used for further modeling).

Keywords: remote sensing, gis, interdisciplinary, spatial uncertainty, artificial intelligence

Alison Mountz, Syracuse University. Email: amountz@maxwell.syr.edu; *From protection to securitization: contemporary geographies of asylum, detention, and activism*

This paper examines the ways in which asylum practices have passed over from their initial project of protection to regimes of securitization. In recent years, nation-states have pursued more aggressive and geographically dispersed policies of border enforcement. These include remote detention on islands, the creation of legally ambiguous and stateless zones, and interdiction - the practice of stopping potential refugee claimants from ever reaching sovereign territory. This paper examines these mechanisms of exclusion as well as the related strategies and networks of activists, lawyers, and immigrants who have fought to overcome the isolation of those seeking protection. Most examples are drawn from Australia and prompt critical examination of traditional political geographies of sovereign territory and corresponding spaces of legal possibility.

Keywords: Detention, asylum, refugee, border enforcement, exclusion, Australia, activism

Amer Moustafa, American University of Sharjah. Email: amoustafa@aus.edu; Fatih Rifki, American University of Sharjah. Email: frifki@aus.edu; *Dubai's Waterfront Mega Project Developments: A Boon or a Curse?*

As it aspires to join the club of global cities, Dubai has in the last decade pursued an aggressive strategy to transform itself into an increasingly important node in the global grid of networked cities. To that end, numerous mega projects have been initiated and currently underway in support of the city's banking and finance, tourism, real estate among other service sector industries. This paper will focus on infill waterfront urban development projects that have aimed to transform the city's 45-mile coast an elaborate 750 miles of waterfront of exclusive real estate commodity. Dubai's water front mega projects have been quite a novelty in transforming the local geography and urban landscape. They include the Palms, three man-made islands shaped after a palm tree, and The World, a group of smaller artificial islands that are made to look like the (political) map of the world. These new developments will be used for housing, tourism, and commercial activities. What are we to make of these developments that have already transformed the city's coastal geography, fragile ecology (as well as its cognitive map) once and for all? What is behind their pursuit? What discursive methodologies are most appropriate to understand and evaluate these developments? I will explore these questions in the context of the political economy of this rising city-state and will conclude with some important lessons that could inform geographers, planners, and city managers as they strive to make their cities humane, sustainable and inspiring destination for an increasingly

urbanized population.

Keywords: waterfront developments, Dubai, global city, urban transformation

Irena Mrak, University of Ljubljana, Slovenia. Email: irena.mrak@siol.net; *Baltoro glacier - a victim of high mountain mass-tourism?*

In the past 50 years the Karakorum Mountains have become increasingly popular among a variety of tourist target groups including alpinists, climbers and trekkers. Unique mountain scenery, well-organized tourism facilities, and a sense of adventure attract larger and larger number of visitors each year. In an average tourist season from May till September over 30 000 people cross Baltoro glacier. The fragile high mountain environment is already showing the negative environmental impacts of the rapid mass mountain tourism development. In addition to environmental impacts there is a social impact of tourism as well. Due to the remoteness and special political status of Baltoro glacier, all tourism activities involve the local population as porters, cooks and guides. In order to estimate the impacts of tourism activities in the area of the glacier simple field water quality tests were made. The testing locations were tourist camps along the glacier up to the K2 base camp and also the main glacier stream at the Baltoro mouth. On the basis of different data, the carrying capacity of the glacier has been estimated as well as the level of the environment degradation. In addition the historical and present data on expeditions and trekking groups were crucial in order to create various scenarios and suggestions of future high mountain tourism development in the wider area of Baltoro glacier.

Keywords: high mountain tourism, carrying capacity, environmental impacts, Baltoro glacier, Karakorum, Pakistan

Richard Mrozinski, University of Connecticut. Email: richard.mrozinski@uconn.edu; Nicholas McNamara, University of Connecticut. Email: nicholas.mcnamara@uconn.edu; *Investigating Asthma Rates and the Transportation Network in New England*

Using a combination of GIS and statistical analysis, this research project investigates asthma rates in the New England states and the density of the transportation network throughout the region.

Keywords: GIS, Medical Geography

Lan Mu, University of Illinois at Urbana-Champaign. Email: mulan@uiuc.edu; Rongzeng Liu, Institute of Urban Economy, Zhengzhou University. Email: ; *A Spatial Analysis of Intercity Connection Retrieved from Telephone Data*

We use telephone volume data to spatially explore, retrieve and analyze intercity connections and urban dynamics. The dataset includes more than 16 millions of domestic calls made during a month between Zhengzhou, a provincial capital city in central China, and 300-plus area codes in mainland China. We identify two major constraints in the data. First, discrete geographic locations of those phone calls are not available for the purpose of privacy and security, and only area code-aggregated data can be used. Second, only calls made from Zhengzhou to other areas are included, and the opposite telephone traffic is not available. Using destination, count and duration (in a unit of 6 seconds) of calls, we create a radial flow map serving as the reference. We apply methods of spatial clustering and computational geometry to achieve three objectives. 1) Retrieve spatial-temporal patterns and hierarchies between Zhengzhou and other cities in China using telephone calls as an indicator. 2) Deepen the understanding of intercity connections and urban dynamics in the context of geographic location, socio-economic variables, and telecommunication. 3) Integrate the knowledge derived from this work to urban studies to better interpret the urban system in China.

Keywords: GIS, spatial analysis and modeling, intercity connection

Pierpaolo Mudu, Università Di Roma. Email: 113204.3100@compuserve.com; *The Italian COBAS: Putting Autonomous Trade Unions into Practice and Practice into Alternatives and Opposition to Neo-liberalist Policies*

The 1980s in Italy were open by an historical defeat of the working class movement in front of the FIAT gates in Turin. The corrosion and decline of traditional trade unions was happening within a prolonged wave of repression enforced against thousands of people involved, since the end of the 1960s, in the long cycle of struggles against the Italian dominant establishment. The Italian COBAS were born at the end of the 1986 and represent a development of the 1970s struggles carried out by the antagonistic Italian movement. The COBAS developed as an unusual subject putting together trade unions struggles with political ones, workplaces conflicts with those in the territory, fights for the rights of workers with migrants' requests. The COBAS existence induces a real alternative to reformist trade unions by refusing the creation of a caste of

professional trade union representatives and in their practices the COBAS deal with the difficulty to involve workers in fragmented, over-controlled and exploited work-spaces. Their activities happen through a collective action that generate a global discourse of opposition to capitalist exploitation, envisioning also some reflections on the centrality and role of work in everyday life. This original experience encourages further elements of discussion on several topics including, for example, the limits of democracy in workplaces and the possibility to influence and change traditional trade unions from outside instead of from within.

Keywords: Trade Unions, Italy

Birgit Muehlenhaus, Macalester College. Email: muehlenhaus@macalester.edu; Post-Reunification Germany: A Cartographic Perspective on Socio-Economic Disparity

An official census of Germany has not been conducted since 1987 in the former Federal Republic of Germany (FRG) and since 1981 in the former German Democratic Republic (GDR). Since that time, significant changes have taken place: the Berlin Wall fell in 1989, Germany reunified in 1990, and the German mark was phased out for the euro in 2001. However, a census of Germany will not take place until the EU-wide census scheduled for 2010/2011. Fortunately, an online regional statistical database, entitled GENESIS, was created in January of 2006 by the Statistische Ämter des Bundes und der Länder (the Federal Statistical Office and the Statistical Offices of the Länder). This database contains a multitude of socio-economic variables concerning the Bundesländer (German federal states), as well as smaller enumeration units such as the Regierungsbezirke (a subdivision of certain Bundesländer). Using GENESIS, this poster visually represents socio-economic change at the state and sub-state level for all of Germany. It shows comparative change since reunification of particular demographics of the two former countries (FRG and GDR) in an effort to highlight areas which may need more assistance and intervention from a public policy perspective. Results will facilitate future analysis and research of the varying levels of success of German reunification.

Keywords: GIS, map, Germany, reunification, cartography, Europe

Ian Muehlenhaus, University of Minnesota. Email: ioas@umn.edu; Beyond Mapping? GIS Diffusion and the Deterritorialization of Geopolitics

GIS technologies are proliferating and diffusing at a pace unseen in the history of mapping, yet there is a dearth of research concerning why and how these technologies are diffusing now. For the first time in the history of capitalism, many states have not only allowed but facilitated the proliferation of mapping technologies, the very same technologies they have traditionally kept under lock and key. Though a plethora of critical GIS literature analyzes the societal benefits and risks of GIS diffusion, I argue it suffers from a major shortcoming - it has failed to contextualize the diffusion of GIS technology within a holistic framework. As mapping has largely been a technology of state power throughout the history of capitalism, my research asks two fundamental, overarching questions: 1) Why now? Why and to what potential gain are certain states (i.e., the US government) promoting the diffusion of GIS technologies? and 2) How is GIS diffusing? Is GIS diffusion linked to, or merely a part of, broader geopolitical processes beyond the scope of current critical GIS research (e.g., neoliberalism)? I will present my preliminary research critically analyzing a recent US government document entitled *Beyond Mapping* using World Systems Theory. I hypothesize that GIS diffusion, and subsequently all the social benefits and side-effects associated with it, are the manifestation of geopolitical deterritorialization occurring during US hegemonic decline.

Keywords: critical GIS, GIS and society, geopolitics, US hegemony, deterritorialization

Rick Mueller, USDA/National Agricultural Statistics Service. Email: Rick_Mueller@nass.usda.gov; Crop Specific Mapping Techniques with Landsat and AWiFS

The USDA/NASS annually produces cropland based classifications over the major growing regions of the US that are derived from medium resolution satellites such as the Landsat TM and ResourceSat-1 AWiFS sensors. Annual area based ground truth collections from the NASS Area Sampling Frame provide information from over 11,000 nationally randomly stratified samples during the June Agriculture Survey. This comprehensive survey is leveraged to provide a framework for building the Cropland Data Layer (CDL) product using ISODATA clustering and maximum likelihood classification techniques. The Landsat TM sensor was considered the de facto standard in NASS for twenty two years in land cover mapping and was continuously used to create regression based county and state level acreage estimates and since 1997, the CDL. However, for crop year 2006, with the unpredictability of the Landsat TM, NASS changed sensors to the Indian Remote Sensing; ResourceSat-1 AWiFS and will produce all CDL products using the AWiFS sensor. NASS began investigations of AWiFS starting in 2004

with a pilot study over Nebraska and followed up with additional studies in 2005 with CDL products in Arkansas, Louisiana, Missouri, Mississippi, Nebraska and North Dakota. Preliminary indications show that while AWiFS does not have the spectral (4 vs. 7 bands) or spatial resolution (56 vs. 30 meters) when compared to TM, it does have 5 day repeatability and its classification and acreage estimates indicate that while not as accurate as TM, AWiFS is statistically significant and accurate enough for consideration for usage in the CDL program.

Keywords: Agriculture, Land Use, Cropland, Landsat, AWiFS

Sven Mueller, M.A., University of Dresden. Email: mueller_sven@gmx.net; School network planning in urban areas

Closing down of school locations due to shrinking population is a problem faced by a growing number of European countries. As an example the reduced number of school locations in the City of Dresden (Saxony) causes a shift in student trip distribution and travel-to-school mode choice. On account of the closure of certain school locations students have to reallocate to the remaining ones and face longer ways to school. Hence, they possible switch - under certain circumstances ? to other modes of transport. Assuming a major shift to public transportation this will cause a higher payment by the authorities of German countries and the local government. Therefore the savings of the authorities due to the closures of school locations could be influenced negatively. For this reason we have analysed the patterns of school choice and the travel-to-school mode choice of 12,666 college students. Based on a random sample of nearly 4,700 students we have specified a multinomial logit model (MNL) for transport mode choice and a conditional logit model (CL) for school choice. These results are an important input for a small-scale, dynamic capacitated school location problem. Due to the fact, that in Germany no school districts exist, this cost-minimizing MIP (np-hard) gives respect to the individual school choice and the time-spatial patterns of population distribution. Therefore it is an enhancement of the present school-location models.

Keywords: location planning, GIS, choice modelling, logit

Shaima Muhammad, Central College. Email: shaima-mhd@hotmail.com; Follow The Women: Cycling for Peace

Follow The Women is a non-profit organization founded by Nobel Peace nominee Detta Regan. In April 2004 and in September 2005, about 300 hundred women from 30 countries cycled more than 300km (186 mile) from Beirut through Syria and Jordan to the West Bank. Their main goals were to raise awareness of the conflict in the region and its impact on women and children, and to network among women for ways to end violence across the globe. Based on contacts with women who participated in the rides as well as the organizer, I will present on the impacts of this project, as well as discussing some of the difficulties that arose. The project helped break the stereotypes about Arab women, and help many gain first-hand experiences about life in the region. On the other hand, women's voices are not heard enough and they wish they had more media involved. Another obstacle is that Palestinian women are not always able to get out of their refuge and cross the Israeli borders. There have been attempts to engage women from Israel in the two previous rides or at least have a "sister ride" in Israel that could join the main ride in a neutral area, but they have been not successful. There is hope this will happen in April 2007 when the next ride will take place.

Keywords: Mideast, nonprofit, activism

Thomas Muhr, University of Bristol. Email: Thomas.Muhr@bris.ac.uk; Venezuela's Higher Education For All as a challenge to capitalist economy of knowledge production

In this paper I argue that the praxis of Venezuela's Higher Education For All (HEFA) strategy challenges not only the commodification of knowledge but the dominant economy of knowledge production in general. In municipalising HE, as operationalised via the Universidad Bolivariana de Venezuela (UBV), the historical uneven geography in the production, distribution and 'consumption' of education is being levelled out on the national and increasingly regional (Latin American/Caribbean) scales. Central to the transdisciplinary UBV study programmes are student-community learning projects which, as a form of sustained participatory action research, facilitate democratic knowledge construction by the sub-alterns in concrete contextual geographies and, subsequently, contribute to a plurality of knowledges. HEFA challenges the emerging global education elite spaces (e.g. Singapore's "global schoolhouse") and rejects the production of enterprising subjects fashioned for the global economy. Rather, subjectivities are formed along the moral values of solidarity and cooperation for endogenous sustainable development and a 'socialism for the 21st century'.

Keywords: Venezuela, counter-hegemony, higher education for all, knowledge economy

Falguni Mukherjee, doctoral student, UW-Milwaukee. Email: falguni@uwm.edu; Rina Ghose, Associate Professor, UW-Milwaukee. Email: rghose@uwm.edu; GIS and Spatial Technologies for Urban Governance

GIS and Society literature emphasizes that GIS is uniquely shaped by local cultures, societal mores, institutional norms and political conditions. However, questions regarding interrelations between such conditions and GIS use in the light of urban governance remains unexplored. In this study we aim to critically examine the GIS activities of Dane county, Wisconsin which is one of the fastest growing counties in the state of Wisconsin and has a strong history of GIS. Dane county land information office and its GIS activities are uniquely shaped by federal grants, Wisconsin Land Information program, research projects at UW-Madison and state and county mandates. Agencies and departments construct thematic and territorial networks at various levels for different purposes that include obtaining spatial and non-spatial data to collaborations for multi-partner GIS projects. GIS activities within the context of the county's political, social, historical and institutional processes will be examined to explore GIS construction within the county's external as well as internal environment. Theoretical framework integrated from GIS and Society literature, Urban Planning literature and Political Economy will be used. Perspectives from planning literature provide entry points to this study while GIS and Society provides a valuable approach in examining the GIS practices. Political economy provides unique lens for examining the GIS activities within the socio-political-institutional environment. Political economy emphasizes the social construction of scale and network formations. They encompass complex and messy socio political processes for strategizing struggles over power and resources which holds true regarding the complex process of GIS construction.

Keywords: GIS, GIS & society, networks, politics of scale, urban planning

Sanjukta Mukherjee, Syracuse University. Email: samukher@maxwell.syr.edu; Gendered ideologies and practices of the "neoliberalizing" State: Case of the Indian IT industry

Over the last decade the IT industry has become emblematic of not merely India's growing economic power, but also of its increasing integration with the global economy and successful neoliberal reforms. One of the main symbols of this apparently "Shining India" is embodied in the increasing visibility of middle class professional women in the modern, high tech, secure, and pristine workspaces of urban India. In order to attract and sustain women's employment in this sector the Indian "neoliberalizing" State has proactively made specific policy amendments (particularly around labor laws), and introduced new incentives (around tax relief, home-working, telecommuting, etc) to suit the demands of its most profitable export driven service sector. In this paper I explore the gendered policies, practices and ideologies of the State and their implications on changing gender relations of work, home and community of this emerging class of "knowledge workers" in India. What do the changing relationship between middleclass professional women (and men), the beneficiaries and backbone of the new economy, and the Indian State tell us about the particular form neoliberal developmental strategies take within specific social contexts, and how they continue to adapt, engage and negotiate local patriarchal gender regimes? Conversely, a gendered analysis of the IT industry and the contemporary Indian State will also highlight the manner in which the identities of the middleclass "knowledge workers" have been partially shaped through the new relationships with the State and its neoliberal developmental policies.

Keywords: Gender, Indian State, neoliberalism, "neoliberalizing" State, development, knowledge workers, IT

Anuradha Mukherji, University of California, Berkeley. Email: amukh03@hotmail.com; Rebuilding The Neighborhood: Community Participation In Urban Town Planning In Post-Earthquake Bhuj, India

This paper examines post-disaster urban recovery in the city of Bhuj, India, in order to understand community participation in urban town planning. The 2001 Kutch earthquake, in Gujarat state in western India, flattened 230,000 houses and damaged 1,000,000 homes in Gujarat. Close to the epicenter, in Bhuj, housing and infrastructure in the old town urban core was destroyed and the government proposed town planning to rebuild the city. But due to a centralized town planning system, lack of information and inadequate community consultations, Bhuj residents felt cut out from the planning process, creating confusion and miscommunication during implementation. However, in Soniwad, a neighborhood in Bhuj, residents formed a neighborhood committee and actively participated in town planning by organizing weekly meetings, and inviting town planning consultants and Bhuj Area Development Authority (BHADA) officials to discuss relevant issues, including the best way to organize house plots in Soniwad; to look at housing options with NGO collaboration; and to help planners map existing plot lines. By examining this collaborative effort between the Soniwad neighborhood committee, the planning consultants and BHADA officials, this paper hopes to present Soniwad as a possible model for community

participation in post-disaster urban planning and recovery, that can be extended to other disaster situations and inform future policies.

Keywords: Urban Planning, Disaster, Housing, Community Participation

Matthew C Mulbrandon, Penn State. Email: mcm307@psu.edu; An Agent-Based Method for Modeling Neighborhood Selection During the Housing Search Process

Work on the housing search process was an area of active research peaking in the 1970s and early 1980s. In recent decades there has been relatively little work done on this subject. This research will examine the use of multi-criteria optimization methods to govern behavior of household agents in the selection of neighborhoods. These methods have been used in industry, finance, and policy making for many years on problems that involve the same kinds of trade offs found in housing selection. Past research on the housing search has either not incorporated space or did so using rudimentary euclidean measures. By having agents that can move through space to satisfy goals, the spatial influence of the urban environment can be examined by researchers. This will require new kinds of data that involves spatial detail, more akin to cognitive research, than surveys on this subject used in past work. Understanding neighborhood selection is the first step to gain insight into the housing search process. This will allow the computational burden of computer models to be reduced by limiting the search in a way that reflects real life. Additionally it can improve the modeling of residential location and housing price by predicting the numbers of bidders and their attributes.

Keywords: Agent-Based, Urban Modeling, Optimization, Housing Search

Alice E. Mulder, Weber State University. Email: amulder@weber.edu; Place for Sale? Privatism, Community, and Urban Development in Ogden, Utah

There is a history in the United States of privatism guiding urban policy, such that private sector interests and goals are often privileged over those of the local community with the belief that success of the private sector will lead to benefits for the community. What is good for one should be good for the other. Indeed, in some circumstances the private sector may be viewed as the salvation of a city. A case study of this argument can be found in Ogden, Utah, a city at the foothills of the Wasatch Mountains. Here the city administration is actively promoting a land development and transportation proposal put forth by a private developer which requires the sale of public land. This paper examines this case, identifying the problems it clearly illustrates, and the questions it raises about how a place should be shaped and for whom. In addition, it highlights the importance of open spaces in place making and in making places desirable.

Keywords: urban development, open space, land use

Ondrej Mulicek, Institute of Geography Masaryk University Brno. Email: mulicek@geogr.muni.cz; Ludek Sykora, Charles University in Prague. Email: sykora@natur.cuni.cz; Polycentricity in National Urban System: Concepts, Methods and Empirical Analysis of Czech Republic

In the conceptual part of our paper we discuss the notion of polycentricity referring to recent European discussions stimulated by ESDP and ESPON and developing our own conceptual framework employed in the empirical analysis. First we frame polycentricity within a more general concept of hierarchical organisation of settlement systems. Secondly, we stress the importance of relational aspect of polycentricity focusing on reciprocal relations between localities. In the empirical part, we first define centres within the Czech Republic stressing their function as job centres (they are selected from over 6 thousands municipalities). In the next step, using data about commuting to work we identify strongest reciprocal relations between centres and delimit integrated settlement systems consisting of centres linked with strongest reciprocal relations. Thirdly, we provide assessment of various aspects of polycentricity within national system and metropolitan areas of Prague and Brno. In the final section, we discuss our empirical insights in the context of European debates that present polycentricity as desirable aspect of settlement systems that fosters both external competitiveness of given territorial entity within global economy as well as internally sustainable development.

Keywords: polycentricity, metropolitan, settlement system

Tiffany K. Muller, University Of Minnesota. Email: mull0130@umn.edu; The Whitening Effects of Urban Neoliberalism: Producing Normative Relations through a Leisure Space

This paper is a first cut examination of the relationship between intersectional identity categories -specifically gender, race and sexuality- and the neoliberal and urban entrepreneurial U.S. city. The urban political economy is reliant on and productive of specific normative relations, as Rod Ferguson (2003) and others have shown. In Minneapolis, Minnesota, normative relations like 'traditional' notions of femininity, whiteness, and heterosexuality shore up the local political economy, which is marked by neoliberal and urban entrepreneurial policies. These relations are produced in leisure spaces, including professional

sport venues, like the home court for a women's professional basketball franchise. At first glance, this arena is an unlikely site to find normative mappings; in many ways, female athletes and fans who use (and themselves produce) this space challenge restrictive social norms that underlie the neoliberal city. Yet it is because this arena is a contested space that such norms are reinscribed through spatial and discursive practices. This paper, then, attends to the process by which one of these norms, the construction of whiteness, occurs in and through a leisure space. It further demonstrates how process of normative racialization is integral to the neoliberal and urban entrepreneurial logics of this political economy.

Keywords: whiteness, neoliberalism, leisure

Jeff Mulligan, North Carolina Central University. Email: mjmulligan@verizon.net; "Interpreting the Iraq Conflict Through Jared Diamond's Five Criteria for Societal Collapse: Comparisons to Rwanda and Japan"

Throughout history societies have faced potential catastrophes. Some societies recognized the impending threats early on and took the necessary measures to ensure survival. Others chose to ignore the warning signs and eventually the suffered societal collapse. This poster applies Jared Diamond's framework for understanding societal collapse (Collapse, 2005) to the current events in Iraq. The role of the five criteria used to explain societal collapse (environmental change, hostile neighbors, friendly trade partners, climate change and societal response) is discussed and compared to the genocide in Rwanda in 1994. Each of these societies has groups of people who have become polarized over a period of time. Both have decisively had environmental change impact their society. The important fifth factor, societal response, foretells Iraq's current societal collapse as rampant destruction and chaos are now common daily occurrences. A contrasting example is discussed, the crisis of deforestation faced by Japanese society in the Tokugawa era. In contrast to the previous societies discussed, the Japanese recognized the potential for impending disaster and unified to take remedial action.

Keywords: Iraq "Jared Diamond" Collapse

Beverley Mullings, Queen's University. Email: mullings@post.queensu.ca; *Skilled Migrants to the Global South and the Institutionalization of Neoliberal and Neocolonial Landscapes of Power*

Among international migrants, the highly skilled are held in especially high regard because they are believed to increase the stock of human capital, stimulate innovation and, as UN secretary general Kofi Annan recently observed, play a leading role in the global circulation of wealth (Annan 2006). Studies that examine skilled migration have tended to focus almost exclusively on the social and economic effects of the flow of skilled migrants from poorer countries in the global South to the global North. We know relatively little about the developmental impact of skilled international migration when the flow is in the other direction; from the developed industrialized world to poor countries of the global South. This paper addresses this lacuna by examining the relationship between the flow of skilled first world migrants to the Caribbean and their role to the transnational spread of neoliberal and neocolonial forms of governance in the region.

Keywords: neoliberalism, networks, skilled migration, Caribbean

Dustin Mulvaney, University Of California - Santa Cruz. Email: dustin@ucsc.edu; *Containing Risk: explaining social resistance to transgenic salmon*

This paper will explain how changing discourses about transgenic salmon containment enrolled local activists, regulators, the aquaculture industry, and risky objects, into the collective that governs transgenic salmon. An application for the regulatory approval of AquaBounty's transgenic salmon brood stock known as AquaAdvantage? is pending approval at the Food and Drug Administration (FDA). Yet even with FDA approval, AquaAdvantage may never be grown in the US. States with wild salmon runs have taken regulatory and legislative measures to prohibit the introduction of transgenic salmon through bans and moratoria. Despite the ecological modernization and blue revolution claims about potential benefits of AquaAdvantage, the aquaculture industry has also distanced itself from transgenics. Despite AquaBounty's claims about the fish being more akin to cows than invasive species, Trojan genes and genetic pollution remain powerful tropes for activists in their efforts to slow the deployment of transgenic salmon. This case demonstrates how the changing spatial and discursive dimensions of ecological risk reshaped power asymmetries and destabilized the politics of scale. Discourses about containment shifted from land-based production to using sterile (triploidy) salmon in net pens in coastal waters, enrolling state regulators. Through an analysis of the ecological risks presented by transgenic salmon and the political ecology of farmed salmon, this paper looks to identify the sources of social resistance to transgenic salmon contributing

ongoing discussions in social movement theory, science and technology studies, and political ecology. This research was based on over thirty semi-structured interviews in wild and farmed salmon regions of North America.

Keywords: salmon, biosafety, risk, genetic engineering, politics of scale

Osvaldo A. Muniz, Texas State University, San Marcos. Email: o.muniz@txstate.edu; *Cyberspace flow model of geographic knowledge*

This paper shows the results of an international research derived from a national program in Chile called MECESUP and funded by the World Bank since 2003 to improve higher education. MECESUP Program stands for the enhancement of quality in higher education and one of its projects was classified as AUS0307. It was approved to improve the computer network among 13 universities in Chile in order to develop teaching and research activities by using the World Wide Web. As an indirect outcome of AUS0307, a research about flows pattern of geographic knowledge over a given cyberspace network was developed. This research has been classified as VirtualFlow1. The general objective of VirtualFlow1 was to verify the level of geographic knowledge networking. Two specific objectives were considered. First, measure the level of scientific knowledge flows related to the stages of e-learning processes. Second, characterize the form of succession and possible translation of geographic knowledge. Research data was gathered from six active nodes previously designed within a network that connected North, Central and South America. Each node represented a given active researcher who agreed on participating to discuss some geographic topics over a period of time. Asynchronous system prevailed during the process of measuring flows and characterizing the form of geographic knowledge. The results of this research show an evident demonstration that the overall flow pattern comports a systematic scale degradation of active participation.

Keywords: cyberspace, flow, e-learning, geographic knowledge

I. Solange Munoz, University of Texas - Austin. Email: solangem@mail.utexas.edu; *Peruvian Immigration to Chile: Policy, NGOs and the Chilean State*

Since the 1980s neoliberal reforms have had an important impact on economic, political and social structures and institutions throughout Latin America. In line with these reforms, non-governmental organizations, international institutions and local, grassroots organizations have stepped in -in varying degrees- to fill the gaps often created by neoliberal economic and political processes. Proponents of the neoliberal model have described the increasing role of civil organizations like NGOs as both improving and diversifying forms of participation, allowing for a more panoptic provision of services capable of incorporating those minorities and groups historically excluded by the State. This research explores how national, racial, and ethnic notions and discourses of identity are reflected in the way that Peruvian immigration is addressed by international and local NGOs collaborating with state institutions. Institutional programs and initiatives that address Peruvian immigration to Chile are explored and understood as representative of the way that public discourses discuss and position Peruvian immigrants in relation to the host society. This focus addresses the way that Chilean national identity is currently being constructed and how Peruvian immigration is being positioned within this construction in the current context of neoliberal institutional structures and processes.

Keywords: NGOs, immigration, Chile, Peru, ethnicity

Lorena Munoz, University Of Southern California. Email: lmunoz@usc.edu; "Tamales?Elotes?Champurrado: Transforming Latino Vending 'Street-Scapes' in Los Angeles"

Street vending is an economic practice exercised by millions of people around the world. Although often attributed to third world economies, it is a phenomenon that it is visible in many cities in the United States. This paper examines the landscapes in which Latino street vendors exercise their daily informal economic practices in Los Angeles - a city where many residents (especially Latino residents) favor vendors who recreate the cultural and informal economic spaces of their countries of origin. Immigrant vending practices commonly transform street corners, yards, and parking lots into informal commercial profit-making sites. This reconfiguration of urban space not only shapes immigrants' and immigrant vendors' experience of everyday life, but shapes the urban landscape around them as well. Through the use of various qualitative methods, specifically, field observation, semi-structured interviews, photo-elicitation and photo documentation this paper explores how notions of 'place' shape urban cultural landscapes of Latino street vendors in Los Angeles and how state enforcements, regulations and notions of 'illegalities' imposed on 'brown bodies' in relation to street vendor's daily life, contribute to the production of cultural landscapes. The dialectic process of vendors creating urban cultural landscapes is important for understanding how the state at various scales, intersect in the local, where tensions are created between the local-state and the

vendors through the enforcement of code regulations and the surveillance of bodies. These tensions between vendors and the local-state inform the production of vendor landscapes. This dialectical process shapes the collective or individual agency of the vendors.

Keywords: street vending, cultural geography, landscape

Mandy Munro-Stasiuk, Kent State University. Email: mmunrost@kent.edu; Donna Witter, Kent State University. Email: ; Jospeh Ortiz, Kent State University. Email: ; Scott Sheridan, Kent State University. Email: ; NEOGEO: Providing Effective Teacher Professional Development Opportunities

Kent State's GK-12 Program, NEOGEO (NorthEast Ohio Geoscience Education Outreach), offers a three-workshop professional development series for teachers. Centering on terrestrial, aquatic, and atmospheric interactions and the use of geospatial technology, the workshops are: 1. SATELLITES (Students And Teachers Exploring Local Landscapes to Interpret The Earth from Space), a geospatial technology workshop offered in collaboration with OhioView; 2. Integrated Earth System Science, focusing on geological, chemical, physical and biological processes and how these interact in the Earth system; and 3. A four-day field experience to the Lake Erie Islands and surrounding localities that emphasizes the relationships between the local geology and the physical processes that have shaped northern Ohio. These workshops may be taken in succession or independently. All three have at least two NEOGEO faculty and six NEOGEO Fellows as the teaching team. Each team develops and presents inquiry-based activities designed and aligned with their own research expertise and the Ohio Academic Content Standards. We have found that a large teaching team is crucial to the success of the workshops as this provides a differential knowledge base and high student to instructor ratios. Based on the evaluations of the workshops, this approach significantly increases teacher satisfaction and retention of new material. We will present an overview of the organization, the activities, and the evaluation of the workshop outcomes.

Keywords: GK-12, earth science, education

Emily Murai, University of Minnesota - Minneapolis. Email: murai019@umn.edu; Technologies of Place and Place Technologies: the cultural geographies of information technology

Mainstream perspectives on information technology (IT) and culture often view them as entirely disparate or wholly collapsible entities, such that IT is often considered to be socially neutral and 'cultureless,' or that particular cultural values reify and reinforce technological development. Recent racial and ethnic conflicts in Cupertino, California, an upper-class suburb in the heart of the Silicon Valley, demonstrate that the relationship between IT and culture is far more complex. This paper will argue that the racial conflicts are the result of shifting dynamics in the post-industrial, information-based global political economy. In particular these broad economic shifts have produced new forms of racialized subjectivity, such as the elite transnational migrants from Asia, which challenge normative place identities in the Silicon Valley. This paper will elaborate upon these connections in order to advocate a further exploration into the cultural and racial geographies of IT.

Keywords: information technology, Silicon Valley, critical place geography, race

Petronella Muraya, Howard University. Email: petah_muraya@yahoo.com; NGOs and development in Santo Domingo

In the past, most development projects in urban areas were implemented by the private sector, but that is no longer the case as more and more NGOs acquire responsibilities in development that were previously restricted to governments. It is hoped that NGOs will be more successful than the public sector in meeting the needs of the urban poor. The demand for basic services in cities in developing countries is high due to a history of rapid urbanization and the failure of the private sector in delivering these services. The high demand for services has resulted in the rapid increase of NGOs in urban areas leading to competition and crowding as well as inefficiencies and duplication of effort. In Santo Domingo, the Dominican Republic, the collaboration of various NGOs eliminates the competition and enables them to meet the needs of the target group by providing various services. This paper analyzes the interaction between four NGOs in Santo Domingo: Instituto Dominicano de Desarrollo Integral, Inc. (IDDI), Ciudad Alternativa, Enda Caribe and Centro de Estudios Sociales Padre Juan Montalvo, s.j. This study finds that besides delivering services and promoting a sustainable environment, the NGOs also uphold ethical values and social justice by endorsing citizen participation in their development projects.

Keywords: Santo Domingo, Dominican Republic, NGOs, development

Robert A. Murdie, York University. Email: murdie@yorku.ca; Ethnic Transformation and Gentrification in West-Central Toronto

The nature, causes and effects of gentrification have been much debated during the past three decades. However, consideration has rarely been given to the positive and negative effects of gentrification on ethno-racial groups living in neighbourhoods undergoing physical and social upgrading. This paper evaluates the potential impact of gentrification on ethno-racial groups in West-Central Toronto, an area that historically was Toronto's major immigrant receiving district but has recently been impacted by major changes, including a decline in manufacturing jobs and an increase in professional employment. The outcome has been accelerated gentrification and an accompanying change in the area's social geography. In particular, European immigrants have moved from this area to other parts of the city but more recently arrived visible minority immigrants from various countries of origin have moved into the area. The specific objectives of the paper are to (1) document the dynamics of this process, (2) analyse the relationship between ethnic transformation and gentrification, (3) identify the potential winners and losers, and (4) discuss the implications for preserving ethnically mixed affordable neighbourhoods in this part of Toronto. The evidence is drawn primarily from census tract data for 1971 through 2001 and special cross tabulations of 2001 census data. The results point to the complexity of this issue, the importance of context and the fact that not all groups are impacted in the same way.

Keywords: ethnic groups, gentrification, Toronto

Ann Marie Murnaghan, York University. Email: amfm@yorku.ca; Doing feminist urban political ecology: Bringing gender in with methodology

As a nascent field, urban political ecology stretches the boundaries of urban environmental studies to reveal how urban political processes influence the distribution of natural resources, and access to nature. Coincident with uneven spatial distributions are distributions of resources that are unequal, and often inequitable, across social groups. Feminist geographers have been documenting these differences since their earliest studies, while at the same time they have been exploring the social and environmental in new and unanticipated ways. Feminist scholars continue to be at the leading edge of research methodology in geography, and in this paper I examine how their comments on both nature and research bring important contributions to the field of urban political ecology. I argue that it is through 'the doing' of research one can bring gender in, and pay closer attention to other axes of difference which have been as yet underrepresented in the literature. Using research from Toronto, Canada, I explore how a feminist methodology changes how one asks questions about access to nature, the scaling of the research, the context in which the research is situated, and the methods that are employed.

Keywords: feminist geographies, urban political ecology, gender, methodology

Alexander B. Murphy, University of Oregon. Email: abmurphy@uoregon.edu; Victoria Lawson, University of Washington. Email: lawson@u.washington.edu; Making the Case for Geography

The discipline of geography is strengthening its position in institutions of higher education in the United States. Student and faculty numbers are expanding, new programs are emerging, and extra-disciplinary appreciation of the discipline is growing. If geography is to continue to move forward, departmental leaders need to make strong, effective arguments about the discipline's value and its expanding influence. To facilitate that effort, we have developed a segment of the AAG's Healthy Departments Initiative website with "talking points" that geographers can draw on to show why geography is indispensable to colleges and universities. After an introduction arguing that geography is an established, integrative discipline that spans the social and environmental sciences, we set forth a series of discussion points, examples, and links related to several key ideas: that geography is a key component of a liberal arts education, that geographical thinking is essential to the thoughtful development and application of geo-spatial technologies, that geographical work is increasingly influential across the social and environmental sciences, and that training in geography can open up significant employment opportunities for students. The goal of this endeavor is to provide a resource of potential use to those involved in preparing drafts of self-study and annual reports; in discussions with administrators, parents, and students; and in writing advocacy letters to lawmakers and administrative authorities.

Keywords: healthy departments, geography's status, geography's influence

James T. Murphy, Clark University. Email: jammurphy@clarku.edu; Methodological Considerations for a Practice-Centered Economic Geography: Linking Socio-Spatial Processes to Regional and Global Economic Patterns

While recent interest in practice-centered research in economic geography has raised important questions about how agency, power relations, knowledge flows, and inter/intra-firm relations might be better conceptualized in relation to

particular spaces and places in the global economy, the methodological implications of these concepts remain unclear and open to sharp (often scathing) criticisms. A particular concern is that when researchers seek to account for the socio-spatial processes constituting economic relationships this precludes the possibility that they can then reach valid conclusions about the connections between these factors/forces and wider economic and industrial phenomena. Simply stated, there is concern that micro to macro-scale linkages are not rigorously determined or measured and/or that there is an insufficient accounting for the role that structural factors play in shaping regional development trajectories or global economic patterns. This paper assesses the methodological challenges of practice-centered approaches in economic geography and considers how researchers might more effectively assess and analyze the links between spatially embedded social relations and regional or global economic outcomes. The goal is not to definitively state what researchers should or should not be doing in the field but to suggest ways in which research questions, data gathering procedures, and analysis methods might be framed or conducted such that the dynamics of economic practice (e.g., the agencies, networking strategies, and power asymmetries) can be measured and used to demonstrate how, why, and where larger-order configurations of economic and industrial relations emerge in the global economy.

Keywords: methodology, economic geography, social practice, networks, qualitative methods, regional development, globalization

Laura L Murphy, PhD, Tulane University School of Public Health and Tropical Medicine. Email: lmurphy2@tulane.edu; Ann M Yoachim, MPH, Tulane/Xavier University Center for Bioenvironmental Research; Loyola University of New Orleans Center for Environmental Communication. Email: ayoachim@tulane.edu; Paul Harvey, Research Fellow, Overseas Development Institute. Email: p.harvey@odi.org.uk; Crops, Cellphones and T-Cells: Technology Change for Livelihood Security in Sub-Saharan Africa

HIV/AIDS, the leading cause of death in Sub-Saharan Africa, intersects with chronic poverty and livelihood insecurity to undermine the prospects for long term sustainable human development. Rural, urban and peri-urban communities are responding with innovations and adaptations in technologies ranging from 'software' (support groups) to 'hardware' (mobile phones). This paper highlights findings from a two-year research project (funded by the MacArthur Foundation) which asked, Given the reality of HIV and AIDS: What development policies and programs are needed to encourage appropriate technology change for livelihood security and long-term, sustainable human development? How are African communities affected by HIV and AIDS responding through the adoption, adaptation, innovation of technologies to enhance their livelihood security? How does the development policy framework facilitate or hinder technology innovation? In-depth case studies of hybrid, community-based technology changes (through qualitative fieldwork in Kenya and Malawi) reveal specific barriers, and complement a comprehensive document review of changes (and lack of innovation) throughout sub-Saharan Africa in sectors ranging from farming systems, to household reproduction, to communication. Findings provide insight into the nature of "appropriate technology" to enhance livelihoods and are discussed in relation to development actions, which -if they are to succeed in promoting human development?need to be more flexible, long-term and responsive to the devastating interaction of AIDS and poverty in rural Africa.

Keywords: Africa, AIDS, Agriculture, Technology Change, Development, Livelihoods

Richard Lee Murphy, University of South Carolina. Email: murphyr4@mailbox.sc.edu; Kirstin Dow, Ph.D., University of South Carolina. Email: kdow@sc.edu; Jinyoung Rhee, University of South Carolina. Email: rheej@mailbox.sc.edu; Greg Carbone, Ph.D., University of South Carolina. Email: greg.carbone@sc.edu; User Awareness of Uncertainty in an Online Mapping Tool: The Dynamic Drought Index for Basins in North and South Carolina

The role of advanced GIS tools continues to increase in importance within decision-making processes. It is important to gauge the effectiveness of tools by evaluating user understanding of a tool's functionality. While online mapping tools allow greater access to spatial data for decision-makers, few studies have addressed the uncertainties created in the interpolation process of such tools. The Dynamic Drought Index for Basins in North and South Carolina (DDI) is an advanced tool that allows users to analyze multiple drought measures in different temporal and spatial scales. The DDI uses the Inverse Distance Weighted (IDW) method to interpolate climate data derived from National Weather Service (NWS) stations to a 4 km x 4 km grid. The interpolated data can then be displayed in choropleth map form at several user defined scales. Surveys were conducted with targeted users of the DDI: water resource managers throughout South Carolina. Users' understanding of uncertainty inherent in the data interpolation process was measured through objective questions relating to four

scales of interpolation available within the DDI tool. In comparison, users' ability to evaluate uncertainty from graphical methods was measured using objective questions relating to a probability graph and a box and whisker plot. Awareness of users' recognition of uncertainty can contribute to better designed communication strategies and more effective tools for decision-makers.

Keywords: uncertainty, GIS, cartography, interpolation, probability, cumulative probability graph, risk communication

Adam Murrah, Mississippi State University. Email: awm6@msstate.edu; The Use of Geospatial Technologies and Ground-Based Field Studies to Quantify the Affect of Hurricane Katrina on the Vegetation of the Weeks Bay Reserve

Hurricane Katrina (August 29th, 2005) had a tremendous impact on the Alabama, Mississippi, and Louisiana Coasts and it is one of the worst natural disasters in US history. The storm-surge along the Mississippi coasts was unprecedented reaching heights of up to 30 m. Although not as severe in Alabama, the storm surge still inundated many coastal environments including the Weeks Bay Reserve, a nationally protected estuary. After the storm surge subsided in Weeks Bay, there was no precipitation for a 15 day period. The main focus of this current research project is to investigate what affect the saltwater inundation followed by absence of rain had on the estuary vegetation of Weeks Bay. We used Landsat TM satellite imagery to compare changes in estuary vegetation before (March 24, 2005) and after (September 16, 2005) Hurricane Katrina. Normalized Difference Vegetation Index (NDVI) values and Tasseled Cap Transformation "Greenness" values were derived from Landsat imagery and were used to estimate differences in vegetation health. The changes in vegetation were compared to water quality data, such as salinity, within Weeks Bay. Preliminary results indicate that the vegetation showed significant decreases in both NDVI and "greenness" following the saltwater inundation and absence of rain. Currently the vegetation index values from the September 2005 image are being compared with vegetation index values derived from summer 2006 images. The results of this project will provide insight into the sensitivity of estuary vegetation to large storm surge events and their associated recovery rates.

Keywords: gis, remote sensing

Brian J. Murton, University of Hawaii. Email: bmurton@hawaii.edu; Maori 'Mirror Landscapes' and Oral Mapping

When Maori first encountered Europeans they were able to draw maps with charcoal on the deck of a ship, in dust with a stick, or in the sand on a beach. A little later a number of Maori drew maps on paper. Scholars have argued that these early maps drawn on paper are not wholly or partly derivative of the European tradition of mapmaking, but are the first permanent record of a Maori oral mapping tradition. This paper examines the knowledge base underlying the Maori mapping tradition. It will argue as that place based knowledge in which genealogy is of great significance, Maori knowledge is 'mirror knowledge' reflected in 'mirror landscapes', marked by place names. The role of names, both of places and of ancestors (human and divine) for ordering knowledge and providing the base for oral maps (and the early ones on paper), is illustrated through the use of examples drawn from two place in Aotearoa/New Zealand. The paper concludes with a discussion of the importance of spoken narratives for understanding Maori landscapes and oral maps.

Keywords: Maori, mirror landscapes, place names, oral maps

George J. Musa, MA, Graduate Center & Hunter College, CUNY; Columbia University-MSPH/NYSPI. Email: musag@childpsych.columbia.edu; Effects of Neighborhoods and Transportation Systems on Post-Traumatic Stress Disorder on Ground Zero Area NYC Public School Children after 9/11

An epidemiological study was conducted six months after 9/11 under the auspices of the NYC Board of Education, to evaluate the impact of the World Trade Center attacks on children's mental health. A large representative sample of public school students in grades 4-12 (N=8,236) were screened for eight psychiatric disorders including Post-Traumatic Stress Disorder (PTSD), as well as various types of exposures to the 9/11 events, health problems, family circumstances, etc. Analyses of these data has shown that being a student at a Ground Zero Area (GZA) school was not a significant risk factor for developing PTSD (Hoven, et al, 2005). These findings are counterintuitive. Neighborhood variables (e.g., median household income, crime, land form, land use, quality-of-life, line-of-sight to the WTC Towers, etc.), Euclidian distance from the students' home zip codes to their GZA schools, transportation distance and travel time will be analyzed to observe their potential influence on developing possible PTSD.

Keywords: WTC, 9/11, Neighborhood, PTSD, GIS

Luca Muscarà, Università degli Studi del Molise. Email: muscara@unimol.it; *The Cold War Transition from Political to Urban Geography : Megalopolis as a Global Projection of the Body Politic*

Gottmann's Megalopolis anticipated a transition from political to urban geography while the post WWII eclipse of political geography subtracted the global scale as area of disciplinary application, and the post-war effort made it increasingly involved with regional and urban scales. The intertwining of scales implied by its "hinge" function was not a mere description of the urbanized Northeastern US seaboard rise to the scale of the new global order. It embodied the idea that this urbanized region could have filled the scale gap by projecting globally the megalopolitan body politic. Possible implications after 9/11.

Keywords: megalopolis, body politic, global scale, cold war, political geography, urban geography

Daanish Mustafa, King's College, London. Email: daanish.mustafa@kcl.ac.uk; *Hazardscapes of Globalization in the Asian Earthquake and the 'War on Terror'*

A neo-realist conceptualization of social power is used to apprehend the geographies of vulnerability at the local scale and geopolitics of assistance from global to local scales in the 2005 Asian Earthquake in the Pakistani administered Kashmir. The pattern of vulnerability to the earthquake was complex in that the middle class suffered higher proportionate fatalities, while the poorest suffered more in the longer run. In the aftermath of the quake an unprecedented level of aid flowed in from the Pakistani society & diaspora, to international NGOs to Western governments. Without cynically underestimating the genuine humanitarian concern with providing assistance to bereaved humanity one can still trace the undercurrent of the war on terror and its linkages to the 'hearts and minds' battle during the western relief effort. The globalization discourse and its concomitant geographies of power/knowledge and compensatory power spawned the geography of vulnerability to the physical event of the October 8th, 2005 earthquake. In the relief effort though it was the naked power of the state and the social and geographical positionality of the disaster victims within the geopolitical calculus of the global hegemony that at least partially contributed to the flurry of response to the disaster. Along the way, the role of the international media in globalizing the local life spaces of the disaster victims also played a pivotal role in mobilizing the level of effort that transpired. The international and national relief effort, however, is still being filtered through the traditional patronizing state apparatus and social class relations.

Keywords: Hazardscapes, War on Terror, Power, Earthquake, Relief, Recovery

Kebiche Mustapha, Université du Québec à Montréal, Département de Géographie. Email: kebiche.mustapha@uqam.ca; *The challenge of emergency management in risks and*

The city of New Orleans is one of the most attractive cities in the world in term of cultural tourism. The Festival of jazz, the Heritage Festival and the French Quarter are attracting millions of visitors every year. However, a single event has recently shown how vulnerable is the city. A category 4 hurricane Katrina hit Louisiana on August 29th 2005 causing a surge and severely damaging the levee that was protecting the city from Pontchartrain Lake. The storm itself lasted not more than a day but the floods have lasted several days making hurricane Katrina the most destructive and costliest "natural" disaster in the US history. The flooding has triggered riots for many days among the most vulnerable people of New Orleans. On December 2005, four months later, the city was dealing with benzene pollution. What we have learned from Katrina is that risks and "natural" disasters are very complex systems. A system has many components interacting in different ways in space and time. Ignoring the dynamic of the system can lead to a disaster. In this presentation, we show this complexity through the events that affected New Orleans and the challenge for risks and disasters management. * Adjunct Professor at Université du Québec à Montréal, département de Géographie, Canada.

Keywords: Risk and Natural Hazards, emergency management

M Marian Mustoe, Eastern Oregon University. Email: mmustoe@eou.edu; *Point Of Purchase Perceptions: Selling Products With Place*

Point of Sales or Point of Purchase (POS or POP) advertising has a long history of linking products with the advertising images on signs, wrappers and product labels. For many products using this form of advertising, a sense or notion of place plays an important role in identifying the product to the consumer. Although textual references can build powerful identities with products and places, i.e. Pendleton Shirts ...a shirt manufactured in Pendleton, Oregon... images are also used by advertisers to make direct and sometimes subliminal references to a product's place/landscape connections. Sometimes these may have little to do with the product's origin. This presentation will explore how the imagery of place is used to sell a product at the point of purchase level. Examples

of labels will be shown. Taking the landscape categories from D.W. Meinig's, Beholding the Eye a simple analysis model will be presented that students can use in evaluating POP images in the context of places and landscapes. David Lowenthal suggests that "beyond that of any other discipline... the subject matter of geography approximates the world of general discourse; the palpable present, the everyday life of man on earth, is seldom far from our professional concerns." Thus, even a lowly candy bar wrapper may have something of geography etched upon it! Consider the "Idaho Spud", the "Mountain Bar" or the "Old Faithful"...confections, all covered up at the point of sale in wrappers steeped in images of place!

Keywords: Place, Marketing, Advertising, Candy Bars, Point of Purchase,

Erin Mutch, Mountain House Community Services District. Email: emutch@sjgov.org; *New Town, New Data and the GIS Solution*

The Mountain House Community (MHCS) has been described by the Associated Press as the "First New Town of the New Millennium". Many innovative measures were taken to ensure successful project execution, including the development of a GIS. The demands for useful information from the GIS have grown with the immediate need for accurate asset inventory and GASB 34 reporting. An integral part of daily operations at the MHCS is the ability to ask the question of "where?" Paper topics will include moving GIS services "in-house", inter-agency coordination, GASB 34 requirements and design of community-wide GIS. Various reports are needed such as length of sidewalks, acreage of roadway, number and condition of street lights and other reports regarding all of the facilities the MHCS is responsible for maintaining. Many calculations are currently made by MHCS engineers, many by reviewing paper maps. The challenges of CAD to GIS integration will also be discussed in addition to the update of data standards for submission of improvements to accommodate data conversion into the GIS. Our goal is to create an enterprise Server GIS which will support our departments and ultimately the community residents. The Mountain House departments include community development, public works, accounting and operations & maintenance. The full effects of building the first new town of the new millennium have yet to be realized. With the planned infrastructure and features Mountain House will offer, it is sure to be studied by planners of future communities and prospective residents alike.

Keywords: GIS

Suresh Muthukrishnan, Assistant Professor, Earth and Environmental Sciences, Furman University, Greenville, SC 29613. Email: suresh.muthukrishnan@furman.edu; *Earth from Space: Integrating Spatial Science and Technology into Introductory Geosciences Curriculum*

As part of an initiative to enhance science literacy of non-science majors at undergraduate colleges, a new and exciting introductory course that tightly integrates geosciences and spatial technology was developed and introduced in fall 2006 at Furman University. An introductory science course would traditionally attract students who are either inclined to be science majors or need to satisfy a general educational requirement in the sciences area towards their graduation. A common perception among non-science students is that science is hard and requires quantitative/mathematical skills and so they fear taking science courses. However, many of our students have a natural affinity towards computers and technology in general, and learn technology faster than class room materials. This new course capitalizes on the students' zeal for computers and technology, and introduces earth system science concepts using geospatial tools and technologies such as GIS, remote sensing, GPS and PDA (pocket PC) while at the same time providing a stronger foundation for them to understand the interactions between geosphere, hydrosphere, and atmosphere using scientific literature along with engaging activities using GIS and spatial data. Main objectives of this course are: to integrate spatial thinking and spatial technologies into teaching basic concepts in geosciences; to increase active participation by students in learning the topics covered; and to raise the overall science literacy and global awareness to make them better informed citizens. A PDA based classroom interaction and feedback system was used to assess student understanding of core concepts along with google earth and ArcMap programs.

Keywords: introductory geosciences, GIS/GPS, Remote Sensing, Clickers, PDA

Christine M Mutiti, Miami University. Email: mango1@muohio.edu; *Exploring the Tsavo Savannah: Bushland versus Grassland in Southeastern Kenya*

Regional-scale patterns of vegetation often correlate with regional gradients in precipitation and temperature. In the African savannahs, physiognomic types at the broad scale can be delineated into woodlands, bushlands, grasslands, parklands, and scrubs. The Tsavo ecosystem in southeastern Kenya is broadly described as an Acacia-Commiphora bushland. The creation of Tsavo East and West National Parks resulted in the Taita wildlife corridor forming as a peninsula of privately and commercially owned lands between the bushland of the national

parcs. Many studies have indicated an increase in open grasslands in the protected areas, and debated on whether this is a natural cycle between woody and herbaceous vegetation or whether it is caused mainly by large elephant populations. The aim of this study is to contrast vegetation patterns between the protected area (national park) and a non-protected area (wildlife corridor). It is hypothesized that differences in vegetation composition between the wildlife corridor and the national park correspond to a management boundary. This study uses satellite images to determine the distribution and amount of tree-dominated bushland versus non-bushland vegetation. The study also evaluates the relationship between the distribution of these physiognomic types (bushland and grasslands) and physical environmental factors such as rainfall, geology, topography, and surface hydrology, as well as human historical factors in the form of management regimes. Preliminary findings show that while climate results in gradual changes in vegetation along a rainfall gradient, changes in vegetation patterns resulting from differences due to management are rather abrupt.

Keywords: Remote sensing, savannah, bushland, vegetation patterns

Samuel Mutiti, Miami University. Email: mutitis@muohio.edu; Jonathan Levy, Miami University. Email: ; Kathryn C Kilroy, Miami University. Email: ; Britton Windeler, Miami University. Email: ; Matthew Birck, Miami University. Email: ; *Developing A Model Developing a Model for Predicting the Amount Riverbed Scour During Storm Events*

This study investigates the temporal variability of riverbed sediment scour and determines its relationship to river stage. In this study, the amount of scour taking place on a reach along the Great Miami River, in southwest Ohio, is monitored and quantified. The working hypothesis for this study is that the amount of scour taking place increases with an increase in river stage. For the purpose of this study scour is defined as the change in sediment thickness. Scour is continuously monitored using scour chains and load cell sensors. Scour chains are buried in the riverbed and analyzed after high river stage events. This enables the monitoring of sediment scour during these storm events. The load cell sensors are buried in the riverbed to continuously monitor the height of overlying sediments. In this study, river stage is also continuously monitored using pressure transducers. Data used in this study were collected over a period of one year. The amount of sediment scour is related to the river stage height and a regression model that can be used to predict the amount of scour given a rise in river stage is created. This is especially important at sites of induced infiltration where there is potential for increased groundwater contamination when the riverbed is scoured away. Having the ability to predict how much scour would take place during storm events would help water supply utilities to continue supplying clean drinking water. Results indicate that significant scour takes place only during big storm events.

Keywords: Scour, Riverbed, Induced Infiltration

Aaron T. Myers, Oak Ridge National Laboratory. Email: myersat@ornl.gov; Daniel J. Getman, Oak Ridge National Laboratory. Email: getmandj@ornl.gov; An Assessment of GIS Server Software

Geographic Information Systems (GISs) have become important tools in research and industry. More recently, however, a need to distribute and analyze geographic data in a web-based framework has begun to influence the approach taken for application development. This web-based development is being carried-out, in large part, with a limited assessment of available software, and incomplete guidelines for the selection of the appropriate framework to develop the desired product. The goal of this research was to evaluate web-GIS software in terms of ease of installation, capabilities, cost, and overall functionality. Software chosen for this research includes University of Minnesota's MapServer, MapGuide Open Source, ArcIMS, ArcGIS Server, and Oracle MapViewer. After a thorough literature review, each server application was installed in a similar environment, and configured for use with a common database. Vector and raster data of varying scale, file size, and spatial extent were included for display and analysis. Sample applications aided in the evaluation of each server type in terms of map display, geo-coding, layer query, and spatial analysis. After the evaluation, a summary of server performance along with guidelines to aid researchers in determining which software product is more appropriate to fill their needs is presented.

Keywords: Web-GIS, internet, GIS Servers

Alexandra Myers, M.A., University of Texas at Austin. Email: amyers@mail.utexas.edu; Paul F. Hudson, University of Texas at Austin. Email: pfhudson@mail.utexas.edu; Radha Vyas, University of Texas at Austin. Email: rnyyas@gmail.com; Evaluating channel disturbance and response during invasive plant eradication along the San Marcos River, Texas

River management requires understanding the time-scales for river channels to adjust to disturbances. The San Marcos River (640 km²) emits from a large spring (4.5 m³/s) at the eastern edge of the Edwards Plateau in Central Texas, and has been significantly impacted by *Cryptocoryne beckettii*, an exotic water

trumpeter from Sri Lanka. State and federal river management agencies removed the *Cryptocoryne beckettii* via extensive channel dredging. This paper provides an overview of the extent of geomorphic adjustment over a one year period, spanning the predisturbance, disturbance, and the initial stages of the post-disturbance regime. A variety of approaches were utilized to characterize the geomorphic response of the San Marcos River to channel dredging, including repeat channel surveys, acoustic Doppler bathymetry surveys, channel bed erosion pins, bank erosion pins, turbidity measurements, and estimates of bed load transport. Based on repeat channel cross-sectional surveys, 155 m³ of material was dredged from the river channel bed. There was an average increase of 1.9 m² in channel cross-sectional channel area, but was as high as 6 m² where *Cryptocoryne beckettii* was densest. The maximum depth of dredging exceeded 0.75 m in some reaches, creating dredge holes and channel knickpoints. After several months dredge holes showed minor (7.6 cm) upstream expansion, and associated downstream infilling (6.1 cm). Data from bank erosion pins reveals very low rates of bank erosion. The San Marcos River does not show significant signs of adjustment, which may be due to inherent channel stability, as well as persistent low flow conditions.

Keywords: fluvial geomorphology, river channel erosion, channel dredging,

Garth Andrew Myers, University of Kansas. Email: gmyers@ku.edu; The Land is (Not) Ours: Land Reform and Urban Expansion in Zanzibar

The scope and pace of urbanization in Zanzibar's West District is unprecedented, since its population has quadrupled, from 1988 to now. The pace of the urbanization of land is especially notable. This extraordinary expansion has taken place during a transition in Zanzibar's political system and economic development framework. Like the rest of Tanzania, Zanzibar has seen tremendous change since 1985. These two decades or so of transformation and restructuring have brought a reform agenda to issues of land and urbanization as well, with new development projects, new governmental and non-governmental institutions, new legislation, and new processes and processes all designed around reshaping the way land is developed, controlled, managed, or claimed in and around the city of Zanzibar. The latest example of this reform agenda in land is the Finland-funded program for Sustainable Management of Lands and Environment (SMOLE). SMOLE is inseparable from the broader development rubric that dominates Tanzania, aligned with rhetorical movements for sustainable development and good governance within a neoliberal model. In exploring the limited outcomes of this project, in this piece, I want to focus on the first of what will be six themes of my research, based around the preliminary phase of a two-year research project that includes interviews with donors, officials, land agents, and residents, as well as archival analysis. This theme is the as yet unexamined - and seemingly counter-intuitive - continuities of SMOLE with the profound failings of colonial-era peri-urban land and environmental management.

Keywords: land reform, Tanzania, colonialism, urbanization, political ecology

Vanessa Myers, Kent State University. Email: vmyers2@kent.edu; Wayne Kline, Kent State University. Email: wtkline@kent.edu; GK-12: Bringing Weather Into the Classroom

In the Ohio school curriculum, "weather" is referred to throughout the Earth and Space Science Standards, Benchmarks, and Indicators. It is often hard for K-12 students to understand the complexities involved with weather and therefore meet Ohio's standards. To help improve understanding of weather in Stark County, Ohio, Kent State University was awarded a GK-12 grant from the National Science Foundation. This program allows graduate students with a meteorology and climatology background to work with K-12 students and teachers. They have worked both in and outside of the classroom developing inquiry-based activities to better explain weather concepts. While in the classroom, the graduate students have been able to act as "experts" in their field answering crucial questions, providing examples of what scientists do, and creating further student interest in weather. Through their research, the graduate students have been able to bring current data into the classroom, giving the K-12 students an insight into how to use and interpret current data.

Keywords: weather, education, GK-12

Soe WIN Myint, Arizona State University. Email: soe.myint@asu.edu; Gregory S Okin, University of California, Los Angeles. Email: okin@ucla.edu; Quantifying impervious surfaces in the Phoenix metropolitan area using multiple endmember spectral mixture analysis

Urban impervious surface areas (e.g., cement parking lots, asphalt roads, shingle rooftops) can only be recorded as either present or absent in each pixel when using traditional per-pixel classifiers. Sub-pixel analysis approaches that can provide the relative fraction of surface covers within a pixel may be a potential solution to effectively identifying urban impervious areas. Spectral mixture analysis approach is probably the most commonly used approach that models image spectra as spatial average of spectral signatures from two or more surface

features. However, spectral mixture analysis does not account for the absence of one of the surface features or spectral variation within pure materials since it utilizes an invariable set of surface features. Multiple endmember spectral mixture analysis (MESMA) approach addresses these issues by allowing endmembers to vary on a per pixel basis. We employed the MESMA technique to model Landsat TM reflectance in the Phoenix metropolitan area. Field spectra of vegetation, soil, and impervious surface areas collected with the use of a fine resolution Quickbird image and pixel purity index tool in ENVI software were modeled as reference endmembers in addition to photometric shade that was incorporated in every model. This study employs twenty-eight endmembers and five hundred and forty four-endmember models to identify impervious surface areas in the city of Phoenix. Results from this study suggested that the MESMA approach is reliable and the algorithm picked the signatures effectively.

Keywords: urban, impervious, multiple endmembers

Miyo Nagakura, Graduate School of Asian and African Area Studies, Kyoto University, Japan. Email: nagakura@jambo.africa.kyoto-u.ac.jp; Agro-pastoral land use in relation to natural environments in a mountain area of Lesotho

Lesotho is a mountainous country located in the middle of Drakensberg mountains in southern Africa. The people practice both crop cultivation and pastoralism. The aim of this paper is to clarify the relationship between the agro-pastoral land use and natural environments. Natural environments were focused in detail by looking at the diversity of environment within the village, in order to clarify the relationship between land use and natural environments precisely. I conducted a six months research in a village of eastern Lesotho, from September 2005 to March 2006. Temperature, soil, vegetation, and landform surveys were carried out in several points of different altitudes within the village. As a result, landscape characteristics of the site included a terrace formation at about 2500m of altitude, and a unique settlement pattern. The settlements were located horizontally at 2600m altitude, separating a steep slope mountain and a gentle slope terrace. Moreover, three land use patterns such as cultivated field, pasture and settlements were identified, each with specific environmental characteristics. For example, in the cultivated fields, average temperatures differed according to altitudes of the fields, and soil depths were the deepest among the three land uses. In the pasture, maximum and minimum temperatures were at extreme, and soil depths were the least among the three land uses. And lastly, in the settlements, houses were located above the cold air lake which formed during the nights, and diurnal range of temperature was the smallest, which indicate the comfort of the settlement location.

Keywords: Lesotho, land use, agro-pastoralism, mountains

Kenkichi Nagao, Osaka City University. Email: nagao@econ.osaka-cu.ac.jp; Michael Plattner, Trier University. Email: ; User-producer relation and knowledge production in Japan

The aim of this paper is to present the empirical results regarding knowledge production based on the user-producer interaction of machine. We explore production process of machine, the rising amount of product related services such as the maintenance of machines and planning, the changing forces in producer driven value chains, and the spatial patterns of enterprise locations. Flexible automation of manufacturing leads to a value added shift from the processing of material goods to the creation of product related services. Due to the resultant altered network relations, producers accumulate power over the users to establish technological alleged collaborations in manufacturing regions. Remaining research questions relate to previous empirical examinations conducted in the field of economic geography: In which markets does new knowledge arise, where is it offered and where is its demand? Previous studies on business services took only little notice of the tertiarization within the manufacturing sphere. The empirical researches include a multiple case study of the machine producers and their users in Japan.

Keywords: machine production, factory automation, Japan

Nicholas Nagle, University of Colorado. Email: nicholas.nagle@colorado.edu; The Spectral Analysis of Areal Data

Waldo Tobler has separately suggested that areal aggregation may be viewed as a spatial filtering applied to a latent, continuous process, and that spectral analysis may be "frame-independent," i.e. that the spectrum of a process does not depend on one's scale of analysis. Application this method to data demonstrates that while theoretically correct, this latter statement of frame-independence needs modification for practical analysis. The frame-independence property holds practically for low frequency components, but not for high frequency components. The loss of high-frequency components make it impossible to generate realistic maps and simulations of continuous phenomena from areal data without extra information (such as on the smoothness of the continuous process). The frame independence property does hold, however, for low frequency components. Importantly for applied spatial analysis, this suggests

that areal data alone is sufficient for constructing confidence intervals for spatially continuous phenomena. Results from simulation evidence and an application to the analysis of census data are presented.

Keywords: Geostatistics, Change of Support, spatial econometrics

Yaser M. Najjar, Department of Geography, Framingham State College, Framingham, MA 01701. Email: ynajjar@frc.mass.edu; Hashem Almadani, Department of Civil and Architectural Engineering, University of Bahrain. Email: halmadani@uob.edu; Mohammad Saad, Department of Civil and Architectural Engineering, University of Bahrain. Email: msaad@uob.edu; Traffic Impact Analysis of Selected Roundabouts in Bahrain

Rotaries or Roundabouts are popular and dominant features of the road network system in Bahrain. The landscape design of these roundabouts enhanced the physical beauty of the road network. However, roundabouts are considered hazardous intersections due to accident counts, traffic congestion, and noise and air pollution, especially during peak travel periods. Transportation engineers classified the level of traffic flow at roundabouts as level D during normal Traffic hours and level F during peak hours. Therefore, it is timely important to analyze traffic flow and circulation within the most congested roundabouts. Thus, data for the fifteen major roundabouts were collected and analyzed during spring of 2006. The variables used as the base for selection included A. M. & P.M. traffic flow and number of collisions. Also, personal interviews of officials, experts and citizens were conducted. Questions focused on their views and preferences towards roundabouts as a traffic control alternative. Six roundabouts were selected for this study that characterized by high volume of traffic and collisions, irregular traffic flow patterns and in-adequate pavement marking and signage. This study evaluated the six roundabouts based on the analysis and explanation of the mobility and access traffic patterns. Findings indicated that performance of a roundabout depends on its geometry, traffic characteristics, spatial orientation, topography, signage, pavement markings, predominant user characteristics, user driving education, and traffic regulation enforcement. The analyzed roundabouts have unbalanced traffic flows. Some entries have heavier flows than others which cause continuous circulating traffic, therefore excessive delay and queuing were observed.

Keywords: : roundabouts, traffic flow, traffic delay, traffic queuing, spatial orientation

Nicholas Nalepa, University of Michigan - Dearborn. Email: nnalepa@umd.umich.edu; Jacob Napieralski, PhD, University of Michigan - Dearborn. Email: jnapiera@umd.umich.edu; Using GIS to Ascertain Efficient Spatial and Vertical Resolution for Determining Drumlin Morphometry: A Case Study of the Palmyra Drumlin Field

Streamlined glacial landforms, such as drumlins, provide unique insight into glacial history; however, attempts to delineate drumlins are frequently subjective and time consuming. The purpose of this research is to use geographic information systems (GIS) to design an objective, reproducible method to measure the physical characteristics of drumlins then apply this method to a case study in Central New York. The base of the drumlin (i.e. lowest enclosed contour line) was used to extract, delineate, and characterize a drumlin. This was accomplished by generating a variety of resolutions and contour intervals from a Digital Elevation Model (DEM) and then using basic GIS tools to calculate the spatial characteristics of each drumlin. The optimum resolution and contour interval is assessed by comparing volume estimates against spatial resolution, identifying which resolution/contour interval facilitates fast, efficient, and cost effective analysis. Drumlin morphometry (i.e. volume, area, height) calculations are expected to change due to the influence of spatial (and vertical) resolutions. This methodology is then applied to the drumlin field around Palmyra, New York to better describe the general patterns and characteristics of the drumlins. Results from this study can help standardize drumlin delineation, and provide a GIS technique that can potentially be used to analyze the morphology of other glacial features (i.e. cirque, flutes, moraines).

Keywords: gis, morphometry, spatial analysis, drumlin, resolution

David P. Nally, University of Cambridge. Email: dpn24@cam.ac.uk; "A different race of men": famine and the racialisation of poverty in 19th century Ireland

Although recent writings have shown an interest in the regimes of governance that underpin or produce famine, there has been little attempt to connect these state-led actions to the theory and practice of colonialism, especially its investments in the 'liberal' goals of development, reform and social improvement. In this paper I explore the origins, growth and consolidation of these liberal ideals in relation to the problem of Irish poverty, focusing especially on the half-century prior to the Great Irish Famine (1845-52). The paper draws attention to the ways in which economic theories of Irish underdevelopment worked to revitalise longstanding fears of racial difference. While this analysis is

intended as a critique of the racist assumptions often embedded in 'instrumental knowledges' (and one which takes seriously Amartya Sen's point that "the sense of difference between ruler and ruled? between 'us' and 'them'? is a crucial feature of famines"), I also aim to explore the connections between governing norms, 'aid', and liberal state intervention. These reflections are based on readings of official government commissions, political pamphlets and contemporary travel writings.

Keywords: famine, colonialism, governmentality, racism, development theory

Sylvia Nam, University of California, Berkeley. Email: sylvianam@berkeley.edu; *The Political Economy of Development and Apparel Production in Cambodia*

Garment production has figured centrally in Cambodia's contemporary economic development while the 2005 liberalization of the global garment trade has resurrected debates on its significance in developing economies. As Cambodia's recent integration into the global capitalist economy has largely been secured through garment manufacturing, its global integration has also occurred through post-conflict inflows of aid money and expertise. Liberalization thus makes visible the deliberate convergence between poverty alleviation and free trade-based growth in the larger project of development. In the realm of development, gendered work is often discussed as women's exploitation under capitalism or as empowerment through wage labor. While the feminization of garment work has been identified as both the preponderance of women in the sector and the devaluation of the work itself, women workers have been identified as key agents in poverty reduction through their entrepreneurialism. This paper seeks to address how garment production occupies a key position in the debates of work and poverty policy by examining representations of women's participation in garment production. Such participation relies on taken-for-granted assumptions about the nature of poverty and unequal power relations in the political economy. Accordingly, this paper will consider neoliberal commodity capitalism alongside liberal development practices as a framework to understand gender and development politics in the country.

Keywords: economic development, garment production, feminist geography, Cambodia - Phnom Penh

Steven Namikas, Louisiana State University. Email: snamik1@lsu.edu; *Mapping the Spatial and Temporal Variability of Surface Moisture Content on a Fine-Grained Beach*

It is generally recognized that moisture-induced cohesion can significantly influence rates of aeolian transport on sandy beaches. Although the basic mechanics of this process are well understood, almost nothing is known regarding the spatial distributions of surface moisture content in beach sediments, or regarding how those distributions change over time. In this study, surface moisture contents were monitored using a modified theta probe on a twenty meter wide, cross-shore sampling grid. The grid was sampled every 3-4 hours for a two week period, providing one of the most extensive surface moisture content data sets ever collected. Additionally, a variety of environmental parameters (temperature, humidity, evaporation rates, water table elevation, etc.) were simultaneously monitored to document the processes thought to control surface moisture content, and establish linkages between these processes and observed changes in surface moisture content.

Keywords: aeolian transport, sediment transport, surface moisture content, beach

Cindy A. Nance, Ph.D., Mt San Jacinto College. Email: cnance@msjc.edu; *Razing the Dead*

Evolving attitudes toward a place for the dead are revealing of a new world view. Apparent in evolving settlement patterns, as a land use scheme to things, are changing spatial and temporal associations with a place for the dead. From Louisiana to Los Angeles, changes in attitude toward a place for the dead are evident in traditional cemetery abandonment and Memorial Park preference. Prevalent in professional journal articles are discussions of "sites" as "situated" in both space and time. I propose a third dimension for untangling complex relationships of land use change - "situation." A multi-dimensional trialectic based on site-situated-situation, rather than two-dimensional dichotomies, are presented as a new theoretical approach for the analysis of land use change. Through a trialectic approach, natural and cultural factors that adversely impact cemeteries are examined to explain changing attitudes toward a place for the dead. In this way, human interaction and decision making processes are integrated as agents of land use change over space and time. At many scales, contemporary photographs and historic to current map research present horizontal and vertical perspectives that facilitate a cultural-historic reconstruction of evolving settlement patterns. I will demonstrate through photo collages and GIS applications empirical and statistical methods for spatial and temporal analysis of cemeteries in situ, as sites that are situated and evolving with changes in

situation. A trialectic approach "puts flesh on the bones" of the past.

Keywords: Cultural-historic, GIS, trialectic, cemeteries, settlement pattern

Ishikawa Nao, Nagoya University. Email: nawobe@yahoo.co.jp; *Factors in the Continuation of Bullfighting in Tokunoshima Island, Japan*

A high school student says, "There are a lot of attractive woman and nice fellow at the bull ring. And if he treats bulls nicely, he will be popular in high school." A number of traditional events have recently been on the verge of extinction in Japan mainly because of the lack of successors. The tradition of bullfighting in the Tokunoshima Island has fortunately continued up to now. This study investigates how bullfighting is continued and its significance in the Tokunoshima Island by concentrating on the connection between the social relations created between the bulls and local society. Bullfighting is occurred in 6 districts in Japan. In Uwajima district and Oki Islands, People try to preserve the event by making it sightseeing resources and getting support from the government. But In Tokunoshima Island, bullfighting takes root in society and many young people are willing to raise bulls. I figure out why people have bullfighting actively only in Tokunoshima Island. I set up theses three point of view. 1: How they run the event from an economical viewpoint? 2: How the custom has been taken over from generation to generation? 3: What's significance of bullfighting in Tokunoshima Island? I focus on the various inhabitants who run the bullfighting, particularly the following four types of people: ushinushi (bull's owner and trainer), seko (bull's motivator), the ushinushi's neighbors, and the ushinushi's family. Currently, bullfighting takes place in Tokunoshima town, Isen Town and Amagi town. People have about 500 bulls there.

Keywords: Traditional event, actors, bullfighting, social relations

Jacob Napieralski, University of Michigan- Dearborn. Email: jnapiera@umd.umich.edu; *Incorporating social perspectives in environmental science through inquiry-based undergraduate education*

Environmental science education is an important component of the school curriculum given the current state of environmental conditions, and because of the need for environmentally literate citizens who are empowered to take environmental action. Unfortunately, environmental educators typically focus on natural phenomena rather than urban/built environments or the social-cultural components of environmental problems. This preoccupation with the "naturalness" of the environment could undermine efforts to equip individuals and communities with knowledge and skills to improve environmental quality for all. The purpose of this work is to describe how an inquiry-based, undergraduate environmental science course provided students with opportunities to explore and appreciate the social aspects of environmental issues using scientific investigations. An environmental science course was designed to introduce students to key environmental concepts in local and global contexts, relying on short lectures, activities, and a project. Two activities are used to illustrate how student responses were used to evaluate their perceptions of the social implications of pertinent, environmental issues. First, students determined the amount of water they consumed within a 24 hour period (local/personal context). Second, students learned about climate change and the issues related to the Kyoto Protocol (global context). The responses of one student are used to illustrate the presence of self-awareness and their particular role in the environment. The findings demonstrate that allowing students to investigate human impacts on the environment in the context of real-world situations made them aware of the social, political and cultural implications surrounding environmental decision-making and motivated students toward environmental action.

Keywords: Environmental Science, inquiry, undergraduate, social

Darrell E. Napton, USGS Visiting Scientist and South Dakota State University. Email: Darrell.Napton@sdstate.edu; *Recent Land Changes in California's Chaparral and Oak Woodlands Ecoregion*

California's chaparral and oak woodlands are among the most picturesque landscapes in the nation. This ecoregion also includes most of the populations of San Francisco, Los Angeles, and San Diego. The population increased by 15 million after 1970, yet most of the ecoregion is rural and thinly populated. The most dramatic land change was caused by fire, which was involved with four of the five most common land transformations. Fire contributed to the complexity of land change, but burned areas generally quickly returned to the natural covers that originally burned. The most significant transformation was the conversion of agricultural land to urban development. Much of this conversion, however, was offset by the conversion of other land to agriculture. The California coastal valleys of this ecoregion have been prized for their ability to grow fruits and vegetables throughout the year. Recently, their mild climate and flat land has attracted developers. Farmers have adapted to higher land prices by growing more high-value, specialty crops. Additionally, many vintners have converted wooded and grassy hills to grapes. The result is that nearly two-thirds of the conversion of agricultural land to developed uses was offset by farmers converting forest and grass/shrub lands to crops. While the conversion of farmland to developed uses

raises long-term questions about the sustainability of exceptionally valuable farmland, the conversion of forest and oak savannas to vineyards raises immediate environmental issues.

Keywords: : land use dynamics, ecoregion, California, fire, vineyards

Kim Naqvi, PhD, Kent State University. Email: kb.naqvi@gmail.com; Assessing the Relationships between Eastern European Industrialisation on North American Post-War Economic Development

Perceptions of North American economic development are contrasted with actual patterns as shown in international historical data in order to place that development in the context of international change. In particular, North America's sequential development of industrial transformation, rising domestic consumption, and industrial trade is placed in the context of the post-war industrialisation and re-industrialisation of Europe, and the rising political and economic challenge of Eastern Europe and including states in the former USSR. Historical time-series data show that the rise of post World War II industry in the Eastern Bloc and western states of the USSR formed a distinct cluster of newly industrial countries in the 1960s. However, both the historic impact and its lasting effect of this cluster on North American and overall world economic change tends to now be under-examined and under-theorised since the collapse of the Soviet economic system. This paper argues that the loss of this history with the loss of political entities associated with that history can lead to distorted and simplistic interpretations of economic and social development

Keywords: Industrialisation, Eastern Europe, North America, Economic Development

Venkat naga Narasimham, Madras Inst of Devt. Studies. Email: venkatt2k@gmail.com; Redefining urban space: The role of Neighbourhood Associations in creating a neoliberal vision of the city

Indian cities are being transformed by through grandiose schemes of urban renewal driven by national and global agendas. The burgeoning economy is changing the urban landscape as well as the urban mindset. The increased economic activity in cities has intensified pressure on the land and added to the already large population of slum dwellers, squatters and other migrants. In the meanwhile infusion of global culture has led to the emergence of the new middle class who claim their rights as citizen-consumer. The existence of the illegal and semi-legal population, sharing the resource and space with the 'proper citizen' is being contested. This study, that covers resident welfare associations and other neighbourhood based associations in the city of Chennai and its suburban peripheries, inquires whether these associations, while claiming the status of civil society in the emerging order, intend to redefine urban space from the perspective of the 'citizen'. Using a combination of survey and ethnography, it seeks to sketch the self-images that these associations promote, as well as the visions they construct of cities as an exclusive space for citizens to live, work, relax, revel and participate in civil society. The study also delves into the citizenship claims made by the associations and how they negotiate the political and social space in order to promote these claims and their interests. The study elaborates on the methods that residents' welfare association use in contesting and counter acting the claims of the 'population' represented through political society.

Keywords: urban renewal, neighbourhood associations

Joseph Narus, Portland State University. Email: joenarus@yahoo.com; Polygeneration from Coal in China: The Role of Geography in China's Clean Coal Future

My research focuses on the characteristics of an optimal location for polygeneration from coal in China. Polygeneration is a gasification-based system capable of creating electricity, heat, liquid fuels, and hydrogen, while capturing carbon dioxide and reducing emissions of particulate matter, sulfur dioxide, and nitrous oxides. The integrated concept supports China's sustainable development goals and the government's Three E's strategy of economic development, energy security and environmental protection. Determining the optimal location for a polygeneration plant involves several important geographical factors. These include the composition and distribution of coal resources, competing pressures on water resources, distance from population and industrial centers, and regional development trends. I will evaluate how these factors may influence the development of polygeneration from coal in China.

Keywords: China, energy, coal, development, economic geography

Alan Nash, Concordia University, Montreal, Concordia University. Email: nash@alcor.concordia.ca; "From Spaghetti to Sushi": ethnic restaurants in Montreal, 1951-2001

This paper explores some geographic issues raised by the development of ethnic restaurants in Montreal, 1951-2001, in the context of a growing body of theory concerning the phenomenon. It disputes the argument advanced by Wilbur Zelinsky that "there is usually at best only a weak relationship between the geographic pattern of a given cuisine and that of the related immigrant

stock" in a metropolitan area (Geoforum 1985). The paper thereby also takes issue with an alternative explanation presented in a 2004 study by Rhona Richman Kenneally in which she identifies the city's world's fair (Expo '67) as the beginning of an accelerating fashion for ethnic cuisines in the city. On the basis of evidence derived from an analysis of Montreal's Yellow Pages from 1951 to 2001, this paper argues that immigration remains the single best explanation for the major trends in both number and type of ethnic restaurants. The paper concludes that theorists have so far largely ignored the wider social and economic roles played ethnic restaurants, and that we need to consider their importance in family employment strategies and the like if we are fully to understand the phenomenon.

Keywords: ethnic restaurants, Montreal

Catherine Jean Nash, Brock University. Email: Catherine.Nash@Brocku.ca; Transforming the 'gaybourhood': Trans politics, FtMs and the transformation of space

Gay and lesbian urban neighbourhoods provide important political, social and economic support for gay and lesbian activism and various forms of social interaction. Dissident sexualities and gendered practices, tentatively captured under the term 'queer', have also found some elemental acceptance in these urban spaces. Nevertheless, unstable and fluid queer expressions increasingly test homonormative identity politics and trouble the historically essentialized quality of gay and lesbian urban areas. This paper examines the experiences of FtMs or trans-men in Toronto's well-established and long-standing gay and lesbian district. FtMs, in their multiple masculine practices, bring new social and political effects to lesbian, queer and gay male spaces in distinctly disconcerting ways. In particular, the research argues that FtM embodied presences and practices radically undermines and disassembles the stable fixity of Toronto's 'gaybourhood' and intentionally seeks to confront not only homonormative but queer renderings of sexualized and gendered behaviours and practices. Not only are the homonormative underpinnings of gay and lesbian identity and space increasingly troubled by the presence of queer and trans bodies, but new, distinct and alternative queer and trans spaces are emerging to challenge the gay village's hegemonic positioning as the location of sexual liberation and critique.

Keywords: Sexuality; transgender, queer theory, trans studies.

David J. Nash, School of the Environment, University of Brighton, UK. Email: d.j.nash@bton.ac.uk; Stefan W. Grab, School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, South Africa. Email: grabs@geoarc.wits.ac.za; "A Sky of Brass and Burning Winds": Documentary Evidence of Climate Variability in the Kingdom of Lesotho, Southern Africa, 1825-1900

This paper presents the first 19th century climate history for Lesotho derived from documentary evidence. The primary data sources were unpublished English-, French- and Sesotho-language materials archived in Lesotho, South Africa and the UK. These included letters, journals and reports written by missionaries and colonial authorities, which were supplemented by published newspapers, diaries, travelogues and other historical sources. Each of the sources was read in chronological order, with any climate information recorded verbatim. This included details of catastrophic events such as droughts, floods or snowstorms, general observations of weather, and indirect evidence of climatic variability such as harvest failure and river levels. Annual records for specific locations were then classified into five categories (Very Wet, Relatively Wet, 'Normal', Relatively Dry, and Very Dry) based upon the predominant climate during each 'rain-year' (July to June). The latter portion of this chronology was then compared for accuracy against precipitation records from 1887 onwards. The results yield a semi-continuous record of climate information from the early 1830s (following the arrival of the first French missionaries) to 1900. Prior to this, observations are more sporadic. Data are mostly restricted to lowland areas, but reveal several drought episodes (the most severe of which occurred in 1850-52 and 1862-63) and major wet periods or floods (e.g. 1890-91). Phenomena such as heavy snowfalls, severe frosts and tornadoes are also reported. The climate chronology is compared with similar records for South Africa and Botswana, and forcing mechanisms such as teleconnections associated with the El Niño Southern Oscillation considered.

Keywords: historical geography; nineteenth century; Lesotho; climate variability; El Niño-Southern Oscillation

Katherine Nashleanas, Ph.D., University of Nebraska-Lincoln. Email: knashleanas2@unl.edu; Metageographic Communities: A Model of Non-linear and Multi-scaled Communications Systems

The changing nature of digital face-to-face communication specifically, and the diffusion of flexible personal media more generally, has lead to a paradoxical expansion of the immediacy of the intimate and local over greater distances. Social systems traditionally create communities that extend across relational space and build multi-scalar systems of connectivity through a variety of

communications technologies. Systems of communications can facilitate these spatially complex communities of individuals, enclaves, and cores composed of multiple locations that connect over time and space. These systems are more deeply structural than are the networks and nodes of connectivity built from them. Because such systems are dispersed over distance and do not conform to traditional patterns of spatial clustering, we need new tools and models with which to bring them into focus and make them visible. I have developed a theoretical construct I call a Metageographic Community (MGC) that captures these phenomena and have created a working model by which we can map and analyze their spatial dynamics. Metageographic communities are composed of four interconnected but non-linear levels. They use the intensities and frequencies of interaction at multiple scales through flexible personal and mediated ties that lead to new ways of manipulating space using distance as a tool to facilitate community identification and efficacy. Multiple belonging is a result, transnationalism is a result, regional integration and globalization are results, - terrorist cells are a result — of communications technologies and their networks of practice embedded in systems of deeper social, political, economic, and technological structure.

Keywords: Communications systems, spatial model, transnationalism, multi-scaled systems, metageographic community, community model.

Anthony T. Nasuta, Kent State University. Email: anasuta@kent.edu; *In Spite of Themselves*

On state and private campuses across America, the classroom environment shifts away from passive, institutional instruction as technology augments and even displaces the authority of a single lecturer. Students believe they are entitled to a dynamic educational experience not bound by textbook and teacher. However, smaller budgets and mandates to serve non-traditional students preserve traditional, passive instruction in many secondary programs (branch campuses, vocational and for-profit schools), to the detriment of students and faculty. Reviewing seven years of teaching at two state universities, several branch campuses, and a for-profit vocational school offering an associates degree, I describe several unsettling contrasts between students at mainstream campuses and those in secondary programs catering to non-traditional students. Those in secondary programs generally are of a lower socioeconomic rank, can be defined as socially and educationally disadvantaged, and lack confidence in their abilities, even their right to an education. To engage them in the classroom, Geography is stripped to its essentials and reassembled in structured, approachable units heavily informed by local, real-world examples stressing gainful applications of Geography to everyday situations. A substantial part of the curriculum includes basic study skills, organizational exercises, and confidence-building assignments to prevent students from dropping out of the learning process. The instructor is still the center of the learning experience in most non-traditional Geography classrooms, I share a narrative of efforts to empower these students through the use of technology and “edutainment”, and transform their expectations of classroom learning from the passive to the active pursuit of knowledge.

Keywords: Geography-education, Education-non-traditional, Edutainment, Education-technology

Daniel Naud, INRS-UCS (University of Quebec). Email: Daniel.naud@ucs.inrs.ca; Philippe Apparicio, INRS-UCS (University of Quebec). Email: philippe_apparicio@ucs.inrs.ca; Richard Shearmur, INRS-UCS (University of Quebec). Email: Richard.Shearmur@ucs.inrs.ca; *The evolution of jobs' and workers' spatial distribution in the business service industries, in Montreal, between 1996 and 2001*

While we may know about location of jobs and workers of the knowledge economy on a national scale, much less attention has been devoted to their geography on a metropolitan scale. With a case study of the metropolitan area of Montreal, between 1996 and 2001, we analyze the spatial distribution - and its evolution? of the business service industries' workers at homeplace and workplace. We focus on this industrial sector partly because of its connexion to the knowledge economy, partly because it was subject to a strong growth in that period (49 970 news jobs, an increase of 41%). The impact of this growth on employment centers and labour pools can lead to a consolidation of the existing ones, to the development of new ones or to the occurrence of both phenomena. From this new structure emerges a new jobs-housing balance which we analyse. To analyze and compare spatial distribution of business service industries' workers at home and work places, we calculate several segregation indices grouped into five classic dimensions (evenness, exposure, concentration, spatial clustering, centralization). This segregation analysis allows us to characterise both home and work places as segregated. Then, we identify locally, using GIS, business service industries' employment centers with a trial-and-error method. We also explore the possibility of identifying labour pools within the business service industries. By observing the consolidation and development of employment centers and labour pools, our analyses contribute to the understand-

ing of the evolution of the jobs-housing balance within a particular industrial sector.

Keywords: Montreal, jobs-housing, workplace, homeplace, spatial distribution

Lisa Naughton, PhD, University of Wisconsin. Email: naughton@geography.wisc.edu; Dawn Day Biehler, University of Wisconsin. Email: dbiehler@students.wisc.edu; *Wildlife Conservation and Moral Authority Over Nature: When Wolves and Dogs Misbehave*

We review the history of public interpretations of ‘criminal acts’ by canids, from housepets to wolves. We examine legal discourse from the U.K and U.S. dating back to 1700 concerning canid conflicts stemming from bites, attacks and depredations. By studying how blame is assigned for these events, we trace shifts and persistent themes about human responsibility for animal ‘misbehavior’. We posit that people’s reactions to attacks on livestock and pets by wolves are refracted through their intense feelings about dogs as well as by conventional norms assigning responsibility for dogs to their owners. Specifically, we identify three factors shaping liability for dogs and wolves: 1) ‘guilty’ knowledge regarding an animal’s propensity to do harm, 2) technological capacity to control animal behavior, and 3) property claims (to both land and animals). Our findings illuminate the moral dilemmas regarding wildlife management in humanized landscapes. The Endangered Species Act has been necessary for wolf recovery but its emphasis on federal responsibility has heightened public expectations that government agencies assume liability for wolves and control their movements, just as individual citizens are legally accountable for the behavior of their dogs. At its core, we offer an example of the troubling efforts to compartmentalize control of wild nature. Because the costs of conserving large carnivores are localized and benefits diffuse, moral rights of individuals at risk of loss are primary in most control and compensation schemes. Treating wolves like “federal dogs” may be politically necessary, but it impedes the long-term integration of people and nature.

Keywords: wildlife, Endangered Species Act, compensation, domestication, pets

Lisa Naughton, Department of Geography, University of Wisconsin. Email: naughton@geography.wisc.edu; *Deforestation in western Uganda: Biodiversity and Human Welfare Concerns*

Field data linked to satellite imagery analysis illuminates the causes and consequences of deforestation in western Uganda during 1995-2005. Specifically, this study investigates how urban demand for biomass energy, uncertain access rules to land and forests, and the rapid expansion of tea cultivation drive rapid forest loss. Longitudinal survey data from 220 households living within 5 km of Kibale Forest National Park illuminates the connections between deforestation and poverty. While the majority of households have improved their incomes over the past 10 years, the lower quintile has slid into deeper poverty. These very poor households are most reliant on communal forest patches and consequently they are most at risk when forest patches are converted to agriculture or eucalyptus plantations. Comparing human welfare indicators for households neighboring Kibale Park versus those more distant reveals that the park is not a ‘poverty trap’. Rather it may be buffering the very poor among neighboring communities from the subsistence crises experienced by their counterparts in the broader landscape.

Keywords: biodiversity, poverty, development, land cover change, national parks

Anoop Nayak, . Email: anoop.nayak@ncl.ac.uk; *Bodies out of Place: Race, Migration and Asylum in the Global City*

This paper examines the complex articulation of race and migration in the light of urban unrest in Britain in 2001 and the aftermath of the London bombings in 2005. It considers the contradictory ways in which the nation-state is being re-imagined in New Labour policy and contrasts this with the lived testimonies of young ethnic minority subjects, asylum-seekers and refugees. A key fault-line identified in political rhetoric is the tension between citizenship and difference. In so doing the paper argues that the utopian ideal of cosmopolitan citizenship remains far removed from the prosaic struggles of young ethnic minorities residing in working-class neighbourhoods whose lives are mapped through stark monochrome geographies of race. The paper concludes that asylum-seekers and minorities are better conceived of as ‘bodies out of place’ - dark matter that is challenging claims to whiteness, Britishness and the nation state.

Keywords: asylum, Britishness, ethnicity, globalization, migration, youth

Shawn Shahriar Nayeri, Indiana University-Purdue University Indianapolis (IUPUI), Geography Department. Email: snayeri@iupui.edu; *The Caspian Sea Prospects: Security, Energy, and Water Politics*

The fate of countries in the Caspian Sea region is linked to the region's energy development and their strategic location for exporting oil and natural gas to Europe and other destinations. The multiple pipeline policy has presented the Caucasus region a great opportunity to progress with transformation towards economic stability and democratic processes, while attracting international investments. Security issues and protection of the region's water and natural resources have become urgent matters. The Baku-Tbilisi-Ceyhan pipeline was completed in July of 2006 by a consortium of oil companies led by British Petroleum, despite strong objections by World Wildlife Fund and Amnesty International. Rise of pollution in water resources and threats of oil spills are the environmental concerns, especially in the conflict zones and ecologically sensitive areas. Pipeline projects for the Caspian Sea and Central Asia regions have received strong support of the western nations as they provide greater measure of sovereignty, while encouraging democratic trends, improvement of relations with Islamic countries, and diversification of global energy source outside the Persian Gulf. This research investigates the causes that could potentially weaken the ability of the regional states to establish security. While exploring the relationship between environmental issues and socio-economic stability, those causes are identified and evaluated based on conflicting values of the regional and the powerful industrialized countries. Understanding the larger policy objectives for the region's security issues based on multiple perspectives, in the light of its immense energy reserves and water resources, are found paramount when dealing with Caspian Sea region.

Keywords: Caspian Sea, Central Asia, Pipeline Policy, Energy security, Environment, Political, economic geography, Environmental geography, Baku-Tbilisi-Ceyhan, exporting oil, exporting natural gas, Persian Gulf, British Petroleum, World Wildlife Fund, Amnesty International, water resources, caucasus region,

Laura T. Neal, University of North Carolina Wilmington. Email: ltn9781@uncw.edu; Michael M. Benedetti, University Of North Carolina Wilmington. Email: benedettim@uncw.edu; *Streamflow response to tropical and extra-tropical storm systems on the Carolina coastal plain.*

Frequency analysis of streamflow assumes that flood magnitude can be treated as a random variable drawn from a population with a known probability distribution (log normal, Gumbel, log Pearson, etc). This assumption may be false in watersheds where floods are generated by distinct hydrologic processes, for example in cool temperate watersheds where separate flood populations are caused by rainfall and snowmelt. The present study demonstrates significant differences between floods generated by tropical and extra-tropical storm systems for 4 medium-sized rivers (1,700-3,200 sq. km.) in North and South Carolina. Late summer and early autumn floods on these rivers are generated by tropical depressions, tropical storms, and hurricanes. Winter and spring floods are generated by frontal precipitation associated with passing wave cyclones. Winter floods are about twice as common as summer floods in the annual flood series of these rivers, but in most cases the largest floods on record were generated by tropical systems. Summer floods are generated by precipitation of greater intensity and duration, but are preceded by warm weather and lower baseflow conditions. Winter floods are associated with greater duration, longer basin lag, and greater water yield, reflecting the moderate intensity and large spatial coverage of frontal storm systems. The frequency distributions for summer floods show significantly lower mean and modal peak discharge, with much greater variance, skewness, and kurtosis than the winter flood distributions. Therefore, although summer floods are less frequent than winter floods, they strongly influence the parameters used in flood frequency prediction methods.

Keywords: floods, hydroclimatology, South Carolina, North Carolina

Abigail H Neely, University of Wisconsin - Madison. Email: aneely@wisc.edu; *A Place-Based Approach for Understanding Infectious Disease and Environmental Change*

Throughout Sub-Saharan Africa HIV/AIDS is affecting both individuals and landscapes through complex feedback loops. While many experts have recognized the enormous toll that HIV/AIDS is taking on both human life and society in general, few scholars are addressing the environmental effects of the virus. This paper proposes the use of a "place-based" approach for understanding how infectious diseases interact with the biophysical environment through their human hosts. A place-based approach provides a framework for including a number of both human and environmental factors like labor migration, gender relations, uneven access to biomedicine, disease history, and the environmental histories of climate, flora, fauna, agriculture, and conservation. Furthermore, focusing on a single place offers a useful framework for explaining how microbial, individual, household, local, national, and global forces become inscribed in landscapes through sick bodies and in bodies through changing landscapes. This

paper will use the example of a single place - the Ingwavuma District of KwaZulu-Natal, South Africa ? to show how a place-based approach can shed new light on the historical and present relationship between ecology and disease.

Keywords: HIV/AIDS, environmental change, disease, place

Neeti Neeti, Clark University, MA. Email: neeti77@gmail.com; *Uncertainty in prediction of land change under different scenarios*

This paper demonstrates a technique to compare different scenarios produced by models of future land-use change in a manner that considers the certainty of the model. Scientists usually want to use models to examine various possible scenarios where each scenario reflects a different process of change over time. This paper compares two such scenarios for the Plum Island Ecosystems in northeastern Massachusetts, which is a Long Term Ecological Research site of the United States' National Science Foundation. One is a "business-as-usual" scenario based on the continuation of past trends of net forest loss. The alternate scenario has been generated to portray net forest gain. The paper uses the model Geomod to extrapolate forest change from 1999 to 2097. The certainty of Geomod is estimated based on measurement of a validation run from 1985 to 1999. I have used different model parameters to project the forest change in the alternative scenario. The method assumes that the certainty of both scenarios decays asymptotically to randomness over time. The rate of exponential decay for both the "business-as-usual" and the alternative scenarios is consistent with the measurement from the validation run. The study provides an estimate how far into future can the model be relied upon to distinguish between scenarios. This paper proposes that long-term prediction uncertainty in the model would render the two scenarios indistinguishable in the far future, although there are meaningful differences between scenarios in the short time frame.

Keywords: Accuracy, landcover, prediction, uncertainty, validation

Robert J. Neff, Ph.D, UMBC (University of Maryland, Baltimore County). Email: neff@umbc.edu; *Vulnerability to climate variation and change in Baltimore, MD: Research approach, preliminary findings, and future directions*

Vulnerability to climate variation and change varies across time and space. This simple fact has profound implications for studies that attempt to monitor vulnerabilities long-term in a way that is comparable to other study areas. Not only must research approaches be broad enough to encompass a collection of biophysically and socio-economically diverse places - they also must be specific enough to ensure that important components of local context and place-specific conditions and processes that contribute to or mitigate vulnerabilities are included in the analyses. Further, vulnerability frameworks must recognize that study areas can change quickly, and the vulnerability frameworks applied today need to enable research that will be comparable to future research within the same study area under potentially drastically different biophysical and social regimes. This paper describes an evolving research framework for understanding vulnerability that has been tested in previous research and is being applied to the Baltimore Metropolitan Area as part of research being conducted by the Baltimore Ecosystem Study (BES) Long-Term Ecological Research (LTER) site. Particular attention will be paid to applying mixed methods to investigating vulnerability holistic, and in a way that is comparable over space and time. Preliminary findings focused on the vulnerability to drought and flooding will be presented, and directions for future research will be discussed. In addition, results from past research in other study sites will be compared to preliminary findings from Baltimore to demonstrate the comparability of results across multiple and diverse study areas.

Keywords: Baltimore, Vulnerability, Drought, Floods

Rohit Negi, The Ohio State University. Email: rohitnnn@yahoo.com; *(Re) Negotiating the Postcolonial State in Zambia: chiefs, subjects and the politics of land*

Most research on the contemporary Sub-Saharan state does not consider its bifurcated nature. This is despite the fact that as far as land ownership and governance are concerned, most countries exhibit a legal and administrative dualism. On the one hand, albeit limited in reach, land is governed through private property rights. On the other, the bulk of the land is under the custodianship of so-called 'traditional rulers' or the chieftaincy. The two models of land ownership and governance enjoy a complex history of interrelation and conflict. However, particularly acute antagonisms have emerged recently due to the neoliberalizing strategies of the Zambian state. This project is an attempt to make sense of this dilemma through an ethnographic engagement on three fronts: the local state; the chieftaincy; and the peasantry. I explore this question: What, precisely, are the dynamics of the emerging relationship between the chiefs and the neoliberal state on the one hand, and the chiefs and their 'subjects' on the other?

Keywords: state, zambia, africa, land conflict

Christopher S.R. Neigh, University of Maryland - College Park, NASA GSFC. Email: neigh@gsfc.nasa.gov; G James Collatz, NASA GSFC. Email: collatz@biome2.gsfc.nasa.gov; Compton J Tucker, NASA GSFC. Email: compton@ltpmail.gsfc.nasa.gov; John RG Townshend, University of Maryland - College Park. Email: jtownshe@mail.umd.edu; *Quantifying Carbon Consequences of Human and Natural Disturbances to Ecosystems in North America*

Accumulating levels of carbon dioxide in our atmosphere are projected to have detrimental climate change consequences. Humans have altered the global carbon cycle through fossil fuel burning, and modification to land cover. Our study decomposed differences of human and natural impacts to carbon sinks in North American vegetation to characterize mechanisms that regulate net storage and/or releases on short temporal and small spatial scales over the past 30+ years. We used remote sensing data and carbon simulation modeling, to seek and understand mechanisms that drove and/or perturbed carbon sequestration within the terrestrial biosphere from 1982-2005. To focus our investigation we used NDVI anomalies from AVHRR to: 1) Define large regions of natural and human disturbances that have affected the carbon balance; 2) Determine the causes of these natural and anthropogenic disturbances and map their associated land cover characteristics with Landsat data; 3) Quantify carbon consequences associated with these disturbances with specific land cover results using biogeochemistry simulation modeling. We found natural climate variability of warming temperatures in the Arctic and drought recovery in the Midwest which both had increasing net primary productivity (NPP). Land cover disturbances included natural vegetation recovery from fire in the boreal zone of the Canadian Prairie Provinces. Human alterations included salvage logging from an extensive outbreak of insects in Southern Quebec and agriculture expansion and intensification in the Midwest of the Continental US. All regions investigated had increased NPP, with unique net ecosystem production (NEP) dynamics. Carbon pools duration and size were directly related ecosystem disturbance.

Keywords: Disturbance, Ecosystems, North America, Carbon, Modeling

Benjamin D. Neimark, Rutgers, State University of New Jersey. Email: bneimark@eden.rutgers.edu; *The biological prospecting filière: Political ecology of access and extraction in Madagascar*

Research on cultural knowledge concerning the use of flora and fauna for medicinal and functional purposes has long been the realm of the social scientist. More recently, scientists, including systematic and economic botanists, phytotaxonomists and chemists have begun collecting, storing and appropriating biological resources and ethnobotanical knowledge under the domain of scientific inquiry and the preservation of "common heritage." The knowledge, found within botanical surveys, market studies and interviews with "medicine men," helps to provide leads to those in the Life Science Industries (i.e., pharmaceutical, cosmetics and biotechnology) for the advent of novel pharmaceuticals, nutraceuticals, cosmeceuticals and improved industrial products found within the bio-resource. This use of this ethnobotanical information and the collection of the associated resource for commercialization is a practice known as biological prospecting (bioprospecting for short). However, since its inception, bioprospecting has been wrought with claims of "biological piracy," and raises a number of ethical issues concerning the practice. I build on a 14-month case study of the global filière or commodity chain of genetic and biological resources extracted for new pharmaceuticals and industrial products. This study traces the circulation of these resources from the island nation of Madagascar to large-scale pharmaceutical and chemical companies and research laboratories in the US and Europe. I highlight how current conservation and development policy in Madagascar allows research scientists and plant exporting companies to overcome the social, spatial and regulatory obstacles in the bioprospecting filière, and thus acquire, control and maintain the lion's share of benefits derived from the project.

Keywords: political, ecology, bioprospecting, Madagascar

M. Duane Nellis, Kansas State University. Email: provost.nellis@ksu.edu; James W. Harrington, University of Washington. Email: jwh@u.washington.edu; *Maintaining Effective Relationships With Deans and Upper Administration*

As a department head, it is essential to maintain effective relationships with key administrators outside your department. Such relationships are based on different modes or frameworks of interaction. Within these styles of interaction, we will discuss key principles for effective leadership communication, and give examples of why such principles are important for your department's success.

Keywords: department chair

Alyssa A Nelson, University of California, Davis. Email: aanelson@ucdavis.edu; Ricardo Hernández, Community Member. Email: ; *Community Mural, Geographic Storytelling*

This case study demonstrates how a community mural can draw on and contribute to geographic knowledge, in both community and academic settings. The mural's participatory creative process emphasized the transformative power of community murals to effect positive change by bringing people together and eliciting their personal stories. Nelson and youth, including Hernández, researched the community, wrote grants, and planned and executed the mural with the help of artist Alicia Siu. Participatory research included a survey, interviews, conversations, texts, photography, drawing, and writing. Even while we painted, community members' stories continued to influence the design. As a representation of community narratives, the mural also becomes a narrative in itself. Thus, both the process and product reflect (and create) place-based identities. The 80 by 8-foot community mural is painted on a market beside the highway through Knights Landing, a small, rural California town (USA). Funded in part by the California Council for the Humanities' "Story Fund," the mural integrates past and present with visions of the future through imagery: local people, plants, animals, landmarks, and landscape such as the river and agricultural fields reflect the stories we heard. Youth are depicted playing, making music and art, learning, graduating, and helping each other to "Rise Up!"; this exhortation is written graffiti-style as well as illustrated by water-blue River People bursting through scenes of a conflicted past. A suggested title, "Listen: We and the River Have Stories to Tell," highlights the importance of local knowledges and creative expression in participatory geographic inquiry.

Keywords: activist geography, applied geography, art, community murals, cultural geography, environmental geography, identity, inquiry, Knights Landing, murals, participatory research, place, qualitative research, storytelling, youth

David M. Nelson, Arizona State University. Email: David.Nelson2@asu.edu; *Automated Classification of Urban Environments from Satellite Images*

The goal of this research is to devise an automated, or partially-supervised, classification method that processes satellite images for a large number of urban environments (UE) and several different imaging dates per UE. Because UE are growing more rapidly than ever, it is important to monitor their rates of growth and the resultant changes in land use/land cover. I suggest the use of multi-scaled images and incorporation of site-specific features in the classification would enhance accuracy and expedite this process. First, low resolution (100m - 500m) images are used to isolate UE (e.g., Level 1 classification using Maximum Likelihood). The resulting non-urban classes are then used to mask higher resolution images, limiting further processing to only UE. Next, classification within the UE identifies areas experiencing change/growth. User determination of the following four environmental conditions for each UE enables a more accurate, second-stage, automated 2nd-3rd level classification. 1) City pattern establishes the texture model used for a grid, radial/concentric, or unstructured UE. 2) Climate (e.g., arid, semi-arid, temperate, wet) of the UE determines the use/interpretation of a Normalized Difference Vegetation Index (NDVI). 3) Terrain assessment of natural barriers (e.g., valley, plains, coastal, wetlands, mountainous) is used to delineate potential, or indicate absent, growth boundaries. 4) Configuration of the commercial/residential areas in UE modifies the use of texture and NDVI models. In some UE, residential areas are separate from commercial/industrial centers, whereas in others residences and industry are fully integrated and are better classified as high or low density areas.

Keywords: Urban, Remote Sensing

Frederick E. Nelson, University of Delaware. Email: fnelson@udel.edu; Michael T. Walegur, University of Delaware. Email: walegur@udel.edu; Kim J. Park Nelson, University of Minnesota. Email: gregg0051@umn.edu; *Periglacial Appalachia: Paleoclimatic and Geocryological Implications of Blockfield Elevation Gradients, Eastern U.S.A.*

Locational data were obtained for 96 periglacial blockfields in the Appalachian Mountains of eastern USA using "TerraServer," a Virtual Globes (VGs) resource for viewing air-photo and satellite imagery. The elevation of Appalachian blockfields south of the Last Glacial Maximum border parallels regional gradients of contemporary mean July, summer, and annual temperature. July temperature reductions inferred from paleoecological studies indicate that the median elevation of blockfields throughout the Appalachians lay at or above timberline during the Last Glacial Maximum (LGM). Paleotemperatures calculated using known Appalachian lapse rates and published LGM temperature departures indicate that most blockfields in the study area were formed in association with permafrost. Allochthonous blockfields appear to be constituent elements of periglacial "form communities" developed under severely cold conditions, and are useful indicators of Pleistocene permafrost conditions. Internet-based VGs can be used to create generalized reconnaissance-level data bases of large-scale periglacial landforms and hillslope features over large areas.

Complementary use of Virtual Globes technology and spatial-analytic techniques holds considerable potential for addressing the broad-scale problems with which traditional climatic geomorphology is concerned.

Keywords: Appalachian Mountains, blockfield, periglacial, permafrost, Quaternary, Virtual Globes

Ingrid L. Nelson, University of Oregon. Email: inelson1@uoregon.edu; Participatory GIS: possibilities and limitations in Mozambique

Participatory GIS approaches are still largely built upon notions of public process and participation prevalent in the global North. What are the potentials and limitations of participatory GIS methods “traveling” into non-western and “underdeveloped” contexts? The 1997 Land Law in Mozambique initiated a process of participatory community land registration. Land registration and participatory GIS remain inextricably linked because community land rights, once delimited, are seen by development organizations as enabling further community-led projects requiring participatory GIS (such as community-based natural resource management). Based on research conducted in 2006 that explored institutions using GIS in Mozambique, I found a deep chasm between top down technocratic GIS institutions and communities engaged in usufruct land rights mapping. Given the progressive and participatory nature of the 1997 Land Law, and the concurrent expansion of GIS technologies in Mozambique, this paper explores how critical GIS and innovative participatory GIS methodologies might successfully bridge this gap.

Keywords: critical GIS, land rights, Mozambique, participatory GIS

Peter B. Nelson, Middlebury College. Email: pbnelson@middlebury.edu; Baby boomer migration and rural community change: reflections from the field

Aging baby boomers have attracted considerable attention from the news media, academics, and policy makers alike. Their retirement-related migration is of particular interest to geographers, as the nearly 80 million baby boomers will make an estimated 250 million moves over the next 20 years. Research conducted at the macro scale has identified the types of communities likely to become destinations for these mobile boomers, and this paper extends the existing body of work on baby boomer migration by exploring micro-scale impacts on receiving communities. A series of four in-depth community case studies conducted between 2005 and 2006 suggests baby boomer migration will significantly transform the economic, social, and cultural landscapes within destination communities. More significantly, the field work analysis suggests 1) the temporal process of migration may be protracted over many years; 2) the spatial scale of migrant impacts is highly localized; and, 3) retirement and its relation to migration decision making is not a discreet event. Therefore, insights from this field work identify several ways in which our age-specific understandings of migration contribute to on-going theorizations of migration as a spatial and temporal process.

Keywords: rural migration, community change, baby boom

Sara Nelson, Macalester College. Email: saranelson1@gmail.com; Farming on the Fringes: Changes in Agriculture, Livelihoods and Land Use in the Peri-Urban Zone of Dar es Salaam, Tanzania

Agriculture is a central part of Tanzania's economy. Both within Dar es Salaam, its primate city, and in the city's peri-urban zone, agriculture is an important part of the livelihood strategy for people of all social classes. However, because the peri-urban zone is one of transition from urban to rural, it tends to undergo more pronounced changes in land use over time than do the city and rural area it borders. This paper examines the ways in which larger political and economic forces within and outside of Tanzania have influenced change in agricultural land use within the peri-urban zone of Dar es Salaam since Tanzania's transition from socialism to a market economy. Based on fieldwork conducted in three villages within the peri-urban zone of Dar es Salaam and a review of existing literature on the topic, this paper argues that not only has the nature and function of agriculture changed markedly with economic reform in Tanzania, but that these changes vary spatially and with social class. The development of a large informal land market and widespread land speculation within the peri-urban zone have altered who practices agriculture and for what purpose.

Keywords: agriculture, peri-urban, Tanzania

Stephanie Nelson, University of North Carolina, Chapel Hill. Email: nelsonsc@email.unc.edu; Reconstructing Disaster Areas through Development Aid: The case of Phang Nga, Thailand

The Indian Ocean tsunami of December 2004 reconstructed not only the physical landscape of coastal Thailand but opened the door to an overhaul of the social and economic landscape as well. Referred to as the “second tsunami”, development aid rushed in accompanied by different approaches to disaster recovery. The Phang Nga province, a relatively new tourist destination, was the hardest hit area in Thailand in reference to loss of life and property damage. The landscape is now littered with development projects in varying stages of

completion. Analysis of published surveys of 98 aid agencies out of the 172 in the province suggest that aid agencies are overwhelmingly providing aid that leads to new livelihoods in the tourist sector. Initial conclusions point to the transformation of place through disaster recovery as a vehicle to implement new development agendas.

Keywords: development aid, tourism, livelihoods

Trisalyn Nelson, University of Victoria. Email: trisalyn@uvic.ca; Dave Duffus, University of Victoria. Email: dduffus@office.geog.uvic.ca; Colin Robertson, University of Victoria. Email: colinr23@gmail.com; Laura Feyrer, University of Victoria. Email: ljfeyrer@uvic.ca; The space-time string: a spatial-temporal exploration of the foraging range of gray whales

In this paper we develop and demonstrate a flexible approach to spatial-temporal analysis. The space-time string (STS) method is founded on the conceptual notion that the state of a spatial pattern may be persistent or variable through time, and that the nature of variability is, at least in part, a result of the underlying process. For fixed locations, the state of a spatial pattern is quantified using a one dimensional binary string. At each position in the string, a 1 indicates the presence of a signal (or significant) spatial pattern and 0 indicates a non-signal spatial pattern in a given time period. String properties, such as the number of changes in spatial pattern state, can be summarized to quantify the temporal characteristics of the spatial pattern of a phenomenon. We apply the STS method to nine consecutive years of gray whale (*Eschrichtius robustus*) foraging data to explore temporal variability in the annual spatial distribution of whale foraging effort. We cast the whales' inter-annual spatial behaviour and the prey response into one of two possible theoretical camps, either in an equilibrium arrangement, or a severe disturbance event with several possible conclusions.

Keywords: spatial-temporal patterns, whale foraging, home range, kernel density estimation, visualization, exploratory analysis

Velvet Nelson, Sam Houston State University. Email: vnelson@shsu.edu; The Visual Landscape in British West Indies Travel Narratives, 1815-1914

The role of vision in travel and tourism holds an interesting, and sometimes controversial position. Travelers and tourists are necessarily outsiders in relation to the landscape. They do not have the many associations and meanings that the landscape holds for those who interact with it in their daily life. Outsiders have a different relationship with landscape. They are likely to have an idea of the landscape in their minds, based on preconceptions from representations and ideals, but their first impressions are almost entirely based on vision. This paper is based on a case study of 19th and early 20th century travel to the Caribbean. Travelers at this time approached the islands from the sea. From the ship, they formed an impression of the harbor as well as the island's character and landscape. Travelers who explored the islands then had an opportunity to revise these initial impressions as necessary and refine them, giving them ever greater detail. Given the popularity of travel writing at the time, many travelers provided in-depth descriptions of these landscapes and their landscape experiences that essentially painted a verbal picture of the landscape in their narrative. Using a method of coding, I determined that travelers' descriptions of the landscape in the British West Indies were made up of four broad, interrelated components: features of the landscape, qualification of the landscape features, comparisons to other landscapes or landscape ideals, and reactions to the landscape.

Keywords: Caribbean, landscape, tourism, travel writing, historical geography

Jeremy Nemeth, Rutgers University. Email: jnemeth@eden.rutgers.edu; An Empirical Assessment of Urban Design Quality and Public Space Security

As urban planners have been reduced to using exactions and providing incentives to developers in order to achieve public goals, cities have witnessed a proliferation in privately owned parks and plazas. While creating publicly accessible space where there was none before, these spaces are often criticized for restricting social interaction, constraining individual liberties, and excluding certain undesirable populations. Yet few studies have empirically tested such assertions over a wide range of cases or documented the variation within this universe of privately owned spaces. One reason for this dearth of pragmatic research is the absence of an adequate tool with which to conduct such an analysis. I address this oversight by operationalizing a comprehensive, conceptually-grounded tool to allow researchers, city officials and citizens to empirically quantify the degree to which behavioral control is exerted over publicly accessible spaces. This “Control Index” is comprised of twenty indicators gauging everything from a space's legal or access restrictions to the intensity of surveillance and policing measures. I then apply the pilot-tested index to all 163 privately owned parks and plazas in midtown Manhattan, evaluating each with scores based on the presence and intensity of various security measures. The paper has two major findings. First, levels of restrictiveness are significantly correlated with a space's age, location, quality, and several other physical characteristics and design features. Second, and perhaps more importantly, the

index is a simple yet valuable tool for assessing control levels in both publicly and privately-owned spaces, and can be utilized in future studies.

Keywords: public space, security, New York, privatization

Sanjay K Nepal, Texas A&M University. Email: sknepal@tamu.edu; Tourism-induced rural energy consumption in Nepal's Annapurna Region

Analysis of energy dependency on fossil fuels in rural destinations is an important aspect of the discourse on sustainable tourism and global climate change. This paper analyzes energy consumption patterns in tourist lodges in Nepal's Annapurna region. Data on energy sources and energy-saving technologies were collected from tourist lodges located along three major trekking routes. Results indicate that primary energy sources include wood and kerosene, but the use of renewable energy and locally developed energy-saving technologies is increasing. Energy consumption patterns are influenced by altitude, accommodation capacity, energy cost, diversity of energy sources, access to energy-saving technologies, and institutional rules and regulations.

Keywords: rural energy, fossil fuels, renewable energy sources, Annapurna Conservation Area, Nepal.

Jacob Michael Ness, Geography, GISc Student, South Dakota State University. Email: jmness@jacks.sdstate.edu; David E. Clay, PHD, South Dakota State University, Plant Science Dept.. Email: david.clay@sdstate.edu; Cheryl Reese, MS, South Dakota State University, Plant Science Dept.. Email: cheryl.reese@sdstate.edu; Wheat Quality as Influenced by Cultural and Climatic Interactions

Quality is very important in the production of wheat. Differences in the characteristics of wheat flour determines its use, be it pasta, bread, and so forth. These differences also reflect a difference in price per bushel. Cultural practices and climate can have a large effect on the quality of wheat. These factors effect many different aspects of the wheat industry from the plants in the field to their final products in the market. In this study different varieties of winter and spring wheat, geographical location, and historical wheat data are taken into consideration. Data collection is primarily done through soil and grain samples, and weather stations. Geostatistical analysis is the primary tool used for data analysis and display. This project is supported from the South Dakota Wheat Commission.

Keywords: Wheat, flour, cultural, climate, geostatistical analysis, historical

Amy L Neuenschwander, University of Texas at Austin. Email: amy@csr.utexas.edu; Kelley A Crews-Meyer, Dr., University of Texas at Austin. Email: kaem@uts.cc.utexas.edu; Assessing Temporal Dynamics Using Landsat TM/ETM+: Disturbance and Resilience in the Okavango Delta, Botswana

The objective of this research is to quantify the impact of flooding, fire, and their interaction on vegetation response through time in the Okavango Delta, Botswana. The Okavango Delta, an internationally recognized wetland, is undergoing natural and anthropogenic change at a variety of spatio-temporal scales. Using EVI as a surrogate for vegetation response, this research will investigate whether ecosystem signals derived from remotely sensed imagery can be decomposed deterministically and if the deviations from the decomposed signal are correlated with observed flooding and fire regimes. A time-series of 85 TM/ETM+ scenes ranging from April 1989 through October 2002 was used to extract the flooding and fire regimes in the Delta. Additionally, Enhanced Vegetation Index (EVI) values (with and without atmospheric correction) were calculated for each input image and sorted using an ISODATA classifier. Landscape trajectories comprised of mean EVI values were created for each temporally separate cluster on the landscape and are decomposed into permanent and transitory signals. Trends, annual and seasonal cycles, and long term oscillations were identified using wavelet analysis and then deterministically extracted using harmonic regression to characterize the permanent signal for each landscape cluster. In addition to seasonal and annual fluctuations, the vegetation response was also found to exhibit a long-term decadal trend. The combination of two harmonic fits largely defined by climatic periodicities (semi-annual, annual, and decadal) accounted for 71% - 88% of the variance in the trajectories, however the residual signals likely contain frequencies that are a combination of climate and anthropogenic effects.

Keywords: multi-temporal, Landsat, ecosystem resilience, disturbance, Okavango

Shana K Neumann, University of Wisconsin-Eau Claire. Email: neumansk@uwec.edu; Harry M Jol, University of Wisconsin-Eau Claire. Email: jolhm@uwec.edu; Three Dimensional Visualization and Analysis of an Eolian Dune

Three-dimensional (3D) ground penetrating radar (GPR) imaging can be utilized to understand the internal stratigraphy of eolian sand dunes. The 3D software allows for slices to be made in a data cube that can aid in showing

continuity of reflection patterns, as well as visualizing the internal stratigraphy from any perspective. Because the internal layering of an eolian sand dune is often exposed through coring or digging of trenches, GPR data collection can be beneficial since it allows the data to be collected in a non-invasive, non-destructive manner. A 3D grid was collected from a quartz arenite dune complex within the Early Jurassic Navajo Sandstone located in the Checkerboard Mesa area of Zion National Park, Utah. Using a pulseEKKO 1000 GPR system with an antenna frequency of 225 MHz, a 4 x 10m grid was collected. Data was plotted and processed using pulseEKKO software. A 3D cube was created using T3D which allowed for the depositional framework of stratigraphic units of interest to be visualized and interpreted. The findings showed a continuous, horizontal reflection at 90 ns (5m) and 200 ns (10.5m). The data also showed that the upper set of dipping reflections was inclined at an angle of 13-15° and the underlying dipping reflections were at an angle of 18-20°. Interpretations of the 3D cube suggest the inclined reflections are dune foresets and the horizontal reflections are erosional truncations formed by dune migration. Based on the 3D interpretations one can provide information on dune size, shape, and migratory patterns.

Keywords: geomorphology, ground penetrating radar

Bruce Newbold, McMaster University. Email: newbold@mcmaster.ca; Andrei Rogers, University of Colorado, Boulder. Email: Andrei.Rogers@colorado.edu; Wanran Ma, University of Colorado - Boulder. Email: Wanran.Ma@colorado.edu; James Raymer, University of Southampton. Email: raymer@socsci.soton.ac.uk; Indirect Estimates of Age-Specific Interregional Migration Flows in Canada

Building upon earlier work (Rogers et al. 2003; Rogers and Jordan 2004), we use data from the 1996 and 2001 Canadian censuses to estimate interregional migration flows based on infant migration propensities and observed regularities in the age-to-infant migration ratios. Infant migration refers to those who are 0-4 years old at the time of the census and living outside their region of birth. Given observed regularities in the age profiles of migration, levels of migration in this youngest age group must be related to migration levels in other age groups. Application suggests it is a robust method for estimation of migration flows.

Keywords: Canada, population estimation, census

David Newburn, Texas A&M. Email: danewburn@ag.tamu.edu; Adina Merenlender, University of California, Berkeley. Email: adina@nature.berkeley.edu; Spatially explicit models demonstrate the importance of preventing rural residential development and inform land conservation planning

Protecting biodiversity on private land in the United States requires immediate action to prevent low-density residential development on rural land. As regulatory options to prevent subdivision have become politically unpalatable, incentive-based land conservation tools such as conservation easements and transfer of development rights are being used to restrict development below zoned densities in unincorporated areas. We demonstrate how a combination of ecological and economic models provide the type of spatially explicit planning needed to maximize the conservation benefits of incentive-based programs while minimizing costs. Modeled scenarios reveal how and where land should be protected and where development should be encouraged. We also quantify the limited effect that urban growth boundaries, a popular planning tool to restrict urban sprawl, have on preventing rural residential development. The main reason is that urban growth boundaries are designed to limit the extension of sewer and water infrastructure, which are not required for low-density rural residential development. This work was done for Sonoma County, California where an intermix of vineyards and low-density residential development surround nine incorporated cities. This research emphasizes that coupling conservation planning with land use planning is essential for private land conservation in the United States.

Keywords: GIS, exurban, biodiversity, protected area planning

Josh Newell, University of Washington. Email: newell@u.washington.edu; Furniture, Self-Certification, and the Consumer Imaginary: Sourcing IKEA's Wood Supply in Siberia

In contrast to other global retailers such as Wal-Mart, academic and popular literature frequently cites as IKEA as a model corporate actor, with high standards of social and environmental responsibility. On paper, the company requires that all suppliers adhere to a four-step staircase model to steadily improve performance. Yet ? based on multi-sited fieldwork in Russia and China, including interviews with IKEA's Chinese suppliers ? a far different picture of this corporate giant emerges. Despite setting up a wood procurement office in Russia and making yearly audits of its suppliers, IKEA, like other global retailers, remains primarily concerned with the bottom-line. It pushes quality costs onto suppliers by demanding legally-sourced wood, yet refuses to pay a premium for FSC chain-of-custody certified Russian timber. IKEA requires Chinese suppliers

provide a Russian logging ticket to provide evidence of wood origin, yet Russian logs are unlabeled and hopelessly mixed with other logs supplies at numerous nodes along the timber chain. Interviews also revealed that Russian timber harvesters and exporters collude with corrupt government officials to fabricate documents certifying legality. As a result, IKEA standards have had very little direct influence in terms of improving Russian timber harvest practices. This raises broader questions about the ability of 'buyer-driven' commodity networks to reshape environmental governance, particularly in highly corrupt countries such as Russia. The research also reconfirms growing skepticism with corporate self-certification, which, left unchecked appears largely an exercise in green image-making ? corporate branding increasingly essential due to the rapidly emerging 'ethical' consumption movement.

Keywords: Commodity chains, ethical consumption, political ecology, Russia, China, Ikea

Candace M. Newman, PhD Candidate, University of Waterloo. Email: cmnewman@fes.uwaterloo.ca; *Integrating Remote Sensing and Contextual Information to Address Coastal Management Concerns: A Case Study of Bunaken National Park, Indonesia*

Coastal management faces major challenges in utilizing remotely-sensed information to address environmental issues that operate at multiple spatial and temporal scales. One of the more common and reoccurring challenges is how to merge digital, image-based data with local, contextual information. For example, how can local concerns for a specific coral reef region be encapsulated within a rigidly defined habitat classification scheme. This research presents a potential solution to this problem through the use of an integration technique. This technique incorporates qualitative measurements about stakeholders' knowledge, uses, and traditional beliefs of the marine environment into a satellite image habitat classification scheme. Using informal interviews and general observations with stakeholders and managers of Bunaken National Park, Indonesia, information was extracted, prioritized and, where possible, associated with biological habitats. Next, IKONOS satellite imagery was acquired, in-situ data were gathered, and the imagery was processed to remove effects that may reduce classification accuracy. Following multiple discussions with stakeholders and managers, several habitat-relevant classification images were produced. Results from this study suggest that this integration technique (1) extends the usability of remotely-sensed information beyond traditional, baseline habitat maps, (2) enhances the flexibility of remotely-sensed information by addressing spatially-based questions from different stakeholders, and (3) provides an opportunity to target specific coastal concerns of local communities. Conclusions identify that remote sensing is a useful tool for coastal management, though it requires the inclusion of contextual information to appropriately and effectively address coastal management issues.

Keywords: coastal management, remote sensing, integration

Mirela I. Newman, Dr., Westfield State College. Email: mnewman@wsc.ma.edu; *Identifying Green Urbanism Elements Using the Urban Morphological Analysis in Almere New City, the Netherlands*

This paper identifies and examines green urbanism elements implemented in Almere, the newest Dutch city, planned and built from scratch from the 1970s on, by employing a detailed urban morphological analysis based on extensive fieldwork and library documentation. Located at the northern edge of the Dutch metropolis, Almere New City is the urban product of Dutch planning and spatial policies that promoted urban development in new towns as an alternative to urban sprawl. While the urban plan for Almere has not been perfect, this city represents the quintessential expression of Dutch planning efforts to shape a new, greener urban form and lifestyle. This study was guided by two sets of research questions: 1) Can Almere be viewed as the spatial product of a Dutch green urbanism paradigm? To what extent was it possible for Almere's planners to implement a "green urbanism" approach in the face of regional growth and development pressures? 2) What green urbanism elements does Almere New City display? Which are the main identifiable physical and spatial features that incorporate the idea of a green city? Using the spatial and morphological data collected in Almere, the author identifies the city's green urbanism elements and examines them against Timothy Beatley's suggested essential components of green urbanism.

Keywords: green urbanism, urban morphological analysis, Almere New City, the Netherlands

Jason C Newton, University of Louisville. Email: jcnwt01@louisville.edu; *Development and Displacement in Tehri, India*

"This is the end of a civilization," stated Sunderlal Bahuguna in July of 2004 about the 187 year old town of Old Tehri, a community of 12,500 people situated in the Southern Himalaya Mountains of Northern India. Since Bahuguna's statement in 2004, the town of Old Tehri has been inundated by a lake created by the construction of the Tehri Hydroelectric Dam, one of the

Indian government's newest modernization and development projects in the South Asian country. This dam has resulted in a paradox for the country as it attempts to bring modernization and development to the far reaches of the territory, while it also creates displacement conflicts which can change a few people's lives for the potential benefit of millions of others. A new city designed for the displaced residents, New Tehri, is located on the side of a mountain, which has disrupted the people's connectedness to the sacred rivers. It is important to learn from the trials and tribulations of how governments respond to problems concerning displaced people as a result from development projects. By conducting fieldwork onsite in Tehri, I hope to apply a mixed set of qualitative methods including leading focus/discussion groups, conducting personal interviews, and collecting a short survey/questionnaire. The main goal of this project, my senior thesis, is to understand how the newly installed inhabitants of New Tehri have adjusted culturally, socially, and economically to their new "hometown" and how have they recreated their sense of place with new homes and businesses.

Keywords: Displacement, Resettlement, India, Tehri Dam

Raye Ng, University of Liverpool. Email: raye@liv.ac.uk; *Constructing corporate culture in Singapore*

Corporate culture is often described as 'how things are being done around here' (Scheoberger 1997, Deal and Kennedy 1982). In this paper, drawing on fieldwork in Singapore, I argue that corporate culture is influenced by societal culture and an array of management practices. In a society where the management styles of Chinese businesses are increasingly Westernising, this does not necessarily translate into a Western practice of corporate culture in the working environment due to the cultural embeddedness of the actors and agents. I illustrate how hierarchy and kinship are embedded in a 'Westernised' and yet Asian economy; the notion of guanxi (personal connections) and bamboo networks is relevant for understanding contemporary production and consumption networks in Singapore. By using Singapore as a site for exploring and analysing the (re)production of a particular form of economic practices and business systems, I demonstrate how corporate culture is shaped by the socio-economic landscape.

Keywords: Corporate culture, societal culture, Singapore

Kikombo Ilunga Ngoy, Dr., Kean University. Email: kngoy@kean.edu; *Evaluating the impact of war and turmoil on the forest cover around Lubumbashi in the Democratic Republic of Congo using Remote Sensing data*

Two major wars have affected the Democratic Republic of Congo in the last 10 years. Within the country, many people were forced to move from the frontlines and to find refuge in war-free zones. As a result, many cities including Lubumbashi received a massive influx of people from the hinterland. The drastic demographic increase had a major impact on the natural environment around the city as the demand for fuel wood and charcoal increases. We compared satellite data sets of 1989, and 2001 to evaluate the rate of deforestation. We found that the annual deforestation rate has drastically increased between 1989 and 2001 compare to previous findings.

Keywords: Democratic Republic of Congo, Lubumbashi, Remote Sensing, deforestation rate.

Thao Nguyen, Department of Geography, University of Southern California. Email: thao.t.nguyen@usc.edu; Travis Longcore, Department of Geography, University of Southern California. Email: longcore@usc.edu; John P. Wilson, Department of Geography, University of Southern California. Email: jpwillson@usc.edu; *Green does not mean ecologically vibrant in a Mediterranean climate*

The Normalized Different Vegetation Index (NDVI) has been used as an indicator for ecosystem health across large areas because it reflects the extent and condition of vegetation. In most urban contexts, higher NDVI values are taken to indicate "green" areas of cities, which are generally interpreted as desirable. We investigated the use of NDVI to classify vegetation and land use in a Mediterranean climate. For planning region that encompasses the Los Angeles basin we calculated NDVI from six separate images taken during winter and summer. We took a sample of these values spatially stratified by land use and vegetation type and then used the mean and standard deviation of the NDVI for each category to cluster them with Ward's method of agglomerative clustering. These clusters showed that a set of seasonally varied NDVI values are sufficient to identify some sets of native vegetation types (e.g., oak woodlands) and some urban land uses (e.g., commercial), but clustered some native vegetation with urban land uses (e.g., desert scrub with trailer parks). It furthermore showed that clusters characterized by the highest NDVI values were exotic vegetation supported by imported water, such as golf courses. We conclude that although high NDVI values do not indicate native vegetation in a Mediterranean climate, they can be used to assist in classifying land cover and can be used to identify some native vegetation types.

Keywords: Urban Green Space, NDVI

Chin-Cheng Ni, . Email: ccni@mail.nhcue.edu.tw; *A Defense Against Tourism: The formation of a cooperative system in Smangus, Taiwan*

This paper evaluates the impact of tourism on Smangus and analyzes the formation and practices of a cooperative system adopted by the village. Smangus is an indigenous mountain village located in northern Taiwan. There are about 130 residents. When a road into the village was constructed in 1995, thousands of tourists were attracted to the village's sacred trees and aboriginal culture. The physical environment, as well as the social life and economic base of the village were impacted. To address the problem caused by tourist activity, a Tnunan system (a special kind of cooperative system) composed of tourists, the mass media, and non-governmental organizations was adopted in 2004. But maintenance of the Tnunan system and inequality in the workplace have surfaced as new problems. The wisdom of adopting the Tnunan system is now being questioned.

Keywords: tourism, cooperative system, Taiwan

Michael A Nicholas, University of California, Davis. Email: mianicholas@ucdavis.edu; Joan Ogden, PhD, University of California, Davis. Email: jmogden@ucdavis.edu; *Projecting Hydrogen Refueling Patterns: Learning From the Gasoline Retail Experience*

If hydrogen were to replace gasoline as the fuel of choice in the future, many infrastructure challenges would ensue. Sizing hydrogen stations accurately is one of the very important aspects of planning for a successful hydrogen refueling network. Over-sizing a station results in wasted capital, under-sizing a station results in unsatisfied customers. Determining the important metrics to get the correct sizing is important in minimizing these risks. To analyze this issue, we started with the hypothesis that hydrogen demand distribution may be similar to gasoline demand distribution in some respects. Evidence suggests that many people refuel near either work or home. The extent to which this is true is investigated. The number of gasoline stations is great enough so that consumers can refuel where they would like. By understanding their behavior, we can better understand what demand should be expected at a hydrogen station. In this analysis we assume that fuel demand distribution correlates to either population factors and/or traffic factors. Preliminary results show that on a large scale, population is a better predictor of fuel demand. However, as the analysis area is divided into smaller and smaller zones, traffic becomes a better predictor. Some interesting patterns also emerge. Customers seem less likely to refuel in the central business district than traffic patterns may indicate. This may be an important factor in sizing a station. Also, customers appear more likely to refuel between home and the freeway as opposed to any other part of his/her journey.

Keywords: Hydrogen Refueling Patterns Gasoline

Erinn Patricck Nicley, University of Illinois. Email: enicley2@uiuc.edu; *Somos Galegos!: Regionalism, Political Economy and Place Context in Galicia, Spain*

Studying the resurgence of ethnic regionalism in west-central Europe requires engagement with the theoretical literature on regional political economy and place context in political geography. The emergence of regional political economy in the past 25 years highlights the diminishing role of the nation-state as the sole source of social legitimacy. The Galicia region of northwest Spain provides a case study for the intersection of regionalism, political economy, and a place context perspective. The rise and fall in popular support for the Bloque Nacionalista Galego (BNG), a social-democratic regionalist coalition, reflects the geography of political and economic transformations within Galician society from the late 1970s to the present. BNG electoral geography is grounded in the place-specific social relations associated with structural economic reform, regionalist identities and European Union integration. The study emphasizes the importance of a place context perspective beyond universalist accounts of regionalist political behavior.

Keywords: regionalism, nationalism, political economy, place, Spain, Europe

Heather N Nicol, Ph. D, University of West georgia. Email: hnicol@westga.edu; *Geopolitics and North American Borders in Global Context: Identifying the "Borders that Count" in Post 9/11 America*

Over the course of the 20th and 21st century, the borders of North America have shifted and evolved in terms of their strategic importance. In some cases borders were negotiated where none had existed before, but more importantly borders were negotiated and constructed through very political and public discourses which ranked their perceived importance in geopolitical terms. A rough count of political borders and borderlands in North America today suggests that there are now approximately a dozen international boundaries (land and maritime). Yet in 2006, U.S. geopolitical discourse only counts to three. This paper focuses upon the ranking or prioritization of international borders within the U.S., and compares these intersubjective boundaries with those of the twenty-first century political map. It argues that the geopolitical relative importance or

lack of importance of each of these borders reveals an underlying "New World Order" geopolitics which, while specific to the U.S., has had a significant impact upon North American bordering practices in general. These geopolitics may well derive from Homeland Security and formal U.S. government policies, but they are also incorporated into the popular press and public opinion, as well as acted upon by neighboring countries, within and outside of North America. This paper thus suggests that there is a broader North American and global context to U.S. "Post 9/11" borders that needs to be understood if we are to appreciate the nature of its contemporary borderlands and the nature of a new 21st century transnationalism.

Keywords: borders, North America, geopolitics

Kathleen Nicoll, Ph.D, University of Utah. Email: kathleen.nicoll@geog.utah.edu; *Recording a symphony in sand: assessing the fidelity of oceanic archives for terrestrial Quaternary climate change in the NE Sahara*

Offshore records suggest that the ~15 ka cal BP onset and the ~5.5 ka cal BP termination of the "African Humid Period" was a rapid response to gradual insolation forcing. Although there is general agreement that an enhanced Afro-Asian monsoon profoundly affected the water balance of the continental landmass, it is evident that the delivery and tempo varied by location. This paper examines the synchronicity between the oceanic and terrestrial realms as interpreted from various proxy records, with emphasis on the palaeoenvironmental and geoarchaeological archives from the northeastern Sahara. A synthesis of available floral, faunal, and cultural records for the onset of wet conditions in Egypt and Sudan includes 500+ published radiocarbon dates from cultural contexts and various fluvio-lacustrine and Aeolian stratigraphies. At its wettest "monsoonal maximum" ~10 - 6 ka cal BP, the interior of North Africa was a marginal drought-prone environment, barely sustaining human activities and a meager steppe-shrub desert flora/fauna with some Sudano-Sahelian elements. Recurrent dry phases are associated with abandonment, deflation, and sedimentation of Aeolian sand. The complexities in this highly continental terrestrial record reflect ascendant global, oceanic, and atmospheric changes, as well as other local feedback mechanisms that cannot be gleaned from the ocean archives. Abrupt hydroclimatic changes influenced resource availability across NE Sahara, and fostered technological innovation and adaptation, as well as the development of complex culture in Desert Peoples - one that displays linkages with the emerging Pharonic civilization in the Nile Valley ~ 5 ka cal BP.

Keywords: Geoarchaeology, Africa, Monsoon, climate change, Nile

Thomas Niedomysl, Institute for Futures Studies. Email: thomas.niedomysl@ibf.uu.se; John Östh, Uppsala University. Email: ; Maarten van Ham, University of St Andrews. Email: ; *The Globalisation of Swedish Marriage Fields*

Marriage fields - the geographical area where people meet to partner ? are traditionally very small. People tend to recruit a partner from the same town or region, but it can be expected that with Globalisation and the increasing levels of mobility marriage fields will expand in size, not only within a country, but also on a global scale. Since people increasingly travel abroad for business or pleasure and also increasingly become part of virtual networks via the Internet, these developments are likely to increase the 'risk' that people recruit their partner from abroad. Using unique longitudinal population data for Sweden, this paper aims to give a descriptive overview of the globalisation of Swedish marriage fields between 1990 and 2004. We explore changes in the volume and country of origin of partnering related migration to Sweden and study the demographic characteristics of the native Swede and the partner from abroad (in age and educational level and the age and educational distance between the partners) in relation to the country of origin. We will also test the hypothesis that there is a relationship between the volume of migration and the level of development of a country.

Keywords: International migration, gender, marriage, Sweden

Christopher Niedt, UC Berkeley. Email: niedt@berkeley.edu; *Kelo and the Castle: Multiscalar Property Rights Activism, Economic Development, and Regional Governance in the United States*

The U.S. Supreme Court's 2005 Kelo decision was not only a rare instance of local eminent domain issues capturing national headlines, but was also a moment of unprecedented political coalition between a range of property rights advocates. Urban and suburban groups became key supporters of a cause more often associated with a network of rural and libertarian organizations, as both fought to limit the state's power to take land for economic development. This paper considers the recent evolution, scale repertoires, and impact of the U.S. property rights movement, with particular attention to its effects on urban and regional governance. We investigate the relationship between contemporary property rights activism, urban growth coalitions, and redistributive metropolitan politics. We ultimately consider whether property rights activism constitutes an

emerging (if implicit) form of regional governance that might displace or transform dominant urban regimes in the United States.

Keywords: property rights, social movement, economic development, scale, urban governance

Michael Niedzielski, Ohio State University. Email: niedzielski.4@osu.edu; Przemyslaw Sleszynski, Institute of Geography and Spatial Organization, Polish Academy of Sciences. Email: psleszyn@twarda.pan.pl; Ready, set, go: the coming urban sprawl explosion in Warsaw, Poland

This paper investigates claims that suburbanization is a major force changing the spatial fabric of post-socialist cities. The focus herein is to analyze Warsaw's spatial organization over the years of its transformation. An overview of the city's economic structure is followed by the presentation of regional commuting patterns. Intra-city and inward work trips are the dominant commuting patterns, thus it follows that commuting trends are similar to those in the U.S. during the 1960s and that Warsaw's urban structure is mostly monocentric. It is also apparent that the journey-to-work pattern has not changed significantly from that in the socialist era. The lack of investment in the regional transportation infrastructure has stifled the development of suburban pull factors and, as a consequence, this flaw has limited the extent of urban sprawl. The growth of the transportation network - a historically important factor in the dispersion of Western cities - has been absent in the region. However, on the verge of a sprawl explosion, Warsaw's urban form may experience dramatic change when road network improvement plans have been completed.

Keywords: decentralization, post socialist, poland, warsaw, spatial structure, sprawl

Andrea Nightingale, University of Edinburgh. Email: anightin@geo.ed.ac.uk; Passionate about the Sea: exploring the role of emotion and subjectivity in fisheries management

Nephrops (prawn) fishing in Scotland is a key industry sustaining remote, rural villages and continues to support a number of small, independent vessels. While competition between boats is fierce, there is also a great deal of cooperation and in places, skippers have come together and formed a variety of formal and informal agreements about how to spread fishing effort. These agreements sit uneasily with the European Union's Common Fisheries Policy which gives all collective choice rights to the EU. This paper examines processes of collective action by bringing together work on subjectivities and common property. It therefore seeks an alternative to rational choice theories and rather investigates how people's emotional attachments and subjectivities are important to collective practices. Many fishers express a 'love of the sea' and similar passions to their environment. This research is interested in trying to understand how these passions are important to their willingness to cooperate. Preliminary results from work done on the Nephrops fishery in Scotland is used to help illustrate the theoretical argument.

Keywords: subjectivity, emotional geographies, fisheries, common property, Scotland

Jan Nijman, University of Miami. Email: nijman@miami.edu; Alpen Sheth, U of Miami. Email: alpen.sheth@gmail.com; Neglected Spatiality: Mumbai's Slums as Sites of Production

The existing literature views slums overwhelmingly as residential spaces. In this paper, we focus on a neglected spatiality of slums: the slum as a site of economic production. The productive function of certain slums is important in regards to local livelihoods but also in terms of its contribution to the urban economy and its role in wider production and exchange regimes. We present a general argument about slums as sites of production followed by an empirical study of Mumbai. The empirical study consists of two parts. First, we examine prevailing discourses on Mumbai's slums among policy makers, news media, academicians, and NGOs. We are particularly interested in the extent and manner in which economic production inside the slums figures in these discourses. Second, we provide an exploratory case study of one Mumbai slum that functions as a site of production. Through fieldwork observation and interviews we examine the nature of production, the reasons for its location, the relation to labor, linkages to the wider economy, and the role of production in the very existence of the slum. We relate our findings to broader debates about economic globalization, neoliberalism, industrial location, and flexible production.

Keywords: slums, production, urban economy, Mumbai

Theodore Nik, University Of Illinois at CHIC. Email: theodore@uic.edu; Jamie Peck, University of Wisconsin-Madison. Email: ; Marc Doussard, University of Illinois at Chicago. Email: ; After deindustrialization: Chicago's search for a new mode of growth

This paper considers processes of economic restructuring that have unfolded in Chicago over the past two decades. Following the tumultuous 1980s, the 1990s economic boom featured record productivity increases, the longest period of sustained job growth since World War II, and the strengthening of ties between U.S. cities and the global economy. This led many observers to declare that seemingly intractable economic development problems, like racial inequality and entrenched inner-city poverty, had been substantially alleviated. However, by the mid 2000s, many of the gains made during the previous decade had been erased. In the paper we stress the continuities - including capital flight, uneven development, and socio-spatial polarization - between Chicago's Fordist past and its embrace of a post-industrial economy. We argue that Chicago's transformation from declining Rust Belt city to global business center should be understood in relation to broader macroeconomic swings and their impact on regional industrial structure. Tracing four distinct periods of change - deindustrialization, service-industry growth, the 1990s boom, and the 2001 recession and jobless recovery - we find that Chicago's growth, while impressive in the aggregate, has been uneven, fragile, and built on a foundation of insecure employment for an ever-growing segment of the workforce.

Keywords: economic restructuring, uneven development, Chicago

Daniel Niles, Clark University. Email: dniles@clarku.edu; The Concept of Demand and the Imaginary Territories of Future Agriculture

The concept of "demand" has been taken as a key factor in the process of agricultural change. Global demand for food, which is expected to double by mid-century, accordingly serves as a baseline in large-scale assessments of future food security. Increases in demand can also be used to set productivity minimums for any kind of "sustainable agriculture". The question of how much food humankind does or will need should follow from an understanding of how much food is now produced and consumed, but these elemental figures are surprisingly difficult to establish. Though demand is often described as an immutable physiological and unimpeachable economic force, future estimations of demand rest on incomplete and often dubious figures of present agricultural production and wildly varying assessments of food availability, consumption, and waste. In this paper I report how many large-scale assessments of future food security and agricultural sustainability derive future "demand" from the most statistically visible patterns of contemporary agricultural production. As a consequence, the forecast "doubling of demand" is tautologous. It presumes the intensification of industrial-scale agricultural production and diminishes the real and imaginary territories in which non-conventional food futures lie.

Keywords: Demand, sustainable agriculture, food consumption; landscape

Madhura K. Nipadkar, Dept. of Geography, San Diego State University, San Diego. Email: nipadka@rohan.sdsu.edu; Nathan Schumaker, Environmental Protection Agency, Corvallis, Oregon. Email: schumaker.nathan@epa.gov; John O'Leary, Dept. of Geography, San Diego State University, San Diego. Email: oleary@mail.sdsu.edu; Using Population Viability Models for measuring Landscape Connectivity

Habitat connectivity for animals has been studied in a number of ways. Structural habitat connectivity is measured by identifying where habitat patches are situated with respect to each other. Functional studies of landscape connectivity look at how a landscape facilitates movement and functioning of an organism. This paper takes an approach of using individual-based modeling for measuring population viability metrics as a surrogate measure to identify connectivity. Individual-based modeling has found less application in geographical analyses, though many spatially-explicit approaches to problem-solving exist. Habitat connectivity for animal movements can be measured by metrics such as fluxes through habitats, net gains and losses, or through measures such as viability that show direct impacts on populations of regions. We selected a region with diverse landcover classes and multiple land uses in the Willamette River watershed of Central Oregon for analysis. Three wildlife species were selected for comparative analysis of connected habitats. We then used a spatially-explicit population model to measure connectivity over the landscape through the flux of individuals between habitat units. Connectivity was altered by introducing barriers to movement and altering their properties, and the significance of these barriers was measured by examining their impacts on simulated population trends. Results illustrate the significance that movement barrier properties can have on population dynamics, and demonstrate how such impacts can change based on species' life-history traits. These insights should lead to innovations in developing new functional measures of connectivity.

Keywords: population viability, PATCH, habitat connectivity

Josef Nipper, . Email: j.nipper@uni-koeln.de; *The role of heritage in urban development in East Germany since reunification*

The reunification of Germany has caused transformation processes in almost all fields of the former East Germany society. Changes have almost always been some form of adoption of West German concepts and structures. On the urban level, the idea of retaining an urban heritage has played quite a leading role in developing the East German cities since reunification. After having briefly characterized the situation of East German cities at the time of reunification, the paper will discuss first the concept of urban heritage and its development (over the last 15 years) in East Germany and secondly, it will be shown and demonstrated how the so-called "socialist heritage" concept has been applied in practice as seen through empirical examples. The final section will discuss the role of urban heritage in relation to one of the present and future most influential prevailing development phenomena in East Germany; the shrinking of cities.

Keywords: urban heritage, urban development, East Germany

Richard Nisa, Rutgers University. Email: rnisa@eden.rutgers.edu; *Rogue Elephants: The Legal Organization of Violent Bodies in International Conflict*

Borders are phantoms. They are fleeting, mobile, and discursive? conjured and negotiated through time and social relations. The frontier between legal and illegal violence in international warfare is one of the most ghostly limits, formed deep in the discourses of modern geopolitical power. Yet borders are also material? the laws that purport to organize warring populations are corporeal and affective? their transgression leaves marks on the body and the earth, exposing very real biological matter to varying conditions of freedom or imprisonment, of life or death. In this paper, I will concentrate on the dynamic landscape that occurs at the frontiers of legal order, spatial production, and state control of non-state violence. First, I will explore the legal discourse that both distinguishes and connects two classifications of violent bodies active in the so-called war on terror: Private Military Contractors (PMCs) and unlawful or enemy combatants. Both of these groups, by nature of their political and biological lives share a precarious position relative to the production of legality and legitimacy in international and U.S. state law. Next I will trace this unstable legal geography into the contemporary war prison? where the embodied manifestations of discursive organization collide with one another? un-law against un-law? and individual bodies become diagrams for the interchange of geopolitical power. The primary objective of this study is to explore the production of state space and the possibility for justice at this aporetic frontier, where ghostly discourse and biological matter converge and lay claim to the legal organization of political violence.

Keywords: law, bodies, governmentality, detention

Yuichiro Nishimura, Disaster Prevention Research Center, Aichi Institute of Technology. Email: nishimura@aitech.ac.jp; Kohei Okamoto, Nagoya University. Email: h44540a@nucc.cc.nagoya-u.ac.jp; *The Changes of daily activity and subsistence complex: Time-geographic analysis using GPS and GIS in Dongkhuwaai village, Laos*

The poster investigates how the daily lives of suburban village people in Laos are related to natural environment and how their subsistence complex is changing under marketization and urbanization. We focus on three points; the penetration of wage labor, the continuance of the activities related to natural environment (hunting, fishing, gathering, etc.), and the gender differentiation in the daily activities. Data is collected from the interview and the time allocation survey using GPS and GIS. We conducted the survey in Dongkhuwaai village: about 30km from Vientiane Capital. The field survey was done on Aug. 2006 and Feb. 2007. The wristband GPS units recorded the time-spatial allocation of all members of the 40 households (total 154 person). After the finishing of 24 hours GPS recording, the data was stored and visualized by GIS. We also had interview with the household members for clear the detail of the activities because GPS records show only the time and place (latitude and longitude) of the activities. The data shows the activities such like hunting or gathering take the considerable part of the time-spatial allocation. Because the selling price of natural products is relatively high, the importance of these activities seems to rise in the daily life. On the other hand, penetration of capitalist economy increases various types of wage labor near Vientiane. It will promote time-spatial segmentation (workplace/home, working hours/non-working hours, nature/non-nature) and the radical changes of the villager's daily time-space have occurred.

Keywords: Laos, daily time-space, subsistence complex, time-geography, GPS, GIS

Wairimu Njambi, Florida Atlantic University. Email: wnjambi@fau.edu; William O'Brien, Florida Atlantic University. Email: wobrien@fau.edu; *Safari Tourism, Technology, and Local Resistance: The Socio-ecological Significance of CB Radios and Mini-vans in an East African Park*

From television documentaries and other media, the word "safari" conjures images of both serenity and possible danger in "wildest Africa." For some, it also presents a promise of exclusive tourist experience, albeit one tinged with a residue of colonial history. Less immediately apparent is that the safari experience is also mediated by technology such as photographic equipment and plane travel, but also by road vehicles and communications devices. Emphasizing the nexus of race and class, we focus on tensions in the safari experience brought about particularly by minivans and CB radios. These technologies work to facilitate access to an imagined wild landscape, but they also destabilize the idealized safari through their inscriptions on the savanna, while at the same time providing a means of everyday resistance for tour guides. Illustrating our points using video from Kenya's Masai Mara, we suggest that such technologies help rewrite safari experience as ambivalent in that it cannot live up to the expected stories on a landscape modified in the globalized pursuit of tourism revenue. Spurred by the mediascapes that conjure the alluring "safari," these technological mediators of the African savanna paradoxically undermine the imagined world to which they provide access.

Keywords: Safari, tourism, East Africa, technology

Jeremia N Njeru, University of Wisconsin-Milwaukee. Email: Jnjeru@uwm.edu; *Urban and Peri-urban Deforestation, Neoliberal-inspired Economic Transformations and Political Liberalization: A Case of Nairobi City, Kenya*

Urban and Peri-urban deforestation is not new in Africa. A host of studies have noted that many large urban areas are characterized by rings of deforestation, mainly attributed to high demand for bio-fuel in form of firewood and charcoal. Other studies suggest that forests decline around cities due to demand for resources as urban incomes rise. These studies do not substantially address how the recent political, social and economic changes may have changed these dynamics of urban and peri-urban deforestation. Yet, in recent years, studies on urban environmental change suggest that there are intricate interconnections between urban environmental change and the ongoing political and neoliberal-inspired economic transformations in Sub-Saharan Africa. This paper will highlight these interconnections by investigating deforestation of Karura and Ololua Forests, both public forest reserves in Nairobi, which underwent accelerated loss of trees and land in the 1990s. The paper draws on fieldwork conducted in Nairobi in 2005 and 2006, which included in-depth interviews with environmental NGOs, government officials and Nairobi residents and textual analysis of planning and environmental documents. The paper argues that the implementation of neoliberal inspired policies and/or pressures from the World Bank and IMF and/or foreign donors to the Kenyan government to implement them, and the resultant economic conditions, combined with the processes of democratization, particularly struggles related to, and introduction of, competitive elections in Kenya to largely produce Nairobi's deforestation.

Keywords: Urban, deforestation, Neoliberal, political liberalization, Nairobi

Carline Noailles, Chargee De Programme UN - Habitat. Email: cnihsi@yahoo.com; *Migration toward the regional capitals of Haiti*

This study tests the general assumptions of growth pole and dependency theories in explaining the growth of regional urban centers in Third World countries. I use Haiti as a case study. I compare the numbers of migrants predicted by the potential model to the actual numbers provided by the census data to assess the accuracy of the model. I test the influence of sizes and distance on the number of migrants and analyze economic activities in identified poles. The units of analysis are the eight regional capitals in relation with the other urban centers of their regions. The study shows that growth pole theory poorly predicts the number of migrants in the regional capitals. The distance from the primate city plays little role in the capacity of a regional capital to attract migrants. The size of the city of destination plays an overall strong role while the role of the size of the city of origin varies. The distance between the origins and the destination plays a role that varies from a region to another. The variations observed are explained by geographic factors such as natural obstacles and the track of the roads. They are also explained by economic factors. Indeed, other cities located in geographic sub-regions with important economic activities, with port facilities and the ones located at the frontier with the Dominican Republic compete with the regional administrative capital to attract migrants. The study confirms the assumptions of dependency theorists.

Keywords: Urban Primacy, regional migration, regional poles

Catherine L. Nolin, Assistant Professor, Univ of Northern British Columbia. Email: nolin@unbc.ca; "We have to protect the investors": 'Development,' indigenous social exclusion, and modern Canadian imperialism in Guatemala

Neoliberal development schemes of mining, oil extraction, and hydroelectric projects, are embraced by post-conflict Guatemala as the way forward on the path to democratization. At the same time, the Canadian government's pro-business, pro-mining stance, through its Embassy's activities, is shaping the very nature of the so-called "development model" for this Central American country. Neoliberal development models are often associated with human rights abuses and an unwillingness to incorporate local knowledge or allow for locally-driven, smaller-scale development. Large-scale resource development on Maya traditional territories, lands to which they have no rights, affects every aspect of the local indigenous peoples' livelihoods, health, and cultural identities. In this paper, based on fieldwork in the summer months of 2004 and 2006, we focus on the resulting clash of competing visions of 'development,' between large scale resource exploitation and indigenous Maya communities' resistance to what they identify as their impoverishment through social and spatial exclusions, health deterioration, and economic marginalization. Through a rights-based approach to our analysis of 'development' we highlight the silenced voices of Maya community members in opposition to unsound development practices and President Óscar Berger's need to "protect the investors" rather than the lives of his country's own citizens.

Keywords: development, Guatemala, Canada, indigenous, social exclusion, rights

Marie Nordfeldt, Ersta Sköndal University College. Email: marie.nordfeldt@esh.se; Lars-Erik Olsson, . Email: lars-erik.olsson@esh.se; Marcus Knutagård, . Email: ; Homelessness in the Swedish universalistic welfare system - the case of four municipalities

This paper focuses local welfare regimes in relation to the problem of homelessness in Sweden. The welfare system in Sweden is decentralised with a high degree of self-government and the responsibility for issues of housing and homelessness lies with the local authorities. The aim of the paper is to discuss with a comparative approach the local strategies to prevent and solve homelessness. From a theoretical point of view the local mixture of traditional solutions such as emergency shelters run by charity organisations and the implementation of new types of models such as "housing first" will be discussed. The paper is based on case studies conducted in four Swedish municipalities. Stockholm, Malmö, Krikanstad and Eskilstuna. The former two represents large cities in Sweden and the latter two, middle-sized towns. The study is based on qualitative research methods; interviews and documents' analyses. The actors interviewed are local politicians, employees in the social authorities, voluntary organisations representatives, representatives of the housing market, correctional care and the psychiatric care. Research questions to be illuminated are: Why do old solutions to homelessness, such as emergency shelters, become revived at the local level? What is the present role of Christian charity organisations? How does new models become implemented, and what are the obstacles to innovations?

Keywords: homelessness, local regimes, Sweden.

Anna Nordfelt, Texas A&M University. Email: anordfelt@tamu.edu; Steven Quiring, Texas A&M University. Email: squiring@geog.tamu.edu; A study of the intensity and duration of the North American Monsoon as a function of winter and spring snowcover

The North American Monsoon (NAM) brings heavy precipitation during the summer months to portions of the southwestern United States and northwest Mexico, where the NAM is the primary source of water. Studying the NAM is important because if a relationship between winter snow cover and summer precipitation can be developed, then it may be possible to better predict the onset, intensity, and duration of the NAM. Based on the results of the analysis of 283 grid cells at 1/8° resolution in Arizona and New Mexico (1967-2001), an average onset (July 4th), ending date (September 18th), and season length (77 days) were defined. Winter snow cover is positively correlated with date of onset, and negatively correlated with the length of season and the number of precipitation days. Monsoon rainfall is strongly correlated with the date of monsoon onset and termination. The amount of precipitation that falls during the season is directly related to date of onset, season length, and number of precipitation days occurring during the monsoon season. It tends to be greater during years that have an early onset, longer than normal season with an above average number of precipitation days. Investigations of the predictability of monsoonal precipitation may provide a basis for forecasting water deficits in urban areas.

Keywords: North American Monsoon, snowcover, precipitation, Southwestern United States

Emma S. Norman, University of British Columbia. Email: enorman@interchange.ubc.ca; Karen Bakker, Ph.D., University of British Columbia. Email: bakker@geog.ubc.ca; Transgressing Scales: Water Governance across the Canada-US Borderland

Many recent water management initiatives in Canada and the United States entail the involvement of local actors — usually sub-provincial and often community-based — in water management. This trend parallels the devolution of environmental governance to the sub-national level, which is well documented within geography. In this paper, we review recent debates on rescaling and borderlands, which offer useful concepts with which to expand conventional analyses of transboundary water governance. We query several assumptions underpinning this literature: specifically, the assumption that rescaling implies greater empowerment for local actors, and that the rescaling implies that nation-states are less important in water management. Thus, we bring recent insights from the study of borderlands to bear upon debates over environmental governance. In particular, we emphasize the simultaneous fixity and porosity of borders, and document how local actors simultaneously undermine, yet are constrained by the container of the nation-state. Moreover, we approach the freshwater bodies as part of wider 'hydrosocial' cycles embedded in both ecosystems and social systems. We draw on a case study of several transboundary groundwater and freshwater systems in western Canada and the United States, focusing on two regions: the relatively water-abundant Pacific Coastal, and the relatively water scarce Western Montane.

Keywords: Borders, Scale, Water Governance

Moss E. Norman, B.Kin., M.A., Ph.D (candidate), University of Toronto. Email: moss.norman@utoronto.ca; Digesting Spaces, Shaping Identities: The Spatial Construction of Boys' and Their Bodies.

Feminist theorists have long been writing about the fat female body as a "feminist issue" (Orbach, 1998), suggesting that fatness is a culturally disparaged, perhaps even "uninhabitable" (Butler, 1993), identity in contemporary western societies. Comparatively, however, there has been little written on the intersections of fatness, men, and masculinity (Gilman, 2004). This paper is taken from research for my doctoral dissertation exploring how young men (13-15 yrs.) from a Toronto, Canada area private school and community centre deploy the identity category "fatness" in the process of constructing a stable masculinity based on a healthy sense of self. Part of the methodology involved giving the participants disposable cameras to take pictures of their everyday life worlds, an adaptation of the Photovoice technique. This served to reveal the central role space and place play in the constructions of body size, in particular fatness. Discourses of health, especially those related to eating, exercise, and body size, shaped how the young men experienced the everyday spaces they inhabited. What became evident is that fatness is a fluid identity that is consumed differently from mother's 'soul food' to McDonald's 'fast food', from the privacy of the bedroom to the publicity of the gymnasium, and from the local vegetable to the national grocery chain. These spaces, along with others, were complex sites with a multiplicity of intersections, giving rise to a range of interlocking identities including fatness, race, ethnicity, social class, sexuality, and age.

Keywords: body size, identity, masculinity, photovoice

Leslie A. North, University of South Florida. Email: north2@mail.usf.edu; Philip E. van Beynen, Ph.D., University of South Florida. Email: vanbeyne@cas.usf.edu; Applying the Karst Disturbance Index in West-Central, Florida

A hierarchical and standardized environmental disturbance index, specifically designed for karst landscapes, was created by van Beynen and Townsend (2005). To assess the applicability of the index and provide recommendations for its refinement, the index was applied to four counties in West-Central, Florida. The karst disturbance index consists of 30 indicators contained within the five broad categories: geomorphology, hydrology, atmosphere, biota, and cultural. Data was readily available for most environmental indicators used to construct the index. Overall, levels of disturbance vary between the counties due to the level of urbanization, with the highly populated Hillsborough-Pinellas having higher degrees of disturbance than less developed Pasco-Hernando counties. While this result may seem obvious, the measure of disturbance using many indicators provides benchmarks of levels of disturbance that can be reassessed with time and highlights those aspects of the environment most in need of attention. However, several minor issues arose during the testing: the need for broader indicator descriptions that encompass a variety of scenarios, a new water quality indicator, obsolete data on sinkholes, and a lack of data for biota indicators. The lack of data for certain indicators suggests where future research efforts can be directed; for our region those include species richness and diversity changes in caves and urban groundwater quality.

Keywords: Florida, karst, index-environmental, urbanization, human impact

Jack Norton, University of Washington. Email: jsn7@u.washington.edu; *Rethinking First World political ecology: (post)colonialism and the case of Mohawk militancy*

This paper looks at the rise of Mohawk militancy through the lens of political ecology and post-colonial studies, highlighting the contested nature of the state and the environment in one region of North America. I contend that political ecology is a particularly useful approach for analyzing the rise of the warrior movement, insofar as it addresses disputes over the meanings of land, as well as national self-determination and questions of sovereignty. I engage with political ecology literatures through an analysis of the (post)colonial dynamics surrounding these two events, situated as they are in struggles over control of the use and meanings of certain landscapes. At the same time, I hope to problematize certain conceptions about what constitutes an 'environmental' or nationalist movement while tracing linkages between discourses of poverty and indigeneity as they are employed in such landed struggles.

Keywords: Political Ecology, Post Colonialism, North America

James R. Norwine, Regents Professor, Texas A&M University- Kingsville. Email: kfjrn00@tamuk.edu and jnorwine@western.edu; Michael Preda, Midwestern State University. Email: michael.preda@mwsu.edu; Allen Ketcham, Texas A&M University-Kingsville. Email: kfak00@tamuk.edu; Michael Bruner, Humboldt State University. Email: msb25@humboldt.edu; *Contemporary College Student Values: A Geosocial Exploration*

Since 1990, through four distinct phases, the authors have surveyed the values and worldviews of undergraduates around the world (although primarily in the USA). The objective of this project has been to explore the extent, character and implications of a "postmodern turn," i.e., a worldview-shift away from the assumptions of both traditional and modern Weltanschauungen. Our principal findings are here reported, including those of a just-completed fifth phase which focused thematically on issues of religious diversity and pluralism. The single most striking discovery has been that, with the sole exception of the Palestinian students of the College of Science and Technology, Gaza, the worldviews of contemporary undergraduates throughout the world tend to be varying admixtures of traditional, modern and postmodern values.

Keywords: Cultural shift; postmodernity; geosophy; worldviews; undergraduates.

Theo E. Notteboom, ITMMA - University of Antwerp. Email: theo.notteboom@ua.ac.be; Jean-Paul Rodrigue, Hofstra University, NY. Email: Jean-Paul.Rodrigue@hofstra.edu; *The next fifty years of containerization: container vessels, liner shipping and seaport terminals*

In 2006, container shipping celebrated its 50th anniversary. The container evolved from a pioneering stage in the late 1950s and early 1960s to become a dominant transport technology in today's worldwide logistics networks. The basic principle of containerization remained the same notwithstanding scale increases in vessels and terminals and a clear productivity increase in container handling. However, history proves all innovations sooner or later reach the end of their respective life cycles and are replaced by more advanced and more efficient solutions for a given problem. This paper explores potential development trajectories in container technology starting from an identification of future demand patterns and logistics requirements. It discusses three key elements related to future container vessel design and operations: (1) new maritime transport systems and liner network configurations, (2) vessel speed and (3) the vessel handling at seaport terminals. The paper discusses both incremental improvements in existing technologies (e.g. improvements in gantry crane design) as well as more fundamental innovations that could alter the way we move unitised boxes over the world seas. This contribution is the first in a set of two papers on the theme 'The next fifty years of containerization'. The second paper addresses the challenges for containerization with respect to the land interface and intermodal transportation.

Keywords: Containerization, Innovation, Container vessel, Liner shipping

Jakub Novak, Universita Karlova. Email: kubanov@natur.cuni.cz; Jana Temelova, Universita Karlova. Email: janatem@natur.cuni.cz; Martin Ourednicek, Universita Karlova. Email: slamak@natur.cuni.cz; *Changing Social Environment in Transforming Inner City of Prague after 1990*

During the communist era the inner city of Prague stood outside the interest of centrally planned investment flows. The economic, physical and social environment in traditional industrial districts of the 19th century was deteriorating. Poor quality of housing stock, high proportion of low educated and elderly population and concentration of Roma people in some areas characterized the residential environment of inner city during socialism. The change of political system in the Czech Republic after 1989 reestablished the market economy and open the way for foreign investors and foreigners generally. Economic growth and commercial overload in the center of Prague increased the attractiveness of

inner city for investment, particularly for office development. Some traditionally industrial districts in inner city have recently experienced dramatic change in physical environment and functional use. New socio-economic activities, incoming inhabitants, visitors as well as outgoing population necessarily change the social environment of inner city neighborhoods. New residents with higher socioeconomic status and new live styles replace the original working class population. Consequently the transforming localities are becoming divided into several different social worlds. The main aim of our paper is to investigate the changes in social environment in the dynamically transforming inner city neighborhoods of Prague. How the social environment of traditional industrial neighborhoods in inner city has been changed? And, which processes contribute to the change of local social environments? To answer these questions we offer two case studies of traditional industrial neighborhoods in the inner city of Prague

Keywords: social environment, inner city, transformation

Mathew Novak, University of Western Ontario. Email: mnovak3@uwo.ca; Jason Gilliland, University of Western Ontario. Email: jgillila@uwo.ca; *Assessing the Impact of Fire on Urban Form Using Historical-GIS*

The built environment of a city is extremely durable and long lasting; however, a single stray spark can radically alter the urban landscape. A Historical-Geographic Information System (HGIS) was implemented in this study to explore the affects of fires on certain urban dynamics in London, Ontario from 1915 to 1927. Two broad sets of questions pertaining to fires and their affects on the city were studied. We first observed the general spatial-temporal patterns of fires. Was there a concentration of fires in the densely-developed core? Were fires more likely to occur in the winter months? Were wooden buildings more likely to burn than brick? We also took into account the rebuilding process after a fire. How long did it take to rebuild after a fire? Was the new building structure more substantial than the old one? How often did the fire spark a change in ownership and/or land use? The HGIS allowed us to more easily recognize and explore the complex spatial-temporal patterns of destruction and reconstruction in the city.

Keywords: Historical Geography, Urban Geography, Disasters

Adam P Novick, University of Oregon. Email: anovick@uoregon.edu; *Aldo Leopold, ethicist or political ecologist? A review of Leopold's work finds a lifetime of critical interdisciplinary inquiry beside his moral claims*

Conservationists typically cite Aldo Leopold to justify ethical positions or policy prescriptions to protect the environment. However, the practical value of such moral claims seems constrained by political and economic forces, and attributed policy prescriptions often conflict. Is Leopold losing relevance to society? Reviewing Leopold's work, I find that throughout his life, Leopold offered a second prescription for conservation policy, in cautioning that land and its relationship to people are both complex; that conservation policies can backfire and succumb to orthodoxy and overly narrow goals; that conservation policies must be based on open-minded, interdisciplinary study of land and its relationship to people; and that policies should be evaluated by their effect on the landscape. I also find that Leopold saw such inquiry as seeking to ensure the sustainability of people and the environment. I suggest that in advocating such inquiry, Leopold in part championed key elements of contemporary political ecology, understood as the normative, empirical, research-based study of environmental issues as mediated by relations of power, usually including attention to economic, cultural, and/or biophysical dynamics; local study; scale; and alternative framing of problems and solutions. I also suggest that by demonstrating the practical value of such inquiry, Leopold remains highly relevant to addressing contemporary environmental problems.

Keywords: Aldo Leopold, political ecology, land ethic, conservation

David J. Novlan, National Weather Service. Email: dave.novlan@noaa.gov; Thomas E. Gill, Ph.D., University of Texas - El Paso. Email: tegill@utep.edu; *Historic Monsoon Flooding in El Paso, Texas in 2006- Impacts and Implications*

After a decade of drought, the wettest summer monsoon in 127 years of weather records at El Paso, Texas occurred in 2006. Three of the seventeen largest rain events on record occurred within a five week period, and the Rio Grande exceeded its banks multiple times- its first floods since 1958. Damaging flooding impacted El Paso County from July 27 through August 4, and intermittently thereafter through the monsoon season until mid-September. Flash flooding and river flooding caused major structural failures, rendered neighborhoods uninhabitable, as resulted in ~\$100 million in damage. An anomalous upper level cyclone persisted over the region from July 27 through August 4, resulting in ~73% of El Paso's annual average precipitation falling within nine days. Near-theoretical-maximum precipitable water, minimal upper-level flow, and orographic enhancement provided by the Franklin Mountains combined on August 1, resulting in slow-moving thunderstorms causing catastrophic flash floods. Annual recurrence intervals (ARI) for cumulative rainfall amounts based

on pre-existing calculations and airport meteorological data increased with time: approximately decadal on a one-day basis, fifty to one hundred years on a two-to thirty-day basis, and many hundreds of years on a forty-five to sixty day basis. This event inspires reconsideration of flood ARI calculations for urban areas of complex terrain in the Southwest, and raises questions about relying on single airport weather station observations (as opposed to a meteorological mesonet) in such regions. A possible connection of the extreme rainfall events with a developing positive ENSO event is also addressed.

Keywords: climatology, monsoon, hazards, urban climate, flooding

Andrea Nuernberger, UCSB. Email: anuernbe@umail.ucsb.edu; *Assessing wheelchair users' acquisition of accessibility information for travel planning*

For many wheelchair users, mainstream travel information is insufficient for trip planning. The study explored the question "How do wheelchair users utilize accessibility information during trip planning, and which information formats are most valuable?" Participants were asked to travel three unfamiliar routes, but prior to traveling, were able to evaluate route accessibility based on accessibility maps, photographs of potential barriers, and phone conversations with an access consultant. Variables measured during evaluation included change of level of confidence to travel a route safely, perceived helpfulness of information source, time spent evaluating routes and sources, and type and number of information sources acquired. Pre-task interviews showed that in daily life participants primarily acquired accessibility information through verbal means and focused on buildings and accommodations. During experimental route evaluation, however, participants generally preferred maps and images because these provided independence and did not require overt and pro-active information acquisition. Participants with cerebral palsy greatly preferred images, which argues for user-centered design. Although telephone was required least frequently, all three information sources were perceived as equally helpful, and participants' confidence in safely traveling a route increased significantly after evaluating any of the sources. The conversations with the access consultant showed that many participants were inexperienced in acquiring access-specific route attributes and rarely used objective measures to communicate accessibility. The study showed that accessibility information provided prior to traveling unfamiliar routes improves wheelchair users' confidence in traveling safely, and strongly suggests that lack of high-quality information sources negatively affects information expectations and information acquisition skills.

Keywords: accessibility, wheelchair use, route planning, trip planning, information acquisition, cerebral palsy

Safy Nurhusein, University of Oregon. Email: snurhuss@uoregon.edu; *Building State Capitalism in Stateless Space: Somalia's Telecommunications Frontier*

Southern Somalia is a great place to start a business, but it also isn't. During the past fifteen years, the country has seen political fragmentation and multiple attempts to build a central authority. At the same time, diverse economies have arisen in different spaces and at varying scales. Mobile phone and internet companies offer services that rate among the best and cheapest in Africa to customers enduring some of the continent's worst living conditions. Additionally, as Somalia is officially uncontrolled space, insurance and property protection are unenforceable and the educational system virtually non-existent. This paper asks how an impoverished, uncontrolled country becomes a regional leader in telecommunications services. It builds on previous work on the nature of the state and institution-building, as well as theories of social capital, and informalization. Interviews and surveys reveal a number of pre-existing and new institutions that have been adapted to rebuild the economy and the state, often without distinction.

Keywords: Somalia, telecommunications, informal sector, governance

Peter Nwilo, Department of Surveying and Geoinformatics, University of Lagos-Lagos, Nigeria. Email: pcnwilo@yahoo.com; Oyinye Onuma, Department of Surveying and Geoinformatics, University of Lagos-Lagos, Nigeria. Email: ; Jimmy Adegoke, Department of Geosciences. University of Missouri, Kansas City Missouri USA. Email: ; Saba Ekechukwu, Map and Image system LTD. Ogunu-Warri, Delta state, Nigeria.. Email: ; Joseph Akinyede, National space research and development agency-Abuja, Nigeria. Email: ; Godstime James, Department of Geosciences. University of Missouri, Kansas City Missouri USA. Email: gkjdk4@umkc.edu; Ganiyu Agbaje, National Space Research and Development Agency-Abuja, Nigeria. Email: ; Mofolusho Fagbeja, National Space Research and Development Agency-Abuja, Nigeria. Email: ; *Flooding in the Niger Delta: The Impacts and Risk Assessment*

Flooding in the Niger Delta is attributed to heavy rainfall, tidal inundation, global sea level rise, subsidence phenomenon, deforestation, storm surges and construction of canals. Maximum floods from flood/tide gauge measurements for Yenegoa and Ogboinbiri Rivers are 6.2m and 4.15m respectively. There are two

peaks of flood from rain fall; one between September and October (White flood) and the other between December and March (Black flood). The Black flood is as a result of the delay of the flood water at the inland delta around Timbuctu. Close to the coastline, the influence of rain water diminishes and tides and storm surges become more prominent causes of flooding. Tidal value ranges from 3.5m, 2.75m, 2.10m and 1.5m at Calabar, Bonny, Forcados and Lagos East mole, respectively. With height values varying between 0.8m to 4m at the barrier islands of the Niger Delta, most areas are flooded during heavy rains, at high tides and during extremes of sea levels. The impacts of flooding in the Niger Delta can be both positive and negative. The major positive impacts are sustenance of the coastal wetlands and enriching of the flood plains for agricultural purposes. The negative impacts include destruction of fishing settlements, coastal erosion, destruction of agricultural lands and destruction of coastal infrastructure. In this paper, we shall use data from tide/flood gauges and satellite imageries to assess the areas at risk from flooding in the Niger Delta and also discuss the socio-economic impacts of flood in the Niger Delta region.

Keywords: Niger Delta, Flood, Tides, Sea level

Gyan Nyaupane, Arizona State University. Email: gyan.nyaupane@asu.edu; *Tourism User Fees: A Tool for Protected Area Management*

Lack of funding for managing protected areas (PAs) has been a major challenge for managers, conservationists, and governments across the globe. Tourism User Fees (TUF) in the form of entrance fees, concession fees, licenses and permits, and tourism-based taxes can potentially generate significant amount of revenues. With the growing demand of nature-based tourism, protected area managers are experiencing even more challenges to meet the demand while protecting natural resources. PAs have been facing overcrowding, congestion, poor quality of facilities, and lack of local support and funding for conservation. Although resource protection and tourism development are often considered two conflicting goals, TUF can be a tool for protected area management. This paper argues that through TUF protected areas become economically self-sustained and gain more local support, creates better relationship between tourists (users) and protected area managers, and tourists become more responsible towards the resources. In addition, TUF can help managers to deal with congestion and overuse of resources. The paper also discusses some of the issues related to TUF including inequity, lack of funding for less popular PAs, and over development.

Keywords: user fee, protected areas, nature-based tourism, ecotourism, sustainable tourism

Michelle Nyberg, Northern Illinois University. Email: mnyberg@niu.edu; *Physiological Response of Sugar Maple to Forest Light Levels*

Researchers have growing concerns regarding how plant communities will react to global climate change, especially in long-lived forest species. Abiotic stressors brought on by climate change can include persistent drought, shifts in precipitation and an overall increase in solar radiation. Stratospheric ozone depletion, caused by amplified greenhouse gases, increases the amount of solar radiation entering the biosphere resulting in physiological stress. Excessive light can cause an imbalance between energy absorbed through chlorophyll pigments resulting in a photochemical release of light seen as chlorophyll fluorescence. Chlorophyll fluorescence can yield information regarding the health of the photosystems, which are responsible for harvesting light energy furthermore converting CO₂ into biomass. Sugar maple (*Acer saccharum* Marsh) is an ideal species to study due to the extensive range of habitat, specific temperature requirements and its shade tolerance. This study aims to determine the amount of light stress sugar maple can endure along the latitudinal gradient in their distribution while inferring individual responses' to increased solar radiation that may be a product of global climate change. Chlorophyll fluorescence was measured at the northern limit of its range in Lake Superior Provincial Park, Ontario, Canada and within the central range in northern Illinois at Blackberry Maples. To understand future implications of global climate change, chlorophyll fluorescence was monitored in the vulnerable life stages of seedlings and saplings using a modulated fluorometer. Measurements were recorded to track the level of stress throughout the growing season during the summers of 2005 and 2006.

Keywords: chlorophyll fluorescence, climate change, Canada, Illinois, *Acer saccharum*, photosynthesis

Breandan O HUallacháin, Arizona State University. Email: ohuallachain@asu.edu; Timothy F. Leslie, Arizona State University. Email: timothy.leslie@asu.edu; *Do University Patents Weaken Knowledge Spillovers*

Patenting by universities is altering flows of scientific information and invention rates. Results of a traditional knowledge production function approach show that industrial research is a straightforward determinant of commercial patenting across U.S. states, but the effects of university research are more

complex. A spatial econometric model shows that spillovers of university research advance commercial patenting once the effects of university patenting are controlled. This paper also questions the underlying rationale for the knowledge production function approach. Industrial and university research are not simple substitutes. A second model relates underlying regional characteristics to invention rates. Results show that higher levels of high-technology manufacturing and services, greater urbanization, and more invention specialization positively relate to invention rates. Patent procurement by universities and location in the South and the Midwest negatively influence commercial patenting.

Keywords: Knowledge Spillovers, University Patenting, Spatial Regression

William E. O'Brien, Florida Atlantic University. Email: wobrien@fau.edu; State Parks and Jim Crow in the American South

Little scholarly attention has been focused on the history of African American exclusion from Southern state parks under Jim Crow. This paper sheds light on this hidden history, emphasizing white resistance to park system integration during the 1950s and 1960s. State parks generally have received little academic consideration and the few historical works on the development of state park systems largely omit discussion of the foundational fact of their segregation in the South. While park systems in the region developed in earnest starting in the mid-1930s, only a handful of parks in only a few states in the South were available to African Americans until the 1950s. By this time legal challenges to the "separate but equal" doctrine elicited fear among whites about integration, prompting park systems to expand offerings to African Americans in hopes of forestalling that outcome. By the late 1950s most, but not all, Southern states had created areas in several parks, and in some cases even an entire park, for African American recreational use. The strategy, however, began to unravel almost as soon as it began as Federal court judgments in the 1950s and 1960s, following the lead of the *Brown v. Board of Education* decision, declared park segregation illegal, prompting the integration of all park systems by the mid-1960s.

Keywords: State Parks, Jim Crow, Segregation, Civil Rights, African American

Christina W. O'Bryan, University of Oregon. Email: cwobryan@uoregon.edu; North American Interior Landscapes: Evocations of There

Immigrant landscapes are created not just on maps but on the interior geographies of walls, ceilings and floors of immigrant businesses. In ethnic restaurants, markets, and other businesses, representations are created to assert or confirm identity to those within and outside of the community of refugees and immigrants holding a particular ethnicity. This is particularly important in multicultural settings where many ethnic groups vie for recognition and for perceived legitimacy. Such interior landscapes may reflect exterior landscapes, iconic images, social ideals, gender and a wide array of other cultural features designed to distinguish clearly one ethnicity from another. In particular, they sometimes articulate ideas about the gaps between ideals and realities as well as between the remembered past and a present that must be left behind. In this study, which is part of my dissertation research in Vancouver, B.C., I examine the ways in which representations of ethnicity and history in such interior landscapes are deployed in service of ethnic identities. Participant observation, structured and unstructured interviews and focus groups form the central core of my methodology, along with archival research.

Keywords: ethnic landscapes; immigration; visible minorities; politics of recognition; Canadian multiculturalism

Stephen M. O'Connell, Oklahoma State University. Email: geographilia@hotmail.com; Roads to the Wilderness: Highways and the Structure of National Parks

Transportation and National Parks have been intertwined ever since railroad companies supported the establishment of the first parks. As the automobile became the dominant form of transportation in an increasingly mobile country, the structure of parks changed as well. Not only did parks feel the pressures of an expanding infrastructure, they were faced with a change in the dynamics of park visitation and use. As the highways brought more travelers to the far corners of the nation, individual parks were forced to deal with a rise in use while the park system as a whole had to deal with a new landscape of protection and heightened expectations of access. This paper will highlight important trends in the growth of both the national highway and national park systems. Emphasis will be on the relationship between regional highway access and park system expansions with important consideration of changing recreational uses.

Keywords: national parks, transportation, recreation

Daniel P O'Connor, University of Richmond. Email: dan.oconnor@richmond.edu; Capitalist Production of 'White' Space in Neoliberal Nicaragua

The history of Nicaragua is the history of contested and reordered space. Resultant from this spatial discord was the continual production and simultaneous interrogation of "white" space within the borders of Nicaragua. Since the implementation of the domestic neoliberal regime during the early 1990s, global capitalism and its agents have been at the center of a matrix of pressures that work to transform spaces of the "other" within Nicaragua into "white" spaces: areas in which "whiteness" is normatively centered and white privilege is operative. This process of metamorphosis works primarily through both governance and the twin forces of economic and cultural imperialism. Capitalism created and maintained "white" space within Nicaragua quite overtly in the past. However, the discourses of modernization brought on with the Liberal party's return to power partially obfuscate this process and camouflage its racial element. This paper explores several case studies of capitalist production of "white" space within Nicaragua in the period following the fall of the FSLN. Furthermore, this paper situates this process of spatial production within Nicaragua's historical and cultural contexts.

Keywords: Nicaragua, race, space, capitalism, whiteness

Paul O'Hare, Department of Town and Regional Planning, University of Sheffield, United Kingdom. Email: p.o.hare@shef.ac.uk; Grassroots participation in community regeneration and 'community-led' partnerships

The British Labour Government created an Office for the Third Sector, partly in recognition of the increasingly important role voluntary groups now play in delivering public services. The days of civic sector organisations lobbying the public sector and political representatives are increasingly, for many groups, giving way to organisations that assume responsibility for service delivery themselves. This challenges what has traditionally been viewed as state-civic boundaries, with substantial impacts upon both those in positions of power, as well as the civic sector itself. This paper reflects upon ethnographic research on two neighbourhood based community forums in England that attempt to influence decision-making processes and service delivery. Analysis of qualitative data has generated a useful insight into how such groups attempt to gain influence and the reasons why they do so. I examine critical moments in their development and discuss key variables that have a determining influence upon their activity. I investigate the creation of the groups, how they are facilitated and by whom, and how they relate their activities to the state and other community organisations. I illustrate that such groups, despite being distinct from the public sector, are often reliant upon Government or municipal authorities for sustenance. This situation often leads to their activities being restricted, although there are slivers of resistance on the part of communities. The research offers a fresh perspective upon literature in this field, illustrating through grassroots examples how the civic-state dichotomy is much more nuanced and complicated than is often believed to be the case.

Keywords: public participation, partnership, voluntary sector, governance

Linda S. O'Hirok, California State University, Los Angeles. Email: lohrok@adelphia.net; Matt Horns, California State University, Los Angeles. Email: ; Geomorphic Assessment and Stream Restoration of Dry Canyon Creek, Calabasas, California

Dry Canyon Creek is a headwater tributary of the Los Angeles River that drains the north slope of the Santa Monica Mountains. The Mountains Restoration Trust, a Santa Monica Mountains nonprofit trust to provide open space, resource protection and recreation, is planning to restore wetlands and natural processes to Dry Canyon Creek, enhance existing habitat and provide educational opportunities to the public. Dry Canyon Creek has been dramatically affected by human influences. Originally homesteaded in 1890, Dry Canyon Creek's landforms, channel systems, hydrology, riparian plant communities and environmental resources have been altered by agriculture, residential and commercial development, and roads. Aerial photographs reveal that well defined meanders were obliterated when Dry Canyon Creek was rerouted for the construction of Mulholland Highway. To enlarge useable residential property, fill was added and retaining walls constructed along the banks to prevent erosion. Significant amounts of remnant concrete and asphalt discarded into the fill, channel banks and bed have been remobilized and incorporated into the steps, pools and bars. Total length of stream for restoration is 1 km which includes the floodplain and channel network from a large culvert to a bridge downstream that have altered the channel slope. Both structures will be replaced by bridges that do not impact the channel. Geomorphic assessment included longitudinal and cross sectional profiles, sediment analysis and aerial photography to evaluate channel morphology. Macroinvertebrate community compositions were collected from

step environments. Wetland delineation and assessment were determined by David Magney and Associates.

Keywords: fluvial geomorphology, stream restoration, step-pools, Santa Monica Mountains

Morton E. O'Kelly, Ohio State University. Email: okelly.1@osu.edu; *The Impact of the Illinois and Michigan Canal*

The scope of the analysis is the particular geographical transportation system focused on St. Louis and Chicago in the mid-nineteenth century. At that time the rapid development of improved modes of transport transformed the ability of productive growing areas to reach the market with their agricultural surplus. Using geographical information systems (GIS) to develop the necessary network data, this paper examines the redirection of Illinois' agricultural production towards the Great Lakes transportation system then emerging at Chicago. The reactions are presented as a set of equilibrium adjustments. Rather than attempt to work backwards from a world with rail to a more primitive system of wagon and water transport, as Fogel does in a famous counterfactual analysis, this paper works forward from a pre-existing system and shows that the impacts of the changes produced further reinforcing dynamics. The article aims to incorporate spatial analytic models into historical studies with the aid of GIS.

Keywords: Transportation, historical GIS

Kelley J. O'Neal, University of Maryland. Email: kelleyo@umd.edu; John Rogan, Clark University. Email: JRogan@clarku.edu; David Roy, South Dakota State University. Email: David.Roy@sdsu.edu; *Assessment of the Impacts of Climate, Land Use, and Fire Management on Vegetation Composition in Semi-arid Grasslands*

Semi-arid grasslands in the southwestern U.S. are undergoing transformation due to increasing human modification of the landscape and climate change. Over the past century, there has been a substantial decline in grassland extent due to increasing shrub encroachment. This shift in vegetation composition has been facilitated by three drivers of change in the region: climate, land use, and fire management. Conservation and mitigation efforts require information on the effects of each driver, the inter-relationships between the drivers, and the coupled effects of the drivers in combination in order to understand how they continue to impact the landscape. Historical and current spatially gridded climate data, land use records, fire management information, and vegetation composition derived from Landsat and MODIS data were analyzed to understand trends in vegetation composition shifts. Results indicate grazing as the most influential factor in increasing shrub cover, and areas experiencing over-grazing coupled with fire exclusion exhibit the most change in vegetation composition.

Keywords: remote sensing, land use, land cover, fire, climate, semi-arid, rangeland, grazing, grass, shrub

Kathleen O'Reilly, Texas A&M University. Email: koreilly@geog.tamu.edu; *Women's Movements Public and Private: Combining Sanitation and Women's Empowerment in Water Supply*

Women and water resources have been linked together in mainstream development for decades. Many water supply projects include sanitation as one aspect of their intervention and specifically target women as agents for change in household and personal hygiene practices. In contrast to research that accepts taken-for-granted linkages between women, water and sanitation, this paper investigates the impact of latrines on women's mobility and empowerment. I explore the implications of latrine building for gendered, social change. Through a series of images, I show the connections between water, latrines and village women made by Indian staff of a Rajasthani drinking water supply project. I also discuss the opportunities and contradictions that emerged over the course of the project due to latrines. The siting of latrines, their usage, and their acquisition played simultaneous roles reinforcing and subverting social norms about women's access to public and private spaces and their movements within these spaces. The findings of this research apply to a broad context of sanitation projects insofar as they suggest that latrine building and usage promotion are both technical and complexly gendered political interventions.

Keywords: gender, water, latrines, India, development

Adam O'Shay, PhD, Risk Management Solutions. Email: adam.oshay@rms.com; Steve Jewson, PhD, Risk Management Solutions. Email: Steve.Jewson@rms.com; Manuel Lonfat, PhD, Risk Management Solutions. Email: Manuel.Lonfat@rms.com; *Statistical Development of a 5-Year Perspective on Hurricane Activity in the Atlantic Basin*

This work illustrates several perspectives on modeling Atlantic Basin Hurricane activity during the five year period: 2007-2011. A collection of models using historical data from the National Hurricane Center's HURDAT catalogue in addition to the Hadley Center Sea Surface Temperature data (HadISST), have been developed that rely upon the relationships of past hurricane seasons and the association of Sea Surface Temperature and hurricane activity. Those methods

were applied to the basin activity, US landfalling hurricanes and to regional activities in the Western Atlantic. This study summarizes the main components of those methods and results derived for the number of storms in the basin and at US landfall and will be discussed in the context of applicability to the insurance and reinsurance industry.

Keywords: hurricane,atlantic,landfall

Margaret O'Shea, BSc., MA., University of British Columbia. Email: meg.oshea@gmail.com; *The Emergence of Embodied Sustainability*

Sustainability exists as both a conceptual and a practical entity. The conceptual terms and conditions of the political, economic, social, and ecological needs for a sustainable future constitute substantive sustainability. Procedural sustainability is the local instantiation of those terms and conditions in the form of human behaviour. Substantive sustainability is a conceptual paradigm and thus cognitively biased while procedural sustainability is inherently behavioural. Actions and behaviours emerge as members of the public selectively take up some arguments of substantive sustainability to embody values and preferences within the environmental context. This critical concept of emergence must be allowed for in communications about sustainability and in the expectations of public response. Creating a space in which behaviours and actions may emerge at the local level empowers lay people and communities as architects of and participants in creating a sustainable future. Valuing the emergent property of embodied sustainability (pro-environmental behaviours and actions) also functions to close the gap between substantive sustainability as a concept and procedural sustainability on the ground. The call for pro-environmental behaviour change can be made in the terms of individual and collective capacities for action, allowing for the emergence of pro-environmental behaviour change as a response to a diminished gap between substantive and procedural sustainability.

Keywords: sustainability, embodiment, behaviour change, communication

David B O'Sullivan, University of Auckland. Email: d.osullivan@auckland.ac.nz; Chris McDowall, University of Auckland. Email: c.mcdowall@auckland.ac.nz; *School Choice and Neighborhood Change in New Zealand, 1998-2005*

New Zealand was among the first countries to introduce 'parental choice' in education, whereby parents may decide which state school their children attend. Parental choice is now an established feature of the social and educational landscape, and is also a common feature of school reform programmes worldwide. Parental choice conflicts with the widely held ideal of neighbourhood schools, and since 2001 the New Zealand system has attempted to resolve this tension by guaranteeing that children can attend school locally by requiring popular schools to designate and maintain a geographical zone. Linking geographical zones to a choice system makes household decisions about education and school decisions in zone design especially critical to processes of neighbourhood formation and change, and may impact on the socioeconomic and ethnic composition of neighbourhoods. We will present preliminary results on changes in the ethnic composition of schools in New Zealand from 1998 to the present, focusing particularly on Auckland, a diverse, cosmopolitan city, which has seen large inflows of Asian immigrants in recent years, many at least in part for educational reasons. Regional variations in the patterns of change with respect to the socioeconomic status of schools and school type will also be examined.

Keywords: school choice, neighborhoods, segregation

Tim Oakes, University of Colorado. Email: toakes@colorado.edu; *Welcome to Paradise! Domestic Tourism and the Myth of the Frontier in China*

Based on long-term fieldwork in southwestern China, this paper argues that with the campaign to Open Up the West, China has initiated a new era of national myth-making. It focuses on the construction of mythic frontier landscapes, through commercial tourism development, as the concrete expression of a "modern" and "civilized" national identity. China's western frontier landscapes and cultures have become resources for commercial tourism development. Developing these resources, however, depends on a process of utopian myth-making, and in this China is embarking on a project strikingly similar to the United States 19th century model of frontier development and nation building. The paper thus suggests numerous points of comparison between China and the United States and ultimately argues for an understanding of the frontier myth as a product of a global imperialist discourse.

Keywords: China, Tourism, Frontier

Ann M Oberhauser, West Virginia University. Email: ann.oberhauser@mail.wvu.edu; *Negotiating Scale and Gender in the Context of Neoliberal Restructuring*

This paper addresses the socio-economic dimensions of neoliberal reforms in the Global South. In recent years, development studies have included critical analyses of the discourse and practice of neoliberalism that focus on the scale of the nation-state and global institutions. Relatively little attention, however, has

been paid to household livelihoods and specifically the effects of neoliberal restructuring on gender dynamics in employment and related economic activities. This research focuses on the multiple and intersecting scales that shape alternative livelihood strategies in Accra, Ghana. In this context, state support for social services has been dramatically reduced while market-driven economic reforms have been implemented as part of neoliberal structural adjustment programs and more recent IMF programs linked to debt relief. This discussion examines community-based and household strategies in the context of neoliberal economic and political restructuring that involve diversification of livelihoods, informalization of labor, and increasing vulnerability of workers in the labor market. The analysis is based on research conducted on livelihood strategies in Ghana's capital city of Accra where everyday economic practices are strongly affected by neoliberal strategies. This study has implications for gender analyses of neoliberalism and livelihood strategies, especially at the local and household scales.

Keywords: neoliberalism, gender and development, Ghana

Alex Oberle, University of Northern Iowa. Email: Alex.Oberle@uni.edu; *Immigration rhetoric versus economic redevelopment: The role of Latino businesses in revitalizing declining Iowa towns*

The recent mid-term political cycle brought the drumbeat of anti-immigration rhetoric to the forefront of both state and national campaigns across Iowa. Like similar discourse elsewhere in the country, media attention only focused on negative themes. Yet Iowa, unlike most states, is experiencing only very modest population growth that is largely confined to major metropolitan areas, while many rural or micropolitan areas have been devastated by substantial population losses in recent years. These population declines are particularly evident in many CBDs where vacant storefronts and high turnover are now the norm. This paper examines how Hispanic businesses in some communities have served as a catalyst for redevelopment. In particular, this research explores this dichotomy between the popularized criminalization of immigrants versus the reality of Latino immigrant entrepreneurship as a successful form of economic revival.

Keywords: Hispanic, redevelopment, rural decline, Iowa

Godson C. Obia, Eastern Illinois University. Email: gcofia@eiu.edu; *Cultural Adaptations to Population Growth and Declining Environmental Resources in Rural Areas of Sub-Saharan Africa*

It is a widely held view that population growth in developing countries is the culprit in environmental degradation. Policies emanating from this view presume that population decline will ultimately result in reducing population pressure on the environment. Decades of such policies have achieved limited effectiveness in rural areas of Sub-Saharan Africa. Part of the reason for this failure is that the public policy debate on population and environmental degradation has paid little attention to the impact of local adaptive mechanisms in combating population pressure and environment degradation. This paper examines the successes and limitations of cultural and ecological adaptations to population pressure and environmental degradation in selected areas of Sub-Saharan Africa. The paper finds that cultural adjustments to land use and land tenure, the availability and use of technology, and the diversification of the rural economy play a significant role in ameliorating environmental degradation. The results also indicate that successful cultural and ecological adaptations promote integrative rural development and act as catalysts to rural poverty alleviation. The paper identifies the successes and limitations of cultural and ecological adaptations and underlines their implications for rural policy on population and the environment.

Keywords: population growth, environmental degradation, cultural adaptation, Africa-Sub-Saharan

John Onu Odihi, PhD, Universiti Brunei Darussalam, Bandar Seri Begawan, Brunei Darussalam. Email: odihi@fass.ubd.edu.bn; *Water Pricing Sensitivity in Brunei Darussalam*

The aim of this paper is to highlight the problems of raising water rates in Brunei Darussalam, a country with a long tradition of high water subsidies and high per capita water consumption, and to suggest ways of overcoming the problem. There are good reasons to tackle the high rate of water consumption although the country is well endowed in water resources which are renewable. These include the high cost of providing water and the inevitable growth in demand in future as a result of the country's high population growth rate and the planned diversification of the economy from its present monocultural base of oil and gas exploitation to industry, tourism and agriculture. There is also an important ecological reason. Brunei has only 8.5 km³/yr annual renewable water resources. A survey of households to determine sensitivity to raised water rates showed that people are generally unhappy about and will be unwilling to pay for any increase in rates because they see water mainly as a social good that government should provide free for them. The strong feelings which people have against raising of water rates requires government to work hard to educate people

on the need to use water more efficiently and to accept higher rates that mirror the true cost to government of supplying water to consumers. The existing mass media and religious institutions in the country can be used to facilitate such education.

Keywords: Brunei Darussalam, water, pricing, sensitivity

Ceri Oeppen, BSc, MSc, University of Sussex. Email: c.j.oeppen@sussex.ac.uk; *Return, Remittances, and Social Change: Afghans in California*

In recent years there has been a growing academic and political interest in the role that refugee diasporas can play in the future of their 'sending' countries, as well as how diaspora groups can support fellow refugees in 'receiving' countries. It is now widely recognised that refugee migration is very rarely a one stage, permanent move; this is particularly true for those with the resources to occupy transnational spaces by accessing education or business opportunities in multiple places, including making temporary return visits to the 'sending' country. The research outlined in this paper discusses how Afghan professionals have used the transnational networks initiated and maintained by migration and return visits, to try and improve the social situations of Afghans in Afghanistan and within the diaspora. The paper is based on semi-structured interviews and participant observation with Afghan professionals in the East Bay area of California.

Keywords: Afghans, California, refugees, diaspora, transnationalism, return migration

Benjamin Ofori-Amoah, Western Michigan University. Email: ben.ofori@wmich.edu; *Trade Area Characteristics and Survival of Downtown Malls: A Suggested Explanation from Wisconsin*

The survival of downtown malls is one of most difficult problems facing small cities in the United States. Over the past decade, small cities have been struggling to retain their downtown malls with mixed results, just as their large city counterparts had done several decades before them. In Wisconsin, where most small city downtowns have lost the battle of retaining retail to outskirts locations, Downtown Wausau appears to be holding its own. It is still booming in the face of outskirt location of retail activities. Using traditional methods of trade area analysis, the paper investigates the reasons behind the successful performance of Downtown Wausau compared to the failure of other small city downtowns in the state as retail centers. The paper concludes that the relative location of the city of Wausau, which in turn has led to the lack of strong competition, is the single most important trade area characteristic accounting for much of Downtown Wausau's success as a retail center.

Keywords: downtowns, trade area analysis, relative location

Yelena Ogneva-Himmelberger, Clark University. Email: yogneva@clarku.edu; *Urban sprawl in Moscow, Russia: linking pattern to process*

This paper analyzes spatial patterns of urban expansion in Moscow, Russia over a 10-year period right after the collapse of the Soviet Union. Spatial patterns of land cover change are examined using a novel technique, distinguishing between a systematic and a random change in the landscape. Once systematic patterns of change are determined, they can be linked to the underlying processes. Land cover maps were created from Landsat TM and ETM+ imagery for 1991 and 2001. Spatial metrics (texture measures) were combined with multispectral bands to classify the images using Fisher classifier, which is based on the discriminant analysis. Four broad categories of land cover were identified: built-up areas, forest, agriculture/open land, and water. Subsequent crosstabulation analysis determined spatial location and the extent of all land-cover transitions, including total loss and total gain per category. Quantitative information in the crosstabulation matrix was further analyzed according to its various components in order to calculate the amount of change expected due to a random process. Observed and expected gains and losses were compared to single out the systematic changes in the landscape. Our analysis showed that urban expansion at the expense of the agriculture/open land was the main systematic land cover change in Moscow between 1991 and 2001.

Keywords: land change, Russia, spatial pattern, matrix

Monica V Ogra, Gettysburg College. Email: mogra@gettysburg.edu; *Gender, Vulnerability, and Human-Wildlife Conflict at Rajaji National Park*

This paper examines the gendered aspects of human-wildlife conflict (HWC) in a rural village adjacent to a national park in Uttaranchal, India. Based on an analysis of direct and indirect effects of HWC on people in one park community, this case study suggest that (a) local residents interact with wildlife in specific and gender-differentiated ways, (b) impacts of HWC are compounding in nature, and (c) negative consequences of HWC may be distributed unevenly between female and male household members. The findings highlight the relative invisibility of women's vulnerability to HWC, in particular, and point to

potential ways to reduce people-park conflict.

Keywords: political ecology-feminist, gender; human-wildlife conflict, elephants, protected areas, India

Chandrani Ohdedar, Penn State University. Email: chandrani@psu.edu; Tacit knowledge and quality of work: A case study of call centers in Kolkata, India.

A decade after lower labor costs prompted outsourcing of services from the developed world, much attention is being paid to the quality of services being provided by firms in developing countries. Offshore destination countries like India now face the challenge of providing high quality service at a low cost. Existing literature has shown a strong connection between tacit knowledge and higher quality of work in manufacturing industries. This relation has not yet been studied in greater detail in the voice-interactive services sector. The aim of this study is to explore this connection in the context of voice-interactive services through a case study of call centers in Kolkata (India). An ethnographic study of call center agents was done to understand how tacit knowledge is created in call centers and the skills developed by the agents by applying tacit knowledge to their work. Skill development is critical for improving the quality of work and moving up the value chain of services. The study concludes that tacit knowledge is vital for skill development and consequently better quality of work in voice-interactive services. However, certain characteristics of the labor processes within a call center, like long work shifts, limited growth opportunities, emotional stress at work often act as impediments to the effective translation of tacit knowledge into higher quality of services, thereby preventing agents to move up the value chain of services.

Keywords: Offshoring, call centers, tacit knowledge

Koji Ohnishi, University of Toyama. Email: ohnishik@hmt.u-toyama.ac.jp; Children's social environmental learning through crime prevention maps in Japan

These days, there are a lot of crimes that children become victims in Japan. For creating and finding safe place for children, many schools' PTA and local governments make crime prevention maps for children. In these maps, many criminal and traffic dangerous points are indicated. This study evaluates these maps effectiveness for keeping children's safety, and is clarify children's environmental learning through these maps. Are these maps effective for crime prevention? Many crime prevention maps were made by adult in the local community. For children, it is just ready made maps. Children read just the signs of dangerous points from maps and they cannot find the reason why the points are dangerous. Children should understand why these points are dangerous and they must learn to find the dangerous points and places. Ready made crime prevention maps are not effective for children to learn crime prevention concept. Some crime prevention maps are made with children's participation. These are effective for crime prevention learning and social environmental learning. For map making, children have to walk their town with adult and learn the dangerous points and places, and they have chances to learn why these points and places are dangerous. For example, they learn dark and few people walking roads are dangerous for abduction and assault from adult. Map making process is important. For making effective crime prevention maps for children, children's participation style map making is important. The participation fosters children's understanding why these points and places are the dangerous.

Keywords: children, geographic education, crime, map

Kayo Okabe, Hosei University. Email: kayo@folio-net.com; Atsuyuki Okabe, University of Tokyo. Email: ; Siripun Morathop, Dept. of Livestock Office, Thailand. Email: ; Wittaya Chintanawat, Chiang Rai Provincial Livestock Office. Email: ; Analysis of villagers' behavior of keeping chicken in North Thailand

The objective of this study is to analyze villagers' behavior of keeping chicken in relation to tribes, land use and topography of the villages in Chiang Rai Province, North Thailand. For this study, the questionnaire survey was conducted in January 2006 as part of the Japan-Thailand joint study of the Human-chicken Multi-relationships (HCMR) research project. This project has been studying domestication processes of chicken through the interdisciplinary viewpoint of geography, biology, anthropology, economics, and linguistics. The questionnaire consisted of questions about seven aspects: 1) characteristics of villages, 2) raising chicken, 3) chicken feed, 4) fighting cock and fancy chicken, 5) jungle fowl, 6) cost of raising chicken, 7) marketing chicken. The total number of questions amounted to sixty eight. The interviewers asked two persons in each village, i.e., a village head and a villager who keeps chicken (except for a few villages). The number of interviewed persons was 1236 across 669 villages. Focusing on aspects 1, 2, 4 and 5, this paper statistically examined the behavior of villagers with respect to: i) purposes keeping chicken, ii) methods of chicken raising, iii) methods of breeding, species selection, iv) choice of chicken type, v) experience of raising jungle fowl (original species of domesticated chicken), vi)

cross breeding between domesticated chicken and jungle fowl, vii) possibility of domesticated chicken turning to wild chicken, viii) fighting cock, color and shape preference. All these factors were examined in relation to tribes, land use and topography.

Keywords: chicken, tribes, topography

Kohei Okamoto, Nagoya University. Email: h44540a@nucc.cc.nagoya-u.ac.jp; The change of the function of visual information in geographical studies

Geographical studies commonly employ visual information such as maps and figures. The relationship between geography and visual information differs by research framework and it changes over time. This study examined the quantity of visual information employed by the papers in major geographical journals in Japan, U.S. and U.K. since 1950. The journals examined were *Geographical Review of Japan*, *Annals of the Association of American Geographers*, and *Transactions, Institute of British Geographers*. The result for AAAG was as follows. 1) Through 50 years in the late 20's century, the total number of visual information employed was 50 pieces per 100 pages in average, which was equivalent to the area of 25 pages (maps; 7pages, tables; 5pages, photograph, paintings, and pictorial diagram; 6pages, other figures; 7pages). That is, a quarter of the total pages were occupied with the visual information. 2) Historical analysis showed that the number of visual information was small in 1950's, and it rapidly increased in the 60's, and then reached the maximum in the late 20's century. It decreased subsequently through 70's to 90's. The results indicated that the visual information increased after the quantitative revolution of geography when the empirical studies flourished, and the role of the visual information became less significant in the recent studies.

Keywords: visual information, geographical journals

Yuko Okubo, University of California, Berkeley. Email: yokubo@berkeley.edu; Politics of Multicultural Education and Production of Ethnic "Others" in Globalizing Japan

This paper, based on an 18-month ethnographic research, explores Chinese and Vietnamese "newcomers'" (new immigrants') experiences of multicultural education in a multiethnic neighborhood in Osaka, Japan. In particular, I investigate the tensions that exist between Japanese teachers' interpretations of and responses to the discourse of the national government and the discourse of the local minority education. Under the multicultural education program, the marking of "newcomers" as ethnic "others" occurs despite teachers' efforts to empower these immigrants in school where citizens of modern-nations are produced. The teachers in my field site require all children whose parents are "newcomers" to be enrolled in Japanese language class regardless of the students' length of stay in Japan or their Japanese language ability. The national government, on the other hand, simply acknowledges Japanese language instruction for foreign students who are in need of the language instruction. Moreover, clubs that celebrate students' international backgrounds are often offered together with Japanese language classes, linking such marking of nationality to the lack of Japanese status in Japan. Since the local minority education encourages "newcomers" to be proud of their background as ethnic minorities, even second-generation Vietnamese, who are already fluent in Japanese, are further rendered members of ethnic minorities through such educational activities. Since the cultural assimilation of previous minorities (Burakumin [former outcaste people], resident Koreans) and the recent local internationalization movement (kokusaika) contribute to the increasing marginalization of the "newcomers," I argue that this phenomenon captures a unique moment in globalizing Japan, one that requires further examination.

Keywords: immigration, education, Japan

Shii Okuno, University of Marketing and Distribution Sciences. Email: shii_okuno@red.umds.ac.jp; The Human Landscape of Naxi people's Heritage - Lijiang: Its Townscape, Environment, and Donba Culture

The paper attempts to describe the human landscape of Lijiang, Yunnan Province, China, which is the Naxi people's settlement inscribed in UNESCO's World Heritage. It tries to find out why Lijiang has transformed itself from a marketplace into a town settlement, and why there were no walls to protect it. The physical townscape can be summarized by the keywords of old paths, small bridges, running streams, and three-box with one-wall houses. The Donba scripts and religious practice illustrate the myths, beliefs, and man-in-the-environment relationship of Naxi people. Nowadays Naxi people also adapt cultures and practices of its neighboring groups, and blend them into a new harmony in their livelihood.

Keywords: Naxi, heritage, Lijiang, townscape, Donba, cultural ecology

Andrew Oliphant, San Francisco State University, Department of Geography. Email: andrew@sfu.edu; Peyman Zawar-reza, University of Canterbury, Department of Geography. Email: ; Ghasem Azizi, University of Tehran, Department of Physical Geography. Email: ; Alireza Dehghanpour, Payam-e-noor University, Department of Geography. Email: ; Justin Harrison, University of Canterbury, Department of Geography. Email: ; *Surface Microclimate Observations of an Iranian Desert*

Desert environments cover approximately twenty percent of Earth's surface and provide an important thermally extreme boundary to the atmosphere through exchanges of radiant and turbulent heat fluxes. They also provide an important contribution to tropospheric aerosols which strongly impacts atmospheric radiation budgets. Despite the considerable surface area and diversity of climates and ecosystems, desert microclimates have received relatively little detailed observational attention, particularly many Middle Eastern and Central Asian deserts. This study presents surface energy, radiation and water flux observations from a desert in Yazd Province, in the west of one of the biggest playas in Iran (Lout) which is covered by salt layers, located near the geographic center of Iran, collected in the summer and autumn of 2006. Observations include eddy covariance measurements of turbulent heat fluxes at 3 and 12 m above undulating sand dunes and sparse vegetation as well as the surface radiation budget, ground heat fluxes and profiles of temperature, humidity and wind speed. In addition, attention is brought to a severe environmental problem in Sistan Province, near the Iranian border with Afghanistan where strong northerly summer winds blow across a recently dried lake bed resulting in extreme sand and dust storms and inundation of the city of Zabol and surrounding agricultural areas.

Keywords: micrometeorology desert, surface energy balance

John E. Oliver, Indiana State University. Email: johnoliver47@msn.com; Climatic Change in the Middle East: Impacts

"An understanding of past climates and past variability within the Earth's climatic system is essential to help understand current climatic variability and provide insights into future climatic change. Possible causes for climatic change will be briefly discussed, their relative significance noted, and potential causes for current climate variability and changes in the Middle East explored."

Keywords: Climate, Middle East

Lisa N. Oliver, Simon Fraser University. Email: loliver@sfu.ca; If you build it? will they walk? Using GIS to examine the influence of land use on walking behaviours in Greater Vancouver, Canada

Examining environmental influences on walking is important from a population health perspective as it is the most common physical activity among adults. Local land use may influence walking patterns by structuring opportunities to engage in particular types of walking. Undertaking such research requires GIS methods to measure salient characteristics of individuals' local environments. This research uses GIS to evaluate the influence of land use on patterns of walking in Greater Vancouver. A survey of 2000 adults in suburban neighbourhoods in Greater Vancouver was conducted in February 2006. A 5-point Likert scale was used to assess three categories of walking in the neighbourhood: walking for leisure, walking to work/school, and walking for errands (e.g. grocery store, bank). GIS is used to construct one-kilometer circular and network buffers around each respondents postal code centroid. Land use characteristics are calculated for circular and network buffers including the proportion of land area that is residential, commercial, industrial and parkland. This research demonstrates that GIS methods are valuable for population health research to examine the influence of land use characteristics on patterns of walking.

Keywords: physical activity, land use, population health, GIS

Norman Oliver, M.D., M.A., University of Virginia. Email: noliver@virginia.edu; Kevin A. Matthews, M.S., University of Virginia. Email: kev.matthews@gmail.com; Mir Siadat, M.D., M.S., University of Virginia. Email: mirsiadat@virginia.edu; Fern R. Hauck, M.D., M.S., University of Virginia. Email: frh8e@virginia.edu; Linda W. Pickle, Ph.D., National Cancer Institute. Email: picklel@mail.nih.gov; Geocoding and selection bias in public health research using geographic information systems

Context: Researchers increasingly are using geographic information systems (GIS) to assess population health. However, GIS analyses can be biased owing to inaccuracies in geocoding. Objective: To describe selection bias in GIS analyses with unrepresentative data owing to missing geocodes. Design: A spatial analysis of prostate cancer incidence among whites and African Americans in Virginia, 1990-1999. Outcome measures: Statistical tests for clustering were performed and such clusters mapped. The patterns of missing census tract identifiers for the cases were examined by general linear regression models that included age, education, and income characteristics in the area. These analyses were stratified by the rural status of the community. Results: All cases in the VCR are located in

counties, and 26,338 (74%) of these cases were successfully geocoded to census tracts. The overwhelming majority of unmatched cases were in rural locations. Statistical testing for global clustering was highly significant for the entire study period. Statistically significant local clusters at the county level were identified in both time periods, using either 100% of the cases or the reduced data set of just those cases geocoded to census tracts (74%). In the cluster map for each time period, however, cluster patterns appeared markedly different, depending upon whether one used the cases located in the county or those geocoded to the census tract. Discussion: We found statistically significant pattern differences resulting from spatially non-random differences in geocoding completeness across Virginia. Appropriate interpretation of maps, therefore, requires an understanding of this phenomenon, which we call "cartographic confounding."

Keywords: geocoding, selection bias, spatial epidemiology, public health, cancer surveillance

Eric D. Olmanson, University of Wisconsin. Email: eolmanso@wisc.edu; A Short History of Imaginative Geographies of Lake Superior

This paper will examine the role of the imagination in the interpretation of the Lake Superior environment, focusing on the southern shore, with examples from the seventeenth and nineteenth centuries. It will examine the writings of Jesuit Fr. Claude-Jean Allouez, who left one of the earliest written accounts of the region, depicting the Lake Superior region as a demonic haunt; Henry Rowe Schoolcraft and Thomas McKenney, who each accompanied Lewis Cass, the territorial governor of Michigan Territory, on important expeditions to Lake Superior, and whose perceptions of landscapes and people were influenced by romantic poets, painters, and novelists; Charles Whittlesey and David Dale Owen, whose rigorous geological reports employed romantic aesthetic conventions and references to the sublime; mid-nineteenth century boosters, who imagined interminable resources and geographical forces all but determining the rise of a future metropolis on the west end of Lake Superior; and bird's-eye view artists, who depicted pastoral scenes in northwoods settings.

Keywords: imaginative geographies, ruins, Lake Superior, environmental perception

Elizabeth A. Olson, University of Edinburgh. Email: e.olson@lancs.ac.uk; Discerning the edges of faith: exploring the intersections between religious values and secular norms in development

In cities and elsewhere, recent geographic research on faith actors demonstrates a departure from conceptions of religious actions and organizations as conscripted, distinct places, and toward an analysis which focuses on the negotiation and contestation of ideological and normative boundaries between 'the secular' and 'the sacred'. In this paper, I explore the challenges faced by faith-based development organizations in negotiating meaning and practice in the modernist project of development. My examination draws upon ongoing participatory and action research with a network of Christian evangelical development organizations, and more specifically, on the ethnographic encounter of working with this group to elaborate a means for measuring spiritual impact. Rather than suggesting how spiritual impact can be measured, in this paper I disentangle the processes and conversations involved in defining terms and clarifying what a positive 'spiritual impact' might look like. I suggest that concepts such as justice are arrived at through complex negotiations between doctrine, identity and politics, including the practical problem of remaining responsive simultaneously to the expectations of religious membership and to those of secular states. I further examine the tensions between the secular solution of social justice as achievable through interfaith cooperation, and a view of justice and dignity as ultimately achievable only through spiritual transformation. Though the paper is particularly rooted in development discourse, it parallels ongoing conversations in other geographical settings about the boundaries between secular and sacred normativities and the consequences for how social agendas are established and pursued.

Keywords: religion, development, ethics

Jeff Olson, Geography Department, The Ohio State University. Email: olson.154@osu.edu; Geographic Changes in US Banking

The banking industry in the United States has undergone some major structural changes in the past 20 years. Banks, by and large, were restricted in their market areas by state boundaries by the Glass-Steagall Act of 1933. The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, however, opened the door to interstate banking and has led to fewer banks, larger banks, and a change in financial centers and flows. This presentation looks to quantify the changes in geographical aspects of the banking sector and identify the implications of these changes to the economy.

Keywords: Banking, Economic Geography, Financial Geography

Judy M. Olson, Professor, Michigan State University. Email: olsonj@msu.edu; *Human Subjects Research and the IRB*

Academic research with human subjects inevitably involves IRB (Institutional Review Board) approval. Cartography, GIS, and visualization researchers, as well as those in many other areas of geography, commonly conduct human-subject studies that are innocuous (a usability focus group, for example) or they may conduct studies that put subjects at risk (a vehicle navigation protocol, for example). In either case, people may flock to participate or recruiting them might require considerable effort. Whatever the nature of the study, and regardless of how anxious people are to participate, the IRB has to give its approval for the study to proceed. Why do these Boards exist? Does IRB approval really matter? What do they look for? How does one get through the process without compromising what needs to be done? Do they really do audits? Relating the IRB process to human research in geography, and especially to research in cartography, GIS, and visualization, I will suggest some specific guidelines including: do not ignore it, use the process to prepare for and to check your readiness to conduct the research, know the required elements of Consent Forms and include them, and do not make unrealistic promises because you think it might help "get it through." Basic understanding of the principles of human subject protection help in interacting with IRBs.

Keywords: IRB, Institutional Review Board, human subjects research, cartography, GIS, visualization, usability

Tyra Olstad, University of Wyoming. Email: tolstad@uwyo.edu; *Defining the Red Desert: How Sense of Place Influences Conservation Values*

When federal officials began revising management plans to allow for oil and gas development on public lands in south-central Wyoming, citizens began vociferously campaigning to conserve the open, arid region known as the Red Desert. The professional positions expressed by both groups, however, do not fully reflect the rich relationships individuals have formed with the landscape; local residents' personal experiences and values have shaped their perceptions of the desert's geographic features and aesthetic qualities. This study uses qualitative methods to examine how such senses of place can ground conservation values in a region that is in the process of transformation.

Keywords: place attachment, land management, desert landscape

Steven Oluic, PhD, US Military Academy. Email: bs6943@usma.edu; *The Hidden Front in the War on Terror: Radical Islam and Bosnia & Herzegovina*

The purpose of this research is to explore the presence and role of militant radical Islam in Bosnia and Herzegovina. Using open source intelligence and information garnered from visits with Bosnian and Serbian Embassy officials in Washington DC, the US Department of State, J5 - Department of Defense, and Defense Intelligence Agency representatives, this research indicates that a legitimate radical Islamic threat exists in Bosnia. The presence of former foreign Muslim fighters (mujahadeen), radical Islam linked NGOs and charities, the overseas training of Bosniak clerics in conservative Islamic states, Islamic banking operations, strengthening ties with known state sponsors of terrorism, and unwillingness of Bosniak political and religious leaders to even acknowledge and engage the issue of radical and militant Islam in Bosnia highlights a region ripe for possible exploitation as a sanctuary for radical Islamic operations. Moreover, the recent arrests of suicide bombers, terrorist cell members and discovery of links between Bosnia-based radicals and global terrorist network affiliates signifies that Bosnia is already an established base for radical and militant operations. This research illuminates a front in the Global War on Terror that receives scant attention or concern from US intelligence and military agencies.

Keywords: Bosnia, Radical Islam, Terrorism, mujahadeen

Eric Olund, University of Sheffield. Email: e.olund@sheffield.ac.uk; *White Slaves and Sovereign Subjects*

The white-slavery scare in the early 20th-century US unambiguously racialized and gendered prostitutes as white and female; indeed, Progressive social reformers appeared to regard the notion of a black prostitute as an oxymoron. I will explore the ways this racialized distinction was produced through different regulatory strategies in US cities at a time that the state was called upon more and more to regulate the minutiae of society.

Keywords: Progressive era, prostitution, race

Bruce O'Neill, 1st Year Phd Student, Stanford University. Email: boneil02@stanford.edu; *The exotics of space: Starbucks Retail & the production of urban 'dream worlds'*

This paper analyzes the exotic contours of themed space - the construction of urban dream worlds that seduce consumers and that consumers allow themselves to be seduced by. How are some kinds of consumption practices made to be attractive? I address this question through a spatial analysis of a Starbucks Corporation retail store, the international coffee company that has made billions of dollars convincing its customers that they are buying more than coffee. They are buying an experience. Starbucks, I argue, themes its space to this end - Starbucks exotically charges its space by promising an urban experience even in places that are solidly suburban. Drawing on the work of Henri Lefebvre, Roland Barthes and Mark Gottdiener, I argue that through the theming of suburban space, Starbucks produces a synthetic urban cafe experience that is clean, safe and sexy. Connecting my spatial analysis with the existing literature on shopping malls, I examine how Starbucks communicates its urban fantasy through things like hung art, music, lighting and windows. Lastly, I examine the significance of locating a Starbucks in rural Illinois. Referencing film and literary theory, my end point is that by visiting Starbucks, suburbanites who otherwise would not connect with the city are given an opportunity to people watch, to observe bustling spaces and to allow their imagination to wander - in short, to engage in a contrived form of flaneurie.

Keywords: Starbucks, themed space, commodity fetishism, city-&-the-suburb, flaneur

Aihwa Ong, University of California, Berkeley. Email: geoywc@nus.edu.sg; aihwaong@berkeley.edu; *Neoliberal Exceptions, Asian Assemblages*

Is neoliberalism an economic tsunami sweeping across the global landscape, saturating each nation in turn? Yet the very conditions associated with the neoliberal - extreme dynamism, responsiveness to contingencies, and strategic entanglements with politics - confound the multiscale approach of critical geography. This talk suggest a transversal approach that stresses situations of emergence over the stabilization a new global order. Neoliberalism is conceptualized as a migratory logic of governing that is taken up in environments as varied as the Asian tiger or post-socialist authoritarian without entirely replacing the political ideology. Using an analytics of assemblage, I identify a range of tropical milieus. In Asian contexts, neoliberal strategies are translated into policies for promoting self-governing subjects and knowledge societies. I will distinguish the differential conditions of possibility crystallized in Malaysia, Singapore, and China. When neoliberal strategies are introduced as an exception to business as usual, unexpected political and cultural outcomes ensue.

Keywords: Neoliberalism, critical geography, Asia, Singapore Journal of Tropical Geography Lecture

Serene S Ong, MS, University of Redlands. Email: Serene_Ong@Redlands.edu; *Local scale soil erosion modeling using the ArcGIS ArcHydro data model and the Revised Universal Soil Loss Equation (RUSLE): a case study for the North Coast of Honduras.*

The objective of this study is to present a hydrologic and soil loss model at the local scale, using a several watersheds in Northern Honduras as a case study. The Lean and Cangrejil watersheds on the North Coast of Honduras face serious problem with accelerated soil erosion due to increased subsistence farming on the steep slopes of the upper watersheds. In the lower portions of the watersheds, soil erosion has affected water quality within the rivers and deposited sediment into estuaries such as the Boca Cerrado on the lower San Juan River. This has caused the estuary to become shallow over the last few years, changing the coastal habitat for critical wildlife, e.g. the protected Antillean Manatee in the Cuero y Salado/RAMSAR wetland reserve. An assessment of soil loss is essential for formulating effective soil conservation and management plans of these watersheds for sustainable development and protected-area management. We used the ArcHydro data model as a basis for defining the hydrologic network, and the Revised Universal Soil Loss Equation to calculate sediment loss within the study area. The model will serve as a planning tool, allowing watershed and park managers to assess and model various land use practice scenarios and timings to minimize overall soil loss. This was a preliminary study, using the best available collected data for model inputs. The paper also makes recommendations for improved data quality collection and verification with ground checking and field studies.

Keywords: watersheds, erosion, soil loss, hydrological modeling, ArcHydro, Honduras-northern, RUSLE

Joseph R. Oppong, University of North Texas. Email: oppong@unt.edu; Drug Arrests and HIV/AIDS in Dallas County, Texas

Recent work has shown a strong link between imprisonment and HIV/AIDS in Texas. Also intravenous drug use (IDU) is the most frequently reported mode of exposure among those diagnosed with HIV/AIDS in Texas prisons. Using crime data for Dallas County 1991-2006, this paper examines the geography of drug-related arrests in Dallas County, TX, in relation to imprisonment and HIV/AIDS incidence. Focusing on demographics such as race/ethnicity, age, and address information of drug offenders the research attempts to link drug use and HIV/AIDS in Dallas County. The research sheds some light on the links between HIV/AIDS and IDU in Dallas County, and the race/ethnic differences in HIV/AIDS rates.

Keywords: HIV/AIDS, illicit drug use, race/ethnicity

Sharon Ordeman, San Jose State University. Email: erordem@pacbell.net; Charles E. Chapin, . Email: charliechapin@gmail.com; Site Selection, Disaster Recovery and GIS for Habitat for Humanity-Guatemala

Habitat for Humanity Guatemala needs a GIS application to model appropriate building site selection by assessing natural disaster risks and developing a much needed disaster response and recovery plan. While the organization has already built 20,000 houses, their goal of building 1.5 million homes is challenged by the volatile natural landscape. The devastation wrought by Hurricane Stan in October 2005 embodies the omnipresent risk of natural destruction in Guatemala while exposing a void in disaster management. Though Stan had been downgraded to a tropical storm by the time it reached Guatemala, the sheer volume of rain that it carried destroyed entire villages, roads and communication lines, impeding the distribution of food, water, shelter and medical attention. Linguistic barriers, cultural differences, distrust of government officials and rural isolation also hampered assistance efforts. The need for visual spatial information was clear. Designing a GIS to meet this need required onsite data analysis, GPS training and fieldwork and prototype map production. Work in the United States includes ongoing user interaction, data analysis, database design, map analysis and geo-referencing, and map production with the goal of producing a web-based GIS application that facilitates disaster recovery and saves lives.

Keywords: housing, Hurricane Stan, GPS, GIS, Guatemala, Habitat for Humanity, disaster

Daniel E. Orenstein, Ph.D., Brown University. Email: Daniel_Orenstein@brown.edu; Leiwen Jiang, Ph.D., Brown University. Email: Leiwen_Jiang@brown.edu; Steven P. Hamburg, Ph.D., Brown University. Email: Steven_Hamburg@brown.edu; Demographic Versus Environmental Planning in Israel and China

Empires and nations have always had demographic policies that encourage resettlement of populations from the country's geographic core region to their peripheries. Historically, the justifications for such policies have included to strengthen borders, avoid population concentration in the geographic core, and to redistribute economic development. Often, the underlying goal of these policies is to address fears of secessionism and irredentism of local ethnic groups. While such policies have been central to empires and nations throughout history, in the late 20th century and early 21st century, their environmental implications are becoming increasingly appreciated. The types of development encouraged by such policies conflict with the goals of sustainable land use policies. Environmental planning is a relatively young phenomenon, although it has become a new central paradigm in many nations. We claim that the demographic paradigm in planning continues to pose a subtle, yet powerful, challenge to the successful implementation of environmental planning policies. We address this significant impediment to environmental sustainability management in two countries where both planning paradigms are currently influential. In both nations, ethno-demographic conditions in peripheral regions are perceived to pose challenges to central government sovereignty and settlement policies encourage migration of the nation's ethnic majority to peripheral regions. Both countries are in the midst of a paradigm shift in land use planning, towards an environmentally informed policy of protecting natural resources and avoiding landscape degradation. The more recent comprehensive environmental protection regulations in these nations require a rethinking of policies influencing population migration into peripheral regions.

Keywords: Political demography, environmental planning, land use, ethnic conflict, Israel, China

David J. Organ, Ph.D., Clark Atlanta University. Email: djorgan@bellsouth.net; The Historical Geography of African American Frontier Settlement and Community Preservation: Allensworth, California, 1908-2008

African American historical townships and settlements represent important sites of memory for the remembrance, celebration, preservation and redevelopment of Black community life, history and culture. They constitute sites of resistance and struggle for those who founded and built them, and they remain so for those academics, planners and activists seeking to study and historically preserve these sites for the purposes of African American community redevelopment. This paper summarizes key conceptual frameworks and research findings from a larger study on the historical geography of African American frontier settlement and community preservation in Allensworth, California, 1908-2008. This study examines the historical rise and demise of one of the final chapters in all-black town development on the Pacific Coast frontier, which ultimately distinguished itself as an incipient chapter in the modern African American historical preservation movement. The political evolution and cultural landscape transformation of the historical all-black Allensworth Township into the heritage preservation community of Allensworth California State Historic Park constitutes the primary focus of this paper

Keywords: African American, community, representation, preservation

Ferjan Ormeling, Utrecht University. Email: f.ormeling@geo.uu.nl; Menno-Jan Kraak, International Institute for Geoinformation Science and Earth Observation. Email: kraak@itc.nl; The national atlas in the Google era

The present activities of the National Atlas Foundation in the Netherlands are targeted towards automatic visualisation of spatial data available through the Geospatial Data Infrastructure (GDI) in a systematic and cartographically accountable way, thus also providing an alternative access to this GDI. By applying fixed templates, data from different sources can be made comparable. This development has been reported to the AAG in 2004 (Philadelphia) Apart from that the 'New national atlas' has to be made accessible for a larger audience. At present the envisaged functionality is still targeted at professional users. The new initiative described here links the national atlas to Google Earth and similar developments that put geospatial information in the public eye and define the new standards for easy access and broadly accessible functionality. The new objective is to link the map material of the National Atlas to a Google Earth environment. This is both a technical challenge and a challenge regarding its content. The technical challenge consists of converting the visualisation methods used for the national atlas (according to Open Geospatial Consortium standards) to a Google environment (using keyhole markup language). Apart from that it will be a challenge to see how the cartographic design (the 'atlas template') fits and functions within a Google environment still mainly consisting of satellite and aerial imagery. Another target is the inclusion of the temporal comparisons by incorporating and digitizing maps from previous national atlas editions.

Keywords: national atlas, GIS

Arnisson Andre Caparas Ortega, Indiana University. Email: acortega@indiana.edu; Trends and Patterns of Population Distribution and Urban Growth in the Manila Mega-Urban Region, Philippines

The Philippines' most recent Census reveals Metro Manila's waning power as a migrant-receiving region posting a negative net migration rate. However, there is a need to explicate this finding by considering population deconcentration and the spatial expansion of Manila beyond the administrative metropolitan region. This study considers an extended metropolitan region, the Manila Mega Urban Region (MUR), by the inclusion of the peri-urban interface which is comprised of towns of adjacent provinces. Demographic and spatial dimensions of the MUR are analyzed in terms of population growth, redistribution and outward expansion. Traditional methods for testing for population deconcentration and counterurbanization (Hoover's Index and Correlation between population growth rates and population density) are used to analyze trends of population distribution since 1908. Results indicate that the MUR is experiencing a deconcentration of population through time with the Metropolitan core experiencing population decline while towns in the peri-urban interface posting dramatic population growth. Thus, phases of population movements can be observed through time in the MUR: (1) population deconcentration from the core to surrounding zones within Metropolitan Manila, and (2) population deconcentration beyond the metropolitan region into the peri-urban interface. This population growth propelled by migration of Metropolitan Manila inhabitants into towns in adjacent provinces has led to the expansion of urban functions into surrounding communities and pose urban planning and administrative issues.

Keywords: Population deconcentration, Manila, Philippines

Migdalia Tamara Ortiz, Graduate Student, University of Denver. Email: mortiz4@du.edu; *The Distribution of Wireless Fidelity Networks in Denver: a relation to the Socioeconomic Landscape*

The current economy is driven by the thirst for innovation and the production of new kinds of information and communication technologies. However, many do not have equal access to technology and information, limiting their educational and employment opportunities. Places that lack the economic capability to develop the proper infrastructure to implement the evolving technology are left behind, thus creating what some have called a "digital divide" between haves and have-nots. In the United States many residents are living in neighborhoods that lack or have poor access to computers and the Internet, while the surrounding vicinities enjoy the services. The objective of the following study is to determine if a correlation exists between the geographic distribution of wireless fidelity (Wi-Fi) networks and the socioeconomic landscape of Denver, Colorado. The location of wireless networks was collected using GPS technology and beaconing, a method that allows wireless devices to perceive the service set identifiers (SSID) of the network access points. A logistic regression model was used to determine the relationship between the dependent variable (the location of the wireless networks) and the independent variables (household income, educational attainment and age structure). Geographic Information Systems (GIS) were used for geostatistical and geospatial analysis. The existence of a correlation between the variables makes it possible to identify, by income level, the variation in wireless network access. The analysis provides insight into the domestic digital divide in the Denver area.

Keywords: GIS, GPS, Wireless-Networks, Urban Geography

Kenneth H Orvis, University of Tennessee. Email: orvis@utk.edu; Sally P. Horn, University of Tennessee. Email: shorn@utk.edu; *Caveat Investigator: Improving Stratigraphic Control of Sediment Core Profiles*

The trend in paleoenvironmental research is toward ever-higher-resolution analyses, with a matching trend toward tighter chronological control. In part this is driven by the growth in development of annual and sub-annual archives such as tree rings, corals, and ice cores that can reveal short-term and even inter-annual climate variability: we naturally want our other proxies to reveal as much as possible. In part, too, it is driven by advances in AMS dating, and the consequent improvement in chronological control that has become possible and even expected. Over years of hand-coring lakes, bogs, and other soft-sediment sites, we have become familiar with a wide variety of physical and mechanical events that can result in retrieval of sediments that are out of position and even out of sequence. Many of these are obvious and adjustments can be easily made during the inspection and logging of cores. Others are not always obvious and in some cases may be nearly impossible to discern. This paper will explore these, to help foster awareness and dialogue, and to serve as a stimulus to good coring practices, correct interpretation of stratigraphy, and advances in the design of coring devices.

Keywords: paleoclimatology, techniques, sedimentology, stratigraphy, coring

Reecia Orzeck, Syracuse University. Email: rorzeck@maxwell.syr.edu; *Dialectics and Law*

This paper considers both the strengths and weaknesses of a dialectical approach to understanding of the institution of law, particularly international law. In so doing, it examines post-structuralist critiques of dialectics as well as the challenges to orthodox dialectics that have emerged from more sympathetic schools such as analytical Marxism and Critical Realism.

Keywords: law, dialectics, analytical marxism, critical realism

Sylvester Osagie, The Pennsylvania State University. Email: sool1@psu.edu; *Social and Cultural Dimensions of Oil exploration in Nigeria*

Until recently, oil exploration in the Niger Delta region of Nigeria was one devoid of all social and cultural sensibilities. Although the discovery of oil created visions of greatness, and was expected to be a source of relief from poverty, instead, the indigenes of this region that are mostly farmers and fishermen, were expected to internalize the costs of oil exploration and extraction. But these externalities (oil spills, gas flares, and ecological degradation) cannot be borne by these indigenes whose livelihoods can no longer be sustained by their environment as a result of ecological degradation. The fact that the sustainable livelihoods of the indigenes of the Niger delta People have been breached by these externalities reveals that one cannot study environmental degradation in isolation. Such study must include all the actors involved, and examine the social space in which these events are occurring. This paper analyzes the social and cultural dimensions of environmental degradation, and argues that the current relationship among the principal certainties, namely, the oil producing companies, the people of Niger Delta, and the state, is being tacitly, rather than explicitly, negotiated, leaving no room for enduring commitments. The strategy of oil exploration in Nigeria divagates from the acumen of most business ethicists. Oil companies subscribing solely to the profit motive, leave indigenes in

oil producing areas in the throes of major ecological devastation. While oil production radically alters the indigenous cultures in this region, there are no concomitant beneficial effects to mollify the impact of oil exploration.

Keywords: Environmental Degradation, Business Ethics

William Y. Osei, Associate Professor, Algoma University College. Email: osei@auc.on.ca; *Water for Sustainable Development in West Africa*

Unlike such critical development resources as energy that are internationally recognized tradable commodities, direct trade in global freshwater resources is not yet fully established. To this extent, global market forces can do little to help balance water needs between surplus and deficient regions. As the possibility of water markets appears distant for many reasons, countries and areas must use various approaches to enhance the security of their water supplies. The West African sub-region of Sub-Saharan Africa is emerging as a critical water hot-spot. The sub-region as a unit has the highest population of all of Africa's regions, and the rate of population growth is equally among the highest. Agriculture, industrialization, energy, rapidly growing urban areas, and the needs of the environment seem to be drawing on existing water resources to their limit. To add to these are the potential effects of global climate change. This presentation provides a detailed analysis of the supply and demand potentials of water in West Africa. The goal is to identify critical water issues, nature of issues, current water management regimes at the local, country, and regional levels, and to identify opportunities for sustainable water security policy and planning needs. For reasons of ecological, geographical orientation of countries, budgetary, technical, and managerial thresholds, regional cooperation and cross-border initiatives are likely to work for security in water in the region.

Keywords: water resources, sustainable development, West Africa

Kenji K. Oshiro, Wright State University. Email: kenji.oshiro@wright.edu; *Food Safety as a Factor in International Agricultural Commodities Trade*

Incidents of the spread of diseases through food consumption have increased awareness of potential dangers in the food supply of a country. Increases in risks result from growth in trade as well as processes of food preparation. Food safety involves potential dangers from the food supply perceived by the consuming public and is an important consideration in policy formulation. The concern for food safety influences decisions on certain components of international agricultural trade by a country. This paper attempts to demonstrate the idea by examining the trade ban and regulations to ensure safety of beef by Japan. The initial case of Bovine Spongiform Encephalopathy (BSE) in Japan was found in September, 2001. A few months earlier in response to an inquiry, Japanese officials received a warning of possible diffusion of BSE through the importation of meat-and-bone meal supplement. After the first case, officials were criticized for their slow reaction to the warning. A total of 26 BSE-infected animals have been discovered by May, 2006. An import ban on American beef was imposed with the discovery of the first case of an animal infected with BSE in 2003. The ban was lifted in 2005 and re-imposed in January, 2006 when an inspection revealed banned parts in a shipment of carcasses from the United States. It was again lifted during the same year. The rapid reaction to the discovery of BSE in the United States was a response to criticisms of earlier bureaucratic inaction and widespread public perception of possible infection.

Keywords: Japan, International Trade, Food Safety, Risks, Bovine Spongiform Encephalopathy

Jeffrey P. Osleeb, University of Connecticut. Email: Jeffrey.Osleeb@uconn.edu; Yehuda L. Klein, Graduate Center - City University of New York. Email: YKlein@gc.cuny.edu; *An Economic Analysis of Florida Beach Tourism*

The coastal zone of the United States is a major source of economic growth and as a result has seen significant increases in population over the past fifty years. Most aspects of the coastal economy - tourism, residential and commercial development - are heavily dependent upon the environmental preservation and recreational quality of beaches. In earlier work, we documented through empirical evidence the economic and demographic importance of the coastal zone, and the crucial role that tourism plays in its economy. The link between beach enhancement activities on the one hand and tourism and the coastal economy on the other is less-well substantiated. This study links an exploratory spatial data analysis of the tourism sector with case studies of the economic impacts of beach management projects on the coastal economy. We show that, in several important Florida tourism-dependent counties, beach enhancement projects generate economic benefits in the form of greater than expected increased earnings in the tourism sector. A regression model is developed to determine the relationship between beach renourishment projects and their expected impact as a tourist attraction. Results indicate that beach renourishment is an important attractor for tourist dollars in Florida.

Keywords: Tourism, beach renourishment.

Ulrich Oslender, UCLA. Email: Ulrich.Oslender@ges.gla.ac.uk; *Geographies of terror and spaces of confinement: re-conceptualizing forced displacement (with an anti-geopolitical eye on Colombia's Pacific coast region)*

I propose the conceptual framework of 'geographies of terror' as a critique of dominant geopolitical discourses on the 'war on terror', and as a methodological tool to study the impact of terror and its spatial manifestations on local populations on the ground. Applying this framework to Colombia's Pacific coast region, I engage critically with the discourses on forced displacement that have become institutionalized in Colombia to refer to the systematic terror campaign unleashed by armed groups on rural black populations in this region. In particular I will show how an underlying global capitalist logic of displacement can account for the de-territorialization campaigns launched against local populations. One aspect of this de-territorialization is the production of spaces of confinement, in which local populations' mobilities are controlled and restricted by diverse armed actors. This double-process of dis/emplacment allows capital to further penetrate this region. This violent process is argued to be characteristic of a global capitalist modernity.

Keywords: terror, forced displacement, resistance, Afro-Colombia, black communities

Hari Osofsky, University of Oregon School of Law. Email: hosofsky@uoregon.edu; *Local Approaches to Transnational Corporate Responsibility: Mapping the Role of Subnational Climate Change Litigation*

This paper explores the implications of subnational climate change litigation over coal-based energy. It begins by introducing the phenomenon of subnational climate change litigation, and locating it in broader context of subnational efforts to address climate change, transnational climate change litigation, and transnational adjudication in subnational tribunals. Using a law and geography lens, it then engages how this litigation connects to place. As demonstrated by cases in Minnesota (U.S.) and Victoria (Aus.), this type of litigation and the broader policy context in which it occurs reflect the multiscale geography of the underlying problem, human-induced global climate change. The piece next discusses the implications of this geography for current understandings of subnational tribunals by examining these fora as spaces for transnational issues and as spaces for dialogue. It concludes with a reflection of the value of law and geography analysis in these cross-cutting contexts.

Keywords: energy, environment, law, climate change, political geography, scale

John Östh, . Email: john.osth@kultgeog.uu.se; *New measure for labor market assessment: going beyond the spatial mismatch hypothesis*

For almost four decades the spatial mismatch hypothesis has been used to analyze labor market outcomes particularly for marginalized minorities. The hypothesis is commonly used to illustrate the spatial relationship between job growth in the suburbs and jobless population in distressed neighborhoods. Despite methodological advances, the validity of empirical analyses using the spatial mismatch hypothesis is often contested. This is factual partly because there is no natural way of describing accessibility to jobs, partly because the commonly used measures of accessibility, such as commuting distance, are often plagued by endogenous factors. In this presentation a new measure of job accessibility is introduced, which is constructed to answer to the need for an improved measure of job accessibility. The measure, ELMO (Estimated Labor Market Outcome), is constructed to mimic competition for workers/jobs on the labor market, at the same time as problems associated with the use of endogenous factors significantly are reduced. The presentation demonstrates the usefulness of this method and applies it to a uniquely detailed database for every individual in the Swedish labor force.

Keywords: Labor market, spatial mismatch, GIS, time-geography

Aleck S Ostry, MA, MSc, PhD, University of British Columbia. Email: ostry@interchange.ubc.ca; *Abnormally High Weights in Canada: The Long View*

In Canada, and most other developed nations, there is mounting concern about an "epidemic of obesity". This concern is largely based on the observation of rapid increases in overweight and obesity, especially among children, and also mainly since the early 1980s. In this paper we argue for an historical analysis of the evolution of abnormally high weights using Canadian data. The current, a-historical, discussions about obesity fail to take into account that in most developed nations, as early as the 1950s, the proportion of the population that was overweight and obese was already very high. Documentation and recognition of the long term existence of high population weights is important adding to an analysis of the spatial variation in population weights. As well, long term data on changing population weights when linked to national food disappearance data provides insights into the links between changing dietary patterns at the population level and changing weights. Finally, an historical analysis demonstrates that most leading nutritionists, at least in Canada, had identified obesity as

"epidemic" in the population as early as 1970. This paper explores why, although identified over 35 years ago as a major health problem, it is only now that obesity has the attention of health policy makers.

Keywords: Obesity, Overweight, History, Canada

Natalie Oswin, National University of Singapore. Email: geoon@nus.edu.sg; *Postcolonizing sodomy in global city Singapore*

After decades of overtly disallowing expressions of homosexual identity in urban space, the Singapore government has allowed gay and lesbian commercial establishments to surface over the last several years as part of an effort to foster a 'creative economy' and thus retain its competitive edge as a 'global city'. At the same time, attempts to lobby for gay-friendly policy and legislative change have been firmly dismissed. These events have resulted in the emergence of an unprecedented public discourse around homosexuality in the city-state. Two prominent threads of this debate are that it is a 'gay issue' (in other words, heterosexual dominance is pitted against homosexual oppression) and a matter of East versus West. In particular, a dominant argument that homosexuality is a western issue has been countered by an insistence that homophobia in the form of a left-over colonial sodomy law (Section 377A of the Penal Code) is the real import. This paper considers the historical application of Section 377A. It interrogates the ways in which this regulatory mechanism has been used to police the boundaries of a particularly raced and gendered heterosexual norm; a norm that has played a prominent role in the city-state's efforts to negotiate a place for itself as Southeast Asia's 'global city'. This paper thus explores a wider range of social and geopolitical forces supporting Singapore's heteronormativity than current emphases on homophobia and localism permit.

Keywords: sexuality, regulation, Singapore

Doyle Ott, PhD, Sonoma State University. Email: doyleoo@yahoo.com; *Where the Extraordinary is Ordinary: A Phenomenology of Youth Circus Training*

This paper digests the findings of a phenomenological study of youth circus training. Using qualitative methods, the study identified meanings participants in a youth circus program made from their training. They identified youth circus as a site of constructive risk taking, aesthetic and athletic development, intense interpersonal relationship, and a place where the ordinary can become extraordinary and the extraordinary can be accepted as ordinary. The study finds context within the history of American circus, the development of youth circus from its early beginnings in the 20th century, and the construction of "childhood" in contemporary american society. Multiple intelligences theory is used as an ideological framework for the findings.

Keywords: circus, youth, education

Thomas Ott, University of Mannheim. Email: thott@rumms.uni-mannheim.de; *The City in Disguise: Vancouver as a Stand-in for Seattle in Hollywood Movies*

Pressed by declining profits and ballooning expenses at home, Hollywood has shifted production abroad, particularly the production of low-budget movies made for television. Most are made in Canada, where a weak currency, financial incentives and proximity to the United States make production relatively inexpensive and convenient. Especially Vancouver, British Columbia, has developed into a major location for movie production; the city has become known in the industry as "Hollywood North". Major studios and independent producers alike are attracted to Vancouver by the abundance of spectacular locations, the highly experienced production teams, the pool of talented local actors and the state-of-the-art post production facilities. However, despite its role as a set for major Hollywood movies, the city is hardly ever identified as itself. It rather acts as a stand-in for American cities, especially Seattle. This process of reducing Vancouver into a mere backdrop by neglecting space and place as a source of stories and characters is fostered by American production companies and the British Columbia Film Commission alike. The scenery of the built urban fabric obstructs, however, the view on inherited, more fundamental differences in social and cultural structures and processes between Canadian and American cities.

Keywords: media, film, urban, Vancouver, Seattle

Samuel M. Otterstrom, Brigham Young University. Email: samuel_otterstrom@byu.edu; *Genealogical geography and the construction of shared personal identities, population migration histories, and settlement historical geographies using a northern California case study*

Each year thousands of people attempt to unveil their family trees through research into their historical family linkages. These efforts often yield surprising discoveries to these enthusiasts that expand the temporal and spatial extent of their personal connections with past places. As they reach back in time, a doubling of ancestors through each successive generation means an increasing potential of finding more and more commonalities with the heritage of their

contemporary associates in the form of shared progenitors or identical ancestral origins. Even if a common genealogical link is not revealed, it becomes apparent to the amateur family historian that historical human events are not actually individual experiences that are isolated in a past time and place. This is especially true if the past persists in the memory of a person's descendants through the written and oral preservation of their life's happenings. These ties to the past will become attached to the personal consciousness of the children and grandchildren of the deceased as they are kept in the family. Additionally, genealogical records illustrate the profound importance of family relationships in fashioning historical migration trajectories, settlement patterns, and regional history. My case study follows the diffusion and spread of members of some early northern California families over multiple generations. By using a genealogical geography approach, the research reveals the intertwined relationships that exist among the topics of historical population/settlement geography, local history, and shared personal heritage.

Keywords: genealogy, migration, settlement geography, California

Judith Otto, University of Minnesota - Minneapolis. Email: otto0114@umn.edu; 'Workers' paradise' or entrepreneur's dream? Communist heritage tourism in Nowa Huta, Poland

The centrally-planned 'new town' of Nowa Huta, Soviet-financed and built for Poland's largest steelworks and its workers in the 1950s, was a tourist attraction from the beginning, drawing architects and planners to see how the tenets of socialist planning could be given architectural form. After the fall of communism, however, as Nowa Huta suffered massive unemployment, lack of investment, and a tarnished image due to its associations with the repudiated communist regime, tourists flocked instead to the Renaissance urban spaces of Poland's 'Golden Age' in Krakow. In this paper, I explore how local entrepreneurs have begun to rebuild Nowa Huta's reputation by organizing tours for Western visitors eager to see beyond the mass-market tourism of Krakow's Old Town and other nearby sites. Using promotional materials and transcripts from these tours, I analyze how new narratives about the communist past are being built and shaped against the backdrop of the Soviet baroque landscape, and moreover, how the meaning of those architectural forms is shifting to promote a very different history of Nowa Huta than its founders envisioned. These narratives - fighting for economic survival, fighting for political and religious freedom, and fighting the geographical and social isolation of Nowa Huta itself - illustrate a paradox of post-socialist economic transitions: that the burgeoning tourism sector is driven in part by a focus on a period of history that Poles would very much like to leave behind.

Keywords: planning; Poland; Eastern Europe; tourism

Quin M. Ourada, Oregon State University. Email: ouradaq@onid.oregonstate.edu; Anne W. Nolin, Oregon State University. Email: nolina@geo.oregonstate.edu; Characterizing Spatial Variability of Northern Hemisphere Glaciers: Principle Components Analysis using 45 years of Climatic Data

Glacier mass balance is an instantaneous metric of glacier response to climate change. Understanding glacier response to climate change at regional or larger scales must include glaciers not directly measured. Mass balance data collected from a small number of reference glaciers must be scaled and applied as proxy data to the larger set of unmeasured glaciers. Glaciers respond to changes in both temperature and precipitation, but sensitivity to either parameter is dependent upon combined climatic setting. Present methods for classifying glaciers to geographic regions are disparate and may lead to incorrect assumptions regarding response to climatic setting. Regionalization of glaciers based on variability of both temperature and precipitation allows for scaling that encompasses the two primary driving forces controlling glacier response to climate change. Using monthly temperature and precipitation re-analysis data from the European Center for Medium Range Weather Forecasting (ECMWF) ERA-40 dataset, variability in a 45 year record of temperature and precipitation is spatially characterized. Principle components analysis is used to identify regions of spatial variability in both temperature and precipitation from 1957-2002. Glaciers are then grouped according to this variability. Balance datasets from reference glaciers within each region are tested for similarity of response to determine the suitability of the method for glacier classification.

Keywords: glacier, mass balance, principle components, climate, arctic

Joel Outtes, UFRGS-Universidade Federal do Rio Grande do Sul. Email: joel.outtes@ufrgs.br; Ana Cristina Castagna, UFRGS. Email: ; Amanda Fialho Moraes, UFRGS. Email: ; The IFHP- International Federation for Housing and Planning (1913-2007)

The research investigates the history of the IFHP-International Federation for Housing and Planning, its characteristics, network of participants, changes in its policies as well as the role of countries, institutions, groups and individuals in its decisions, policies and intellectual output. The IFHP was created as the

International Garden-Cities Association in 1913 and still exists. The work investigates the role of this institution in the international flow of planning thought and practice, in urban management as well as its role in the constitution of a transnational community of planners. One of the questions to be discussed is how far certain national, regional and particular experiences in housing, planning and management were adopted in certain periods by the institution. In another direction, the resonance or influence of certain ideas and policies of the IFHP in specific, national or regional experiences in housing, planning and related areas will also be explored.

Keywords: International Federation for Housing and Planning, planning, garden-cities, housing

Thomas Overly, Graduate Research Assistant, Center for Remote Sensing of Ice Sheets, University of Kansas. Email: toverly@crsis.ku.edu; Spatial variability of snow accumulation near Summit, Greenland

Due to the technical and physical difficulties involved, it is not known yet whether the Greenland ice sheet is shrinking or growing. Current estimates of snow accumulation on Greenland have large errors (20-25%) because they are derived from a relatively sparse network of point measurements (Ohmura and Reeh, 1991; Bales et al., 2001). Traditional point measurement techniques (snow pits, manual probes, shallow firn cores) are limited in space and often do not represent the region surrounding them due to spatial variability caused by surface slope and deposition and erosion by wind (Maurer, 2006). To determine whether the Greenland ice sheet mass is increasing or decreasing and how this will affect the global sea level, The Center for Remote Sensing of Ice Sheets (CRSIS) at the University of Kansas has developed several ice penetrating radar systems. Ground-based ultra-wideband radar (500-2000 MHz) operated near Summit, Greenland (72.5789 N, 38.4597W) in July, 2005 is used to map near-surface internal layers to a depth of about 150 m with 10 cm range resolution. Radar paths connecting GRIP and GISP2 ice cores enable accurate dating of accumulation radar layers. The accumulation layers are then compared with measurements taken from the ice core site, and statistical and spatial analysis is then conducted to determine the distance from the ice core at which the two sets of measurements become uncorrelated. This analysis provides an improved understanding of spatial variability and accumulation rates in the Summit region.

Keywords: Greenland, snow accumulation, mass balance, GIS

Bronwyn Sigrid Owen, Truckee Meadows Community College. Email: bowen@tmcc.edu; Jake E Haugland, . Email: isbree@gmail.com; Successionary lag effects resulting from fine-scale frost disturbance in a recently deglaciated landscape.

The role of fine-scale frost disturbance on patterns of vegetation succession was examined on recently deglaciated terrain in the Jotunheimen region of Norway. Our goal was to compare successional trends on microsites of varying frost disturbance intensity with relatively 'stable' ground. A chronosequence along the foreland of the glacier Styggehdalsbreen supplied terrain with documented ages since deglaciation (0-150 years before present), where frost disturbance generally decreases with increasing terrain age. Vegetation was sampled along the chronosequence in three differently-aged units, and at three different disturbance intensities within each unit. Results show that fine-scale frost disturbance in patterned ground features produce a lag effect by delaying vegetation succession when compared to surrounding 'stable' terrain. In addition, individual species found early on 'stable' ground are found only older disturbed sites. These fine-scale disturbances are therefore important to overall landscape heterogeneity, although unlikely to be detected in landscape-level studies.

Keywords: fine-scale, disturbance, succession, cryoturbation, Jotunheimen

Marc R. Owen, M.S., Ozarks Environmental and Water Resources Institute (OEWRI), Missouri State University. Email: mowen@missouristate.edu; Robert T. Pavlowsky, Ph.D., OEWRI, Missouri State University. Email: ; Mark A. Gossard, Graduate Student, Missouri State University. Email: ; Timothy W. Smith, P.E., Greene County Resource Management Department. Email: ; Channel Restoration in Urbanizing Streams of the Ozark Plateaus, Greene County, Missouri

Channel instability due to urbanization has impacted streams around the Springfield, Missouri metropolitan area resulting in flooding, bed scour, bank instability and increased sediment yields. Ozarks streams have gravel or bedrock beds and banks are composed of chert gravel and fine grain material that is fairly resistant to erosion. Due to karst, many streams have losing sections and/or have spring discharges that along with changes caused by urbanization complicate the understanding of low flow hydrology critical to evaluating channel forming flows. Regionally, no channel restoration guidelines are available and Ozark stream channel response to urban hydrology is poorly understood. The study reach is part of the Ward Branch of the James River located on the south side of Springfield, which has encountered rapid urban growth over the past two decades.

The reach is located in an area where Greene County Missouri purchased and removed homes affected by flooding from recent developments. The objective of this project is to use bioengineering techniques and natural channel design concepts to stabilize this section of stream and provide guidelines to developers, contractors and design professionals on the process necessary to implement these techniques in the field. This paper will describe the role of geographers in the multidisciplinary team's approach used to implement the project's objectives focusing mainly on fluvial geomorphology. Geographers collected field data, assisted in the location and design of stream remediation practices, and are responsible for pre and post restoration monitoring of the reach.

Keywords: Stream Restoration, Fluvial Geomorphology, Ozarks Streams

Christina D. Owens, University of California, Davis. Email: cdowens@ucdavis.edu; *The Universal Consumer?: Selling Human Rights Rhetoric in Japan*

Although Japan is a signatory to the United Nation's Convention for the Elimination of all Forms of Racial Discrimination (CERD), there are no national or regional laws that specifically address the legal ramifications of discriminatory acts. When naturalized Japanese citizen Debito Arudou (then American Dave Aldwinckle) was refused entry into a series of hot spring resorts in 1999, the local government met his protests with a neoliberal hands-off policy. Arudou's (in)ability to fully participate in the consumer market has become an impetus for his continued activism, as he is in the process of taking this case to the UN. This paper uses the Arudou case to expand on recent scholarship that looks at the infiltration of neoliberalist thought into transnational social movements. In reacting to the government's market-driven policies, Arudou often redeployes a neoliberalist rhetoric within a human rights framework. As both of these discursive regimes are associated with Euro-American hegemony, Arudou's status as a white, male, former American citizen takes on particular significance. Even though Arudou connects his cause back to a larger subordinate group that he terms "Japan's people of color and difference," his focus on consumer citizenship and juridical solutions belies the limitations of such a grouping. I will explore the contours of these limitations through analysis of Arudou's 2004 book, *Japanese Only*, which documents and condenses his vast internet archive of activist work on this issue.

Keywords: neoliberalism, human rights, race, Japan

Kwadwo Owusu, University of Florida. Email: Kowusu@ufl.edu; *Trends In Spatio-Temporal Variability Of Rainfall In Ghana, (1951-2000)*

This paper investigates trends in annual rainfall totals within the four agro-ecological zones of Ghana during the fifty-year period of 1951-2000. A general downward trend has been reported throughout West Africa, with a marked contrast between conditions in the first two decades and the last two decades the period studied. Potential causal factors being variations in Atlantic Sea surface temperatures, the Inter Tropical Convergence Zone (ITZC) and loss of vegetation among others. A similar distinct break in precipitation regime is found in the mid-1970s in many locations globally. The observed pattern of rainfall totals follows the general downward trend with slight sub-regional variations. Evidence for such a break is sought by applying the hypergeometric distribution to the number of above/below average annual rainfalls in each 20-year period. The humid southwest and dry sub-humid north show a significant reduction (greater propensity for below average rainfall totals than expected by chance) in the last two decades, while a similar, but not significant, drying is present in the moist sub-humid region. Our finding provides a further confirmation that the country like the greater region is experiencing a reduction in annual rainfall with increased inter- and intra-annual variability in the last 20-year period of study.

Keywords: Rainfall variability, Ghana, Agriculture,

Tonny J. Oyana, Southern Illinois University. Email: tjoyana@siu.edu; *Learning Experiences from Teaching Advanced Geographic Information Systems (GIS) Concepts using a Case Study Approach*

This study presents a creative way of teaching Advanced Geographical Information Systems (GIS) based on observations collected over a three-year study period. The use of a case-based approach for teaching advanced GIS studies is proposed. Case studies for teaching are selected based on their relevance to GIS. The case study approach was inspired by past work and the need to develop a fully fledged GIS system for managing U.S. Homeland Security (HLS). The study population consists of three groups who have taken Advanced GIS course spanning a study period from 2004 to 2006. The sample size comprises forty subjects (n = 40) from three academic years with a response rate of 65 percent. The use of case-based modern-style pedagogical method promotes students' desire to learn and discover new concepts, and most importantly gets students actively involved in contributing towards real world GIS solutions. This novel approach encourages, engages, and provokes students to think critically as they explore and discuss the science and technologies behind GIS. The teaching approach also creates an interactive dialogue between the instructor and the students and

stimulates the learning process. Case studies developed from such a study make classroom experiences more lively, attractive, relevant, and interesting.

Keywords: Teaching, Pedagogy, GIS and Education, Curriculum, GIS, Active Learning, Case Study

Rupal Oza, Hunter College, CUNY. Email: rupal.oza@hunter.cuny.edu; *Nuclear Tests and National Virility: Gender and Sexual Politics of Militarization in India*

On May 11, 1998 India detonated three nuclear devices followed by two more on May 13. This crossing of the nuclear Rubicon was received among wide sections of the Indian public with enthusiasm and celebration. India's nuclear status was particularly significant among the Hindu Right who have historically been invested in militarized strength as part of their ideologically and political project. The nuclear tests came to be understood and debated through a deeply gendered and (hetero)sexualized discourse. For instance, Bal Thackeray, the chief of Shiv Sena, claimed in response to the tests that "we have to prove that we are not eunuchs." In this paper I examine the discourse of masculine strength and virility associated with India's nuclear tests. I suggest that the nuclear tests were indicative of what I call "fetishized sovereignty." They represent the displacement of control of unstable political-economic conditions in the country onto demonstrations of militarized strength. My focus is on the conjuncture between the ascendance of the Hindu Right and the growth of middle class nationalism in the context of neoliberal reform within which the tests take on added import. Following Michael Taussig's usage of "totem" to understand state fetishism, I explore the bomb as a "totem fetish" imbued with the power to restore India's emasculated masculinity.

Keywords: Militarization, India, masculinity

Biricik Gozde Ozacar, University of Arizona. Email: bsumeli@email.arizona.edu; Stephen R Yool, Assoc.Prof, University of Arizona. Email: yools@email.arizona.edu; Cigde Goksel, Assist.Prof, Istanbul Technical University. Email: goksel@itu.edu.tr; Michael E Bonine, Prof, University of Arizona. Email: bonine@email.arizona.edu; *Effects on Change Detection of Merged Spatial and Spectral Data over Istanbul, Turkey*

Change detection aims to monitor and determine the type, location and amount of the land conversion and also enables modeling of urban growth impacts on the environment to guide the future urban and resource management and planning studies. In this project, we evaluate the value of fused spectral and spatial features for urban change detection in Istanbul, Turkey. Istanbul is the biggest city in Turkey, and is facing environmental problems and significant land transformations concurrent with rapid urbanization and uncontrolled population growth (500,000/year). The change vector analysis (CVA), which uses spectral bands from multi-temporal satellite data to measure the direction (the angle of the change vector) and the magnitude (the length of the change vector) of change, is applied to multi-temporal Landsat TM and ETM+ satellite time series image data set (1984, 1987, 1997, 2001) to detect and characterize the landuse/cover changes in Istanbul. We aim to test whether structural cues, characterized by image texture, add skill to the change vector analysis protocol compared to spectral data alone. Considering the large study area (more than 5000 km²) and the medium resolution (28.5 meters) data set images are divided into several subimages prior to unsupervised classification process. In order to be more confident on mapping the changes we also define a threshold using Kappa statistics.

Keywords: RS, change detection, change vector analysis, urban, spatial structure, Istanbul, Landsat

Esra Ozdenerol, University of Memphis. Email: eozenrl@memphis.edu; Sylwia Bialas, Graduate Student. Email: Sywiab78@yahoo.com; Bryan Lee Williams, University of Tennessee. Email: bwilli36@utmem.edu; *Spatial Analysis of Sudden Infant Death Syndrome in Memphis, Tennessee*

Birth outcomes in Shelby County, Tennessee are simply atrocious. Infant mortality rate in parts of Memphis exceed 16 per 1,000 live births as opposed to about 10 per 1,000 live births in the state and about 7 per 1,000 live births nationally. In 2002, 14% of children in Memphis were born prematurely as opposed to 12% nationally. Our research investigates spatial clustering of SIDS (Sudden Infant Death Syndrome) in Shelby County. Looking for an answer to the question: "Are SIDS cases clustered relative to non-SIDS infant deaths?" we used Cuzick and Edwards method to screen for clusters of SIDS cases between 1999 and 2003. This method uses the control location to reflect the geographic variation in the population density as a whole. The data showed significant spatial clustering of SIDS cases relative to the spatial distribution of the controls.

Keywords: Spatial, GIS, medical geography, SIDS

Alpaslan Ozerdem, PhD, The University of York, UK. Email: ao102@york.ac.uk; *Transformation of State-Civil Society Relationships in Post-Disaster Recovery*

Recent studies of disaster management have noted the powerful effects of the catastrophic earthquakes on civil society's relationship with the state and the aim of this paper is to provide a review of how state-civil society relationships have been changed in the aftermath of the catastrophic earthquakes that affected Kobe in 1995, the Marmara region in 1999 and the Gujarat in 2001. Through a comparative analysis, the paper will attempt to answer whether or not the occurrence of large-scale disasters strengthens the organisational power and autonomy of the state, how such events mesh with the policies and structures of the international development industry and why civil groups across the world have been unable to reduce their vulnerability to natural hazards. These issues are, in fact, particularly pertinent given the optimism which marks much of the literature relating to the third sector. The paper questions to what extent can acutely destructive earthquakes be seen as a catalyst for the development of the third sector and a civil basis for greater governmental efficiency and accountability? Does the empowerment of civil organisations imply a diminution in state responsibility and action? Have processes of civil empowerment endured or have state agents been able to appropriate their spheres of activity and influence? In summary, can earthquakes and the threat of earthquakes be regarded as an important marker in the 'modern' transition from a politically passive population to an active, rights-based citizenry?

Keywords: state, civil society, earthquake, kobe, marmara, gujarat

Anssi Paasi, University of Oulu. Email: anssi.paasi@oulu.fi; *Nationalism as symbolic exchange: education, religion and military practices in the reproduction of the Finnish nation*

Different forms of nationalism are context-dependent processes that transform perpetually. Nationalism is a specific territorial form of ideology that is often hidden to such expressions as national identity, patriotism, duty or love for one's homeland. One explanation for this is that whereas nationalism often carries negative and aggressive connotations in public discourse, national identity and patriotism are often more positively laden expressions. Established states normally control the key institutions where both the production and reproduction of nationalism take place. It is at times difficult to distinguish these two sides of the same coin since the production and reproduction often take place in the same process that is the perpetual nation building process and the symbolic exchange between societal power and individuals. This paper will scrutinize the reproduction of nationalist practices that are based on symbolic and physical violence in the Finnish context. Key institutions to be analysed will be education and military which are both currently challenged in the context of the EU. This paper also scrutinizes how religion has been exploited in the operation of these institutions.

Keywords: nationalism, , symbolic exchange, military, education

Pablo Pacheco, Center for International Forestry Research (CIFOR). Email: p.pacheco@cgiar.org; *Agrarian reform for forest people in the northern Bolivian Amazon*

The implications of land reform are still not well known in the tropics given that it does not have linear implications in income generation and deforestation, which are related not only to the type of property rights granted to people but to a broader set of economic and institutional factors. This paper explores this issue in the northern Bolivian Amazon in which rainforest is the main vegetation cover, and agro-extractive communities and barracas are the predominant tenure systems. In this region, land rights allocation has not followed the same criteria employed in Acre where access rights to forest people were granted through the formal recognition of extractive reserves. In northern Bolivia, land rights are granted by implementing an agrarian reform which consists in the distribution of lands in household plots but preserving community land ownership. This paper argues that agrarian reform has contradictory impacts in shaping the interactions between people and resources. On one side, it may promote forest conservation and enhance people's livelihoods by securing access to Brazil nuts, while on the other side it stimulates higher pressure on forest timber resources. The factor explaining the final outcome is mostly related to the preexisting community institutions rather than to economic and geographical factors.

Keywords: Extractive economies, agrarian reform, Brazil nuts, Bolivian Amazon

Ben Page, University College London. Email: b.page@geog.ucl.ac.uk; Claire Mercer, University of Leicester. Email: ccm2@leicester.ac.uk; Martin Evans, University of Leicester. Email: mne5@leicester.ac.uk; *Moving Homes: migrants' associations and the places they make*

What do geographers bring to studies of migrant labour that political scientists, sociologists, anthropologists, historians and demographers do not?

This paper argues that what geographers bring is a sense of the inherent instability of the 'geography' of mobility. The geographical sensibility entails a scepticism about ever mapping movement in any simple or final sense. Whereas other disciplines treat the narrative of a migrant's movement from A to C via B as an unproblematic given (indeed as the essence of migration) such an assumption is never possible in a discipline in which space is not a tabula rasa or, at least, where such geometry is only ever the starting point of the subsequent analysis of the spaces and places of migrations. Ironically there is a sense in which the geographical claim for significance within migration studies is that geography (in the crude sense that it is used in other disciplines) doesn't matter; it can't be trusted or taken-for-granted. What does matter are the ways in which social relationships (within migrant groups, between migrant groups, between migrants and those who do not migrate, between migrants and hosts) produce new forms and representations of space. This conclusion is one outcome of a research project that has looked at the associational life of African migrants in the UK, Cameroon and Tanzania. The paper illustrates it using a discussion of the structures and functions of African hometown associations. It uses their changing constructions of home as an example of a potentially 'progressive notion of place.'

Keywords: Migration, place, space, associational life, Britain, Cameroon, Tanzania

Trevor Paglen, U.C. Berkeley. Email: tpaglen@berkeley.edu; *Black Sites, the CIA, and the Geography of Rendition*

There is a contradiction at the heart of the CIA's extraordinary rendition program having to do with the fact that the program is primarily conducted by civilian (rather than military) means. By operating under a civilian guise, the CIA is able to do things that would be extremely difficult for a military agency to undertake. Civilian aircraft can, for example, take advantage of civil aviation conventions to fly wherever they like. They can also hide in plain sight at commercial airports and among civilian populations. However, the extraordinary flexibility offered by a civilian guise comes at a cost. To a certain extent, the CIA has to file the same sorts of publicly-accessible paperwork that a civilian company has to file. And anything involving aviation leaves a very long paper trail indeed. In this presentation, we will explore two different paper trails that a fleet of CIA-controlled aircraft have left in their wake. First, we will use flight-logs on file with the Federal Aviation Administration and Eurocontrol to discern the locations of some of the deepest and most hidden recesses of the CIA's war on terror, including secret prisons like the Salt Pit and the Prison of Darkness on the plains of Afghanistan. Second, we will follow the planes' registration and maintenance records in order to uncover an equally obscure geography subtly concealed in the fabric of everyday American life.

Keywords: This conference costs way too much money.

Kathryn Pain, Dr, Research Fellow, The Young Foundation, London. Email: kathryn.pain@youngfoundation.org.uk; *The Urban Network Transformation: Planning city-regions in the new globalisation wave*

A new wave of globalisation will hit the urbanised western world by 2030. Accelerated liberalisation and integration are leading to major global structural changes with critical implications for urban policy and planning. Major investments in research and development in Pacific Asia have paved the way for a shift from manufacturing and low-revenue services to high value functions already transforming the infrastructure of mega-city regions like Shanghai. Shifting world political and trading alliances and demographic change, appear to threaten the established global power geometry of the 'new' service economy and the future growth of Western cities and regions. As Europe prepares to meet these global challenges, its 2005 re-launched Lisbon Strategy is struggling to achieve unified Member State support for a growth agenda that attempts to integrate social and environmental priorities. Meanwhile, spatial strategy, first devised in 1999, tries to rationalise objectives for increased competitiveness and sustainable development by promoting balanced, or polycentric, regional development across the European territory. But recent research points to contradictions between these policy agendas. Trans-urban business networks are transforming spatial relations in North West Europe. Emergent global 'mega-city regions', networked through their multi-scale advanced service economy functions, pose a major challenge for sustainable management and governance. This paper examines the urgent policy imperatives and the implications for other world regions. The conclusions question the relevance of polycentricity in spatial planning and flag the need for inter-city governance to meet the challenge of new-wave globalisation.

Keywords: globalisation, new wave, power geometry, competitiveness, trans-urban networks, sustainable development, global mega-city regions, polycentric

Rachel Pain, University Of Durham. Email: rachel.pain@durham.ac.uk; Ruth Panelli, University College London. Email: ruth.panelli@geography.otago.ac.nz; Sara Kindon, Victoria University of Wellington. Email: sara.kindon@vuw.ac.nz; Jo Little, University of Exeter. Email: j.k.little@exeter.ac.uk; "The war on terror, fear and Muslim young people"

Discourses of fear are central to the operation of the 'war on terror'. Fear is part of a widely accepted framework of understanding of how terrorist attacks affect the west, and it is drawn upon to justify the political actions of western governments. The emotions which politicians and the media at least claim to reflect in wider western societies are highly racialised: they are white fears of brown others which have continuity with a longer history of emotional-political relations with the Middle East. However, some minority ethnic groups in western societies, many of whom had raised vulnerability to crime, harassment and violence before 9/11, find the 'war on terror' has altered their experiences of everyday emotional life rather more. We report on research with young men and women from a range of ethnic, cultural and religious backgrounds living in Aotearoa New Zealand and the UK. Our research is exploring young people's hopes and fears in a changing geopolitical climate. In the paper we explore how significant 'Muslim' has become at each study site in relation to fear at different scales; within concerns about global security, unease about 'others' in local neighbourhoods, fears about personal safety from racist bullying and harassment, and young people's responses and strategies for dealing with fear/hope. We aim to show that fear is far more complex, and socially and spatially variable, than commonplace understandings of fear and the war on terror have so far suggested.

Keywords: war on terror, fear, Muslim, young people

Marco Painho, Professor, ISEGI - Universidade Nova De Lisboa. Email: painho@isegi.unl.pt; Building dynamic, ontology-based, alternative paths for Geographic Information Science Curricula

New information and communication technologies may bring significant advantages to learning experiences by broadening the possibilities of promoting autonomous and self-oriented learning. Conceived as an instrument for the support of teaching and learning activities, a Curricula Development Model was developed to promote a knowledge organization structured on networks of concepts and in the construction of conceptual maps, using a Geographic Information Systems and Science ontology. The possibility of establishing multidimensional networks of terms was explored through a relational database. The database design provides an answer to the necessity of linking a vast amount of information related with the set of learning units, considered the main component of the Curriculum Development Model. This approach increases a non compartmentalized and hierarchical idea of knowledge, through the construction of semantic networks that tend to bring closer the association process and the mechanisms of knowledge exploration, to the ways human memory and thought structuring and organization occur. The Curricula Development Model is available in an interactive Web application which includes, access, among others, to: domain terminological dictionaries; generic tools for curriculum development and implementation; structured information and its representation under conceptual maps; creation and visualization of adaptive study programs according to GIS professional profiles, credit requirements and students expectations; sample instructional materials for selected learning units; comparison between alternative curricula. Additionally, it is expected that the ontological approach will contribute to create a GIS-learning Community by giving way to shared information, contents and knowledge.

Keywords: adaptive curricula; geographic information ontology; visualization tool

Tania Pal, Louisiana State University. Email: tpall@lsu.edu; Michael Leitner, Louisiana State University. Email: mleitne@lsu.edu; Accuracy Assessment of Individually Calibrated Journey To Crime (JTC) Functions

The "journey to crime" (JTC) or the study of the travel behavior between an offender's residence to and from the crime scene has long been a subject of study within criminology for many years. Geographic Profiling (GP), which is based on such travel behavior, is a spatial analysis and decision support tool that is used by law enforcement agencies to make estimates or predictions about a serial offender's residence (i.e., home base or 'haven') using various distance decay functions. In this context, distance decay refers to the decrease of the number of crimes committed by an offender as the distance from his/her residence increases. Despite all the publicity and support that GP has received in the last few years, almost no empirical research exists as to the accuracy of GP software programs, including JTC, Rigel, DRAGNET, in predicting the location of the serial offender's residence. This research uses 247 serial crimes with 6 different crime types from Baltimore County, Maryland, between 1994 and 1997 with the objective to (1) analyze the accuracy of individually (i.e., by crime type) calibrated journey to crime (JTC) GP models; (2) determine whether the JTC strategies are substantially more accurate than purely visual (such as human

predictions) and simple spatial (such as median center) profiling strategies; Keywords: Journey to Crime, geographic profiling

Michael A. Palecki, Midwestern Regional Climate Center. Email: palecki@uiuc.edu; Kenneth E. Kunkel, Illinois State Water Survey. Email: ; James R. Angel, Illinois State Water Survey. Email: ; *Extreme Climate Events in the 19th Century*

160 U.S. Forts daily climate data time series were keypunched by the NOAA Climate Database Modernization Program by September 2006. Many of these stations cover 10-40 years during the period 1850-1895, with most time series originating prior to the onset of previously digitized cooperative observer station records. Temperature and precipitation extreme outliers within these raw station data were subject to rigorous quality control. More than 27,000 temperature and 11,000 precipitation extreme values were examined manually by comparison with optical images of the original manuscript forms, and about 30% of these values were changed because they were either keyed incorrectly or were keyed correctly but were implausible (a small subset). Homogenization procedures were utilized to adjust the 19th Century data so they would be comparable to modern records. Time series of indices representing the frequency of heat waves, cold waves, and heavy precipitation events display interesting behaviors in the 19th Century. The final national and regional results of this ongoing project will be discussed.

Keywords: climate extremes, climate change

Joseph Palis, University of North Carolina at Chapel Hill. Email: palis@email.unc.edu; *Projecting the Absence/Presence of Filipinos in Early Biograph Films*

My paper aims to ask what space characterizes the various constructs of orientalism and othering in the early films of Thomas Edison. Using Lefebvre's concept that social space "subsumes things produced, and encompasses their interrelationships in their coexistence and simultaneity" in these early shorts, I will look at three actualities found at the Library of Congress-American Memory page to show how space is manifested and negotiated onscreen. I will examine Edison's "Filipinos Retreat From Trenches", "Capture of Trenches at Candaba" and "U.S. Troops and Red Cross in the Trenches Before Caloocan" which were all released in 1899. These short films were shot during the tumultuous years of the Spanish-American War. In the Biograph shorts, the privileged positions of both Spanish and American forces as regards the annexation of a foreign land in world history books is indicative of the tendency to de-emphasize the contribution of the native population in the war. Manthia Diawara has said that "space is related to power and powerlessness, insofar as those who occupy the center of the screen are usually more powerful than those in the background or completely absent from the screen." The spatial hierarchies and spatially situated images in Edison's short films do not intend to suggest the "badness" and "goodness" of the American powers that produced such images, nor is this a celebration of the minority cultures. Rather the spatial orderings in these early films show the historically configured powers of relation and its attendant oppressive relation to its external "others".

Keywords: representation, cinematic geography, film, Philippines, identity, visual geography

Karina Pallagst, University of California Berkeley, Center for Global Metropolitan Studies. Email: pallagst@berkeley.edu; *Shrinking cities in the US in the rustbelt and beyond*

A shrinking city is characterized by economic decline and - as an effect - urban areas in transformation. Moreover, the loss of a certain type of employment opportunity is setting off partial out-migration. In the US shrinkage can either be part of post-industrial transformations related with a long-term industrial transformation process due to the decline of the manufacturing industry, or be triggered by economic changes in the so called "post industrial transformations of a second generation" concerning the high tech industry. Main hypotheses of the paper are: ? The phenomenon of shrinking cities is not only related to the well-known post-industrial "Rust-Belt" examples, but other areas are affected as well. There is not one type of a shrinking city in the US. ? Transformation processes occur within the sphere of land use; shrinking and growing are processes that can be observed in a parallel mode. The paper focuses on land use development in cities or city regions that can be characterized as "shrinking" in terms of certain types of economies and the related population during a certain period of time. The paper will contribute to the discussion by kicking off the shrinking cities debate in the US embedded in an international comparative context. Three cases of shrinking cities in the US will be introduced: Pittsburgh, Youngstown, and San Jose, each of them representing a different path of shrinkage, showing certain patterns of shrinkage, and of the related strategies.

Keywords: Shrinking cities, patterns of urban and regional development, interdependence of urban growth and shrinkage processes, global planning discourse, comparative planning

Montserrat Pallares-Barbera, Doctor, Universitat Autònoma de Barcelona. Geography Department.. Email: montserrat.pallares@uab.es; Antonia Casellas, Visiting Assistant Professor, University of Utah. College of Architecture and Planning. Email: casellas@arch.utah.edu; Marginal revolution in inner urban areas. Relational economic geography in Barcelona's development

Territorial innovation system seems to be in current economic geography literature intrinsically linked with the concept of relational economic geography. Inner urban redevelopment, new economy firm's location and its impact to already settled groups in inner areas are, most of the time, linked to government policy to upgrade urban decay. This paper deals with Barcelona's 22@ development project. Local government's policies have facilitated the upgrading of this neighborhood as the dominant front within city's global position network. Enforcing new economy firm location for city's new development in Barcelona is a clear policy driven act to upgrade space in order to become competitive in a changing production system world. Nowadays, production is linked with high service activities and rising value added new economic activity firms. Dynamics of urban renewal intrinsically incorporate challenges in both, economic and urban systems. They are in dynamic and continuous relationship; and its outcomes for space can be diverse. Either can result on a booming technological revolution, just a facade including only few low value added service activities; or just a way of developing the city under very higher economic expectations, but not deep grounds. Based on facts and numbers, this paper about Barcelona is devoted to discuss current urban development patterns under these elements and controversial outcomes in the 22@ district.

Keywords: Relational economic geography, new economy, inner urban development.

Ayşe Pamuk, Prof., San Francisco State University. Email: pamuk@sfsu.edu; Locating immigrant clusters in U.S. and European global cities with census data: A discussion of methodological issues

Studies of immigrant concentrations in the United States and in Europe use different methods and definitions in locating immigrant clusters using census data. This paper reports results of an analysis of immigrant clustering patterns in three major immigrant gateway cities in Europe (Paris, Amsterdam, and Stockholm) and in the United States (San Francisco, New York, and Los Angeles) using Geographic Information Systems (GIS) and provides results produced by using different methods in identifying immigrant concentrations. It highlights issues related to comparability of spatial data for immigrants across European nations, and discusses commonalities and differences in clustering patterns in the U.S. and Europe. It contributes to the literature concerned with methodological issues related to locating immigrants in global cities.

Keywords: gis, immigrant clusters, Europe

William Pan, DrPH, MS, MPH, Johns Hopkins University. Email: wpan@jhsph.edu; Alain Labrique, Johns Hopkins University. Email: alabrique@jhsph.edu; Parul Christian, PhD, Johns Hopkins University. Email: pchristi@jhsph.edu; Rolf Klemm, DrPH, Johns Hopkins University. Email: rklemm@jhsph.edu; Salahuddin Ahmed, JiVitA Bangladesh. Email: map-jivita@tistaonline.com; Sucheta Mehra, Johns Hopkins University. Email: smehra@jhsph.edu; Mahbubur Rashid, PhD, JiVitA Bangladesh. Email: mrashid_jivita@yahoo.com; Abu Ahmed Shamim, PhD, JiVitA Bangladesh. Email: shamim_jivita@yahoo.com; Keith P West, DrPH, Johns Hopkins University. Email: kwest@jhsph.edu; Spatial distribution of high risk pregnancy and health care access in Bangladesh

Maternal mortality in Bangladesh is among the highest globally, with estimates ranging from 320 to 850 per 100,000 live births over the past decade. Approximately 75% of deaths are attributed to postpartum hemorrhage, eclampsia, postpartum sepsis, and obstructed/prolonged labor (WHO). Efforts to provide obstetric care have achieved moderate success in reducing maternal deaths as many barriers to adequate and timely care remain, especially in rural areas. In addition to the barrier of extreme poverty, unequal distributions of risk associated with pregnancy and unequal access to health care influence the propensity to seek adequate, qualified care during or after pregnancy. We propose to characterize and quantify the spatial distribution of obstetric complications (e.g., preeclampsia/eclampsia, sepsis, anemia, and delivery complications) and associated access to health care using data from a -year longitudinal study in northern Bangladesh. Data include pregnancy-related morbidity and mortality for approximately 67,000 women as well as GPS data for households, health care providers, and transportation networks. Clustering statistics will be used to identify global and local clustering of high-risk pregnancy. Access to treatment will be examined according to level of health care quality (e.g., hospitals, private physicians, paramedics, village doctors, medicine shops, and traditional healers). Spatial regression will be used to measure the association between high-risk pregnancy and access to different levels of treatment. Results will help us to further understand a woman's propensity to seek treatment as well as to identify

and characterize specific areas of our study region that have an elevated risk for obstetric complications.

Keywords: Health inequality, pregnancy, GIS, high risk cluster

William KY Pan, PhD, John's Hopkins University School of Public Health. Email: wpan@jhsph.edu; David L. Carr, PhD, UC Santa Barbara. Email: carr@geog.ucsb.edu; The ecological fallacy and land use research - Can multilevel models account for scale?

Several studies have recognized the importance of taking scale into account when analyzing and interpreting land use models. Verberg et al (2004) discussed a number of concepts important to land use modeling, including level of analysis and integration, cross-scale dynamics, and spatial neighborhoods; Walsh et al (1999) demonstrated that relationships between biophysical and social variables change as a function of scale; and several studies have examined the impact of the modifiable areal unit problem or MAUP. One option that has been proposed to address these issues is the implementation of multilevel statistical models. Multilevel models are flexible regression models that efficiently estimate parameters defined for different scales. They are commonly used in the fields of demography, sociology, education, and public health. This paper will discuss the shortfalls of multilevel models in handling scale-dependency, most importantly, the remaining problem associated with linkage between people and land (i.e., the people to pixels linkage problem). We present model results from longitudinal panel surveys conducted in the Ecuadorian Amazon and compare two different types of linkages between people and land: (1) farm owners and their land owned; and (2) land plots and the people who occupy the land. The first linkage follows farm owners over time, while the second follows plots. Both linkages are considered nested within local communities. Preliminary results are consistent with published literature, i.e., multilevel models provide better estimates of factors influencing land use change, but interpretation of results are still dependent upon the way people and land are integrated.

Keywords: scale, statistics, methods, land use/cover change (LUCC), human dimensions of global change, population, environment, Latin America

Laura Pangallozzi, Rutgers. Email: laura@pangallozzi.org; Black Attitudes toward Integration Management in a U.S. Suburb

Integration management practices (IM) have provoked controversy as U.S. suburbs apply them to counter rising black settlement. IM practices include attracting whites through 'affirmative' marketing and 'benign' racial steering; seemingly race-neutral intervention in home sales such as anti-solicitation ordinances and restrictions on for-sale signs; monitoring of black concentrations through various forms of racial record keeping; and surveillance of changing neighborhoods via strict enforcement of codes on property upkeep and illegal rentals. Suburbs such as Shaker Heights, OH; Oak Park, IL; and Maplewood-South Orange, NJ have all sponsored IM groups. But the policies the groups advocate are more widespread than the organizations themselves. Indeed, IM verges on becoming standard procedure in majority white inner suburbs of cities with large black populations. An important gap in the recent literature on IM has been analysis of the attitudes of African-Americans toward the practice. This paper presents the findings of a focus group, led by a black moderator, of African-American residents of Maplewood-South Orange. The analysis teases out attitudes toward IM along the dimensions of tenure and status. Integration management, the focus group shows, has sharply different meanings for white and black residents of inner suburbs even as there are important continuities.

Keywords: integration, race, cultural geography

Maria Papadakis, James Madison University. Email: papadamc@jmu.edu; Benjamin Merriman, James Madison University. Email: merrimbg@jmu.edu; Spatial, Economic, and Technological Determinants of Innovation Diffusion in the Residential Building Industry

The diffusion of innovations is affected by a wide variety of economic, technological, social, and organizational factors, yet may nonetheless follow distinctive spatial patterns. In this paper, we analyze the relative impacts of contextual and spatial determinants of innovation for nine innovations in the residential building industry. Data are from a 2003 national stratified random sample of US residential home builders on their adoption and use of building and construction technologies. Findings are explored with respect to type and size of builder, technological features of the innovation, market structure of the innovation, builder predisposition to innovate, location (along multiple dimensions) of builder, proximity networks, and spatial patterns of diffusion (e.g., contagion, hierarchical, mixed). Implications for theory, business decision-making, and public policy are addressed.

Keywords: diffusion, residential building industry, construction

Diane Papineau, Montana State University. Email: diane.papineau@myportal.montana.edu; *Transforming Place at Canyon: Politics and Settlement Creation in Yellowstone National Park*

Between 1940 and 1970 Canyon's cultural landscape changed dramatically. Empowered by the developing preservation ethic in the United States, the government relocated Canyon Junction and its entire visitor development away from the Grand Canyon of the Yellowstone. Replacing the 70-year-old, "organically-grown," rustic settlement was a modern, preconceived village resembling 1950s suburbia. As a result, different generations of Yellowstone visitors have experienced two contested versions of Canyon as a park place. The old Canyon settlement was established and grew organically. It was tied to a geographic point and its pattern evolved through time?common for most human settlements outside of national parks. Unfortunately, its location was illegal. The settlement was too close to the canyon rim, violating the park's Organic Act. When Canyon was established in the 1880s, national parks represented a new responsibility for the federal government?a new type of land use. Entrepreneurial interests and visitor expectations challenged the government's ability to regulate visitor place creation. Through time, federal government control strengthened. The Canyon cultural landscape?its formation, evaluation, and transformation?illustrates the evolving political strength and maturation of federal government stewardship in national parks.

Keywords: Historical Geography, Land Use Planning, Cultural Geography, National Parks

Trushna Parekh, University of Texas, Austin. Email: tparekh@mail.utexas.edu; *Racialized Landscapes of Gentrification : The Politics of Cultural Memory in New Orleans' Treme neighborhood.*

Drawing on pre-Katrina ethnographic research in the Treme neighborhood in New Orleans, this presentation examines the constitution and contestation of local collective memories that are inscribed on and interpreted through the landscape. The dynamics of gentrification provide an arena in which collective identity is both articulated and constituted by such means as : 1) informal conversations about neighborhood change, 2) community meetings, and 3) the construction and interpretation of culturally marked material objects such as monuments and plaques in the landscape. As a result, the ways in which landscape is racialized, historicized and mobilized differentially legitimates the residents of the neighborhood. By examining these politics of gentrification, this paper hopes to yield insights into the entanglements of racialization, place and cultural memory in this neighborhood.

Keywords: Gentrification, Race, Memory, New Orleans

Bae-Gyoon Park, Seoul National University. Email: geopbg@snu.ac.kr; Young Jin Choi, Seoul National University. Email: knewlife@snu.ac.kr; *Pursuing either Nationalism or Economic Democratization: Mixed Responses of the Korean Social Movements to Globalization*

This paper addresses the ways in which the Korean social movements have responded to globalization and neoliberalization. Unlike what has been widely expected, the responses from the Korean social movements to globalization have been much more mixed and complex than something simply dominated by nationalist resistance against global neoliberalism. To simplify, the Korean social movements have responded to globalization in two contrasting ways. On the one hand, there have been various forms of activism resisting globalization and liberalization, which have been organized by forces aiming at securing Korean national identities and interests from outside forces. On the other hand, there have been efforts to make the Korean economy more open to global competition in order to achieve what is called "economic democratization" by forcing chaebols, the large Korean conglomerates, to reform their "undemocratic" and "inefficient" governance structures under global competitive pressures. This paper aims to explain this mixed picture of the Korean social movements in the era of globalization by examining how the two contrasting responses have been differentially associated with, and influenced by, two important ideological tendencies that serve as the basis for their mobilization of support: 1) nationalism and 2) a strong orientation toward democratization. The main argument suggested in this paper is that different groups in the Korean social movements have been oriented towards one or the other of these two ideological traditions, so that the Korean social movements have been unable to contribute to the construction of successful transnational resistance practices against neoliberal globalization.

Keywords: globalization, neoliberalism, social movement, resistance, Korea

Kyonghwan Park, Chonnam Nat'l University, South Korea. Email: kpark3@gmail.com; *Reterritorializing transnational bodies: neoliberal multiculturalism policy in South Korea*

South Korea, having immersed in strong nationalism, witnesses an increasing influence of the term 'multiculturalism' in public domain. Among many dimensions of multiculturalism, the term, often disguised with the notion

of 'international culture' in South Korea, is especially widely employed in discussing geographic changes spawned by transnational immigrants. While multiculturalism could be a descriptive term that especially captures racial, ethnic diversification in society, it is also ideological in the sense that the hosting society has often elaborately implemented the politics of inclusion and exclusion. In many cases in South Korea, such politics is aimed at appropriating multicultural resources for its own developmental ends. This paper explores multiple forms and politics of multiculturalism, and answers which versions of multiculturalism could provide a vantage point for critical geography. At an empirical level, this paper focuses on how local/central government employs the notion of multiculturalism and implements multicultural policies from the perspective of neoliberal, developmental, and corporate ideology. I argue that instrumental nationality imbibed in such notion of multiculturalism is not much conducive to grass-root multicultural communication beyond racial, ethnic lines. Critiquing multiculturalism policies in terms of neoliberal 'reterritorialization', I finally provide a suggestion on how to envision smooth spaces across racial and ethnic lines in an era of transnationalism.

Keywords: multiculturalism, transnationalism, neoliberalism, immigration, South Korea

Sam Ock Park, Seoul National Univ. Email: parkso@snu.ac.kr; *From Production Agglomerations to Innovation Clusters: Industrial Restructuring in Korea in the Knowledge-based Information Society*

This paper examines diverse types of innovation cluster evolving in Korea to find a typical Korean model of innovation cluster in recent years. The role of diverse actors in the innovation clusters and the processes of innovation are analyzed by the types of innovation clusters at different spatial scales. Developing regional innovation systems has been the major policy instrument in Korea since the beginning of the new century. Large industrial districts, which share more than half of the national industrial production with agglomeration of many manufacturing plants, are now undergoing restructuring in order to regenerate competitiveness through developing innovation clusters. Local and national governments have adopted the cluster concept at various spatial scales in order to enhance innovation potentials and to promote regional and national competitiveness. Distinctive characteristics of the regional innovation clusters at various spatial scales have been evolving in these nationwide restructuring processes.

Keywords: innovation cluster, Korea, regional innovation systems, industrial restructuring

Siyoun Park, Western Illinois University. Email: s-park@wiu.edu; Jongnam Choi, Western Illinois University. Email: j-choi1@wiu.edu; *Military Base Closure and the Decline of Korean Americans in Rural America*

The study presents the effect of the location of military bases on the distribution of Korean populations in rural America. Conventionally most immigrant groups tend to concentrate in the metropolitan areas. Korean Americans are, however, often found in small towns as well. This unusual Korean distribution is associated with Korean brides who married American military servicemen. There are two types of Korean brides who settled in rural America: ones who have settled in their husbands rural hometowns, and the others who live in the current military base towns throughout the country. These Korean brides were married to American GIs while their husbands were on duty in Korea. Often they have mixed blood children represented in 2000 Census' new category of more than one race. During the last two decades, there have been major military base closures which have had a pronounced effect on the distribution of Korean population in rural America. The counties with declining Korean American populations in the 2000 Census were clearly represented by Military base closures. The same counties also have A higher proportion of Koreans who marked more than one category of race. The data of the present study is from the U.S. Population Census 1980, 1990 and 2000, and the Department of Defense Base locations and their closures.

Keywords: Korean Americans, military, rural

Sunyurp Park, University of Hawaii-Hilo (Geography). Email: sunypark@hawaii.edu; Stephen L. Egbert, University of Kansas. Email: segbert@ku.edu; *A satellite data-based analysis of landscape structure changes caused by the Conservation Reserve Program (CRP)*

One of the major results of the U.S. Conservation Reserve Program (CRP) has been the addition of millions of hectares of potential wildlife habitat, primarily as grassland. Changes in landscape structure caused by the program were examined using satellite imagery-derived land cover maps for the pre- and post-CRP enrollment periods. We calculated a variety of spatial metrics to analyze changes in landscape structure attributable to CRP in the southwest Kansas using the FRAGSTATS spatial pattern analysis program. The introduction of CRP has substantially modified the spatial structure of the landscape and showed the reversal of an overall trend of grassland fragmentation. It generated important

positive implications for wildlife habitat changing the count, size, shape, interior areas, and connectivity of grassland patches. The primary objective of CRP is the reduction of soil erosion in areas where cropland occurs on highly erodible and environmentally sensitive land. However, the study result showed that deficits of soil moisture, not necessarily soil erosion potential, might have been an important factor in CRP enrollments. To evaluate the spatial variation of CRP land distribution within the study area, two subset areas (irrigated and non-irrigated areas) were selected and their spatial metrics were compared. Changes in landscape configuration caused by CRP enrollments turned out to be significantly different between the non-irrigated and irrigation-dominant areas. The major landscape transformation for the non-irrigated area was a noticeable aggregation of CRP lands with grassland (133% increase), whereas grassland area increase was only 36% for the irrigated area.

Keywords: Conservation Reserve Program, landscape structure, FRAGSTATS, fragmentation

Albert J. Parker, University of Georgia. Email: ajparker@uga.edu; *What ever happened to Platt National Park?*

Nestled in the Arbuckle Mountains of south-central Oklahoma, the wooded valleys of spring-fed Rock and Travertine Creeks were once preserved as Platt National Park; at 912 acres, America's smallest national park. The administrative history of Platt National Park parallels the history of the National Park Service (NPS) and its shifting mission over the course of the last century. Unlike the wild parklands of the American West, Sulphur Springs Reservation was preserved by un-coerced agreement between Chickasaw Indians and the federal government in 1902. In 1906, ten years prior to creation of the NPS and its regulatory power, the site was designated a national park and ironically renamed in honor of Orville Platt of Connecticut, recently deceased chair of the Senate Interior Committee and supporter of Bureau of Indian Affairs dispossession policies. Over its 70-year history, Platt National Park was consistently underfunded, considered unworthy of national park status by park purists. Most park infrastructure was built by Civilian Conservation Corps workers in the 1930s. By the 1970s, the NPS reluctantly embraced the role of recreation provider for an increasingly urban population. In 1976, Platt was joined with the nearby Lake of the Arbuckle recreation complex to create the Chickasaw National Recreation Area. Ostensibly done for administrative parsimony and to celebrate regional Indian cultural heritage, this action quietly eliminated this unwanted national park. Today, with increasing awareness of the role of people in nature and skepticism of the wilderness ethos, one wonders if Platt National Park would have met the same fate.

Keywords: environmental history, national parks, Oklahoma

Caleb Parker, East Carolina University. Email: wcp0622@ecu.edu; *Sanctuaries of Silence: How North Carolina's United Methodist Pastors Respond to Homosexuality*

The controversy over homosexuality has proven itself to be a point of tension at the state and national levels of The United Methodist Church for decades, but little is known about the dynamics of this controversy at the local, church level. Therefore, viewing church space as both sacred and socially-contested, this research identifies and analyzes the controversy within North Carolina's UM congregations from the perspective of local pastors. Using a web-based survey sent to all of North Carolina's 1,500 UM pastors along with 10 in-depth interviews, I investigate how they understand homosexuality, express such ideologies to their congregations, and hence contribute to the construction of "sanctuaries of silence." Ultimately, the research analyzes the power (or powerlessness) of pastors to shape this sacred space, and the implications it might have on their congregation members.

Keywords: Religion, The United Methodist Church, homosexuality, sacred space, socially-contested space

Gavin Parker, University of Reading, UK. Email: g.parker@rdg.ac.uk; *Planning on the cheap? Parish planning, empowerment and local evidence.*

This paper reports on recent research in one district in England focussing on the preparation and effects of Parish Planning as a form of community planning and decision making tool. Using quantitative and qualitative methods data was collected from forty two parishes and key interviews and focus groups were conducted. While much has been written about community planning and the potential benefits of such approaches this paper focuses on the process and relationships between the community and local institutions involved during a period when Parish Planning has been in its infancy. The research found some significant problems with process and institutional arrangements as well as benefits derived from the Plans.

Keywords: community, planning, countryside, empowerment, governance, England

Simon Parker, University Of York, UK. Email: sp19@york.ac.uk; Roger Burrows, University of York. Email: rjb7@york.ac.uk; Nicholas D Gane, University of York. Email: nbg2@york.ac.uk; Michael Hardey, University of York. Email: michael.hardey@hymys.ac.uk; Nicholas Ellison, University of Leeds. Email: N.Ellison@leeds.ac.uk; *Class places and place classes: the spatialisation of class and the automatic production of space*

Beginning with the work of Scott Lash on the contemporary rezoning of neighbourhoods, this paper empirically examines four very different streets in different parts of England each of which is taken to epitomise one of the socio-spatial zones identified by Lash: live/tame; live/wild; dead/tame; and dead/wild. Within each street we examine the various systems of geodemographic classification to which it is subject by the state and commercial organisations and also the manner in which it is characterised by various internet-based neighbourhood information systems (IBNIS). We then use these four classificatory assemblages of our case study streets (places/classes?) as an entrée to a discussion about the 'spatialization of class thesis' (class places?) recently developed by Mike Savage and others and link to this to debates about the automatic production of space ('automated spatiality') found in the recent writings of Nigel Thrift and colleagues. Our concern in the paper is to offer an empirical exploration of the relationship between the vernacular social geographies of lay people and the formal classificatory systems of state and commerce that are becoming ubiquitous.

Keywords: Space, class, geodemographics, software, UK

Virginia L. Parks, Ph.D., University of Chicago. Email: vparks@uchicago.edu; *Local and Not-So-Local Restructuring Effects on the Wages of Immigrants and African-Americans*

This research considers the local effects of economic and demographic restructuring on immigrant and native-born Black employment during the 1990s in the U.S. Building on local labor market theory, this research attempts to explicate the contribution that local context makes in explaining immigrant and African-American labor market outcomes through interurban comparative analysis. Theoretically and empirically, this research seeks to adjudicate between the role of social resources in facilitating economic success among immigrants as postulated by the ethnic economy literature in sociology and the role of local labor market structure?industrial, demographic, and institutional?in facilitating employment outcomes as described by geographers. In an examination of wages across multiple U.S. cities, I distinguish between effects of group clustering, industry characteristics, and local labor market structure on native- and foreign-born wages. African-Americans are evaluated specifically for their hypothesized position of competition with immigrants in the labor market and their theorized weaker social capital. Through leveraging multiple comparative lenses, this analysis begins to identify the local effects of economic and demographic restructuring on wage inequality as well as effects generated more broadly across places and scales.

Keywords: immigration, black employment, restructuring, wages

Benoit Parmentier, Clark University. Email: bparmentier@clarku.edu; *Improvement in the use of the Relative Operating Characteristic (ROC) statistic*

This paper proposes three improvements in the use of the ROC statistic for applications to GIS: 1. an estimate of the uncertainty of the Area Under the Curve (AUC) using the upper and lower bounds 2. a visualization of the ROC statistic in the form of a map 3. a new baseline of comparison application in land change modeling: the ROC for persistence. The ROC statistic is used to assess the association between a map that shows a rank variable and a map that shows a Boolean variable. Scientists use the ROC for many applications: in psychology, in Remote Sensing applications to assess soft classifications, in ecology to assess the predictions of species presence across space and in land use and land cover change (LUCC) to assess predictions in changes across time. For example, in LUCC modeling, the researcher typically creates a map of ranked suitability that is used to specify the location of land change. The ROC statistic is then used to compare the suitability map to the Boolean map of land change. Applications have focused solely on the use of the Area Under the Curve (AUC) as a measure of the association between the maps. An AUC close to 1 is interpreted as very high association. An AUC of less than 0.5 is then interpreted as low association because a randomly generated Rank map produces an AUC of 0.5 by design at the ROC curve.

Keywords: GIS, ROC, modeling

David Parr, Texas State University-San Marcos. Email: daveparr@txstate.edu; *Indigent Access to Emergency Room Care: A GIS Case Study*

At a regional level, emergency rooms must be situated to ensure quick access to facilities. Medical emergencies require speedy response times, and models of access can simulate this currently. Access to emergency rooms should also be just, however, as emergency room usage is higher among the poor, minorities, and

persons without health care. This paper presents data for a one-year period of regional hospital access. It also presents a modified proximity-analysis model to identify areas where health resources are not justly distributed.

Keywords: gis,er,austin,texas,access

Hazel Parry, Central Science Laboratory. Email: h.parry@csl.gov.uk; Andrew Evans, University of Leeds. Email: geoaje@leeds.ac.uk; *Coping with millions of agents: techniques to re-implement a multi-agent model in order to increase the number of agents it can simulate.*

Multi-agent Simulation (MAS) has powerful potential for furthering understanding of the local processes that influence regional population dynamics spatially and temporally, enabling better understanding of how individual local-level interactions result in larger scale population distributions. However, several novel model development issues now face researchers: in particular how to simulate large numbers of individuals or agents with high levels of complexity given finite computing resources. Using the example of an agent-based simulation model of aphid population dynamics in agricultural landscapes, a number of strategies for coping with a large number of individuals are presented. In particular, two strategies are assessed: the use of 'super-individuals' and parallel computing. A comparison is made of the results and computational effectiveness of running the same model under these two methodological treatments, and the benefits and problems of an agent-based approach for the simulation of large numbers of organisms are discussed.

Keywords: Multi-agent simulation, Parallel computing, model development

Anthony Parsons, . Email: a.j.parsons@sheffield.ac.uk; *Hillslope Processes and Sediment Delivery*

The rate at which hillslope processes deliver sediment to a point on the landscape is termed sediment delivery. It has generally been found that the value of sediment delivery declines as area increases (the sediment delivery ratio). However, in the long term all sediment delivery ratios must equal one, for otherwise basins would fill indefinitely. In short-term studies ratios typically less than one have usually been interpreted as evidence for anthropogenic accelerated erosion. But this interpretation, and the evidence on which it is based, bears further investigation. The fundamental assumption underlying sediment delivery is that measurement of sediment flux ($M T^{-1}$) can be related to a contributing area so that the conversion of the measurement to units $M L^{-2} T^{-1}$ is valid. This is true only if L is less than sediment-travel distance in time T . In almost all cases, either where sediment yield is measured at catchment outlets or where it is measured on hillslope runoff plots, this condition is not met. To understand the significance of various slope processes for sediment delivery, we need to focus not only on the amount of sediment that is entrained by slope processes, but also its travel distance. Using data from the research literature, it is possible to quantify travel distances for fluid-gravity processes, but for sediment-gravity processes mapping in individual catchments is typically necessary. Allied to travel distance in determining sediment delivery is the frequency with which particles move. These two concepts can be combined within the notion of virtual velocity.

Keywords: sediment delivery ratio; travel distance; virtual velocity

Eric Pascal, University of Wisconsin-Eau Claire. Email: pascal@uwec.edu; Harry M Jol, University of Wisconsin-Eau Claire. Email: jolhm@uwec.edu; Richard A Freund, University of Hartford. Email: freund@mail.hartford.edu; Philip Reeder, University of South Florida. Email: preeder@cas.usf.edu; Paul D Bauman, WorleyParsons Komex. Email: paul.bauman@worleyparsons.com; *GPR Investigation of Archaeological Sites: Preliminary Results from Tel Yavne and Apollonia, Israel*

Geoarchaeological excavations are expensive and time-consuming endeavors. With geophysical tools, such as ground penetrating radar (GPR), archaeological digs can be made more effective and efficient by aiding in identifying locations that show unique subsurface anomalies which appear to be anthropogenic in nature. During the summer of 2006, GPR data were collected at Tel Yavne and Apollonia, Israel. Yavne, located about 20 kilometers south of Tel Aviv, has a history that goes back thousands of years. After the destruction of the temple in Jerusalem in 70 CE, Yavne served as a center of Jewish learning and has subsequently been the site of a Byzantine city, a Crusader castle and Arab villages. Apollonia, named for the Greek god Apollo, existed as a Mediterranean coastal village as early as the 6th Century BCE and was the site of a Crusader fortress. GPR grids were collected adjacent to present excavations at Tel Yavne (7.5m x 13m) and Apollonia (20m x 30m) using 225 MHz antennae. The radar signals penetrated to approximate depths of 1.0m at Tel Yavne and 1.2m at Apollonia and revealed interesting anomalies (archaeological features?) in the GPR images. Preliminary analysis of the GPR data has led to the interpretation of potential walls, collapsed walls, and/or pits in the subsurface. The analysis and interpretation of the collected geophysical data will be used by site archeologists to guide future excavations.

Keywords: ground penetrating radar, Israel, geoarchaeology

Matt S Paskus, Western Washington University. Email: matt@paskus.net; viaTime.org - *Simulating the world of travel for children using Google Earth.*

viaTime was developed in order to teach students not only about distance, time, and geographical locations, but how Geographic Information Systems (GIS) can be tailored to meet a child's creativity and imagination. Google Earth (GE) provides a conduit for collaborative, imagination, research, and creativity. The open platform that GE provides, allows developers to reach geography students by offering new and exciting ways of presenting data. Geographic data can be tailored in various formats geared towards any specific industry. The application viaTime offers a unique perspective into the transportation industry by allowing students to create their own airline by opening doors into the world of geography and transportation. viaTime creates an imaginary world that overlays the real world and transforms time zones, speed, distance, latitudes and longitudes into a world of learning. viaTime offers an easy to use interface that offers anyone within our global community to create an imaginary airline that may reflect not only their ability to learn but how they share their creativity and culture. viaTime merges various disciplines of GIS by blending network analysis, geoprocessing, spatial analysis, and geo-referencing into an educational tool that is both online and easy to use. The world of air travel has created visions of discovery, adventure, while promoting advancements in technology and engineering. viaTime allows students to create their own world and essentially share their world with others while gaining an interest in both technology and geography.

Keywords: GIS, Map, Transportation, Education, Google Earth

Cynthia Paslawski, University of Michigan - Dearborn. Email: cindypasl@yahoo.com; Matthew Beer, University of Michigan - Dearborn. Email: mbeer@umd.umich.edu; Jacob Napieralski, University of Michigan - Dearborn. Email: jnapiera@umd.umich.edu; *Combining GIS and Field-Based Techniques to Link Soil Properties to Land Use Changes and Variations in Vegetation in the Natural Area of the University of Michigan- Dearborn*

The natural area on the University of Michigan Dearborn campus is a 90 acre parcel that is comprised of forest, grassland, floodplain, streams, and lakes. Unfortunately, detailed information and mapping of soil makeup of this area is either lacking or has been lost over the years. The purpose of this study is to incorporate soil surveying and geographic information systems (GIS) techniques to create detailed and accurate maps of the university natural area with the objectives of linking soil characteristics to changes in land use, vegetation, and topography. The soil survey involves sampling of the A-Horizon, down to the boundary between the B-Horizon. The depth of the A-Horizon is measured and the sample tested in lab for texture using the hydrometer analysis. Sampling of the natural area is based on changes in vegetation and topography, as well as a representative sample of the area. Interpolation techniques are used to create surfaces and 3-dimensional models to test if there are any correlations between soil characteristics and topography, presence of surface water, or vegetation changes. Accurate soil maps are useful for assessing natural changes, determining suitability of land for development and potentially producing new knowledge about soil properties within urban and suburban areas.

Keywords: gis, soil, vegetation, topography, land use

Martin J. Pasqualetti, Ph.D., Arizona State University. Email: pasqualetti@asu.edu; *Energy Landscapes of the Southwest*

The harsh arid lands of the American Southwest, once difficult places to visit, are now appealing places to live. The change from old dread to modern delight tracked the increasing practicality of two buffers against the desert? sufficient water and reliable air conditioning? although not cushions of equal significance. While ample water had been adequate in Phoenix for over 100 years, it had not by itself stimulated more than a slow rise in the permanent population. It was the availability of reliable air conditioning? and the energy to power it? that attracted so many new residents. As these people benefited, distant and picturesque hinterlands were paying the price. This paper examines the relationship between the two areas in terms of landscapes. First, it looks at the energy landscapes created in the area of supply? particularly in the Colorado Plateau? that those that have emerged as a result of the energy developments. Second, it examines the landscapes of the cities themselves? primarily Phoenix? for possible adjustments in energy demand that would meld? rather than ignore? desert conditions and relieve the pressure on the Colorado Plateau. —

Keywords: Energy, United States, Environment, Colorado Plateau, Arizona

Merle Marshall Patchett, University of Glasgow. Email: merle.patchett@ges.gla.ac.uk; *Matter of life and death: the embodied practice of taxidermy*

Close attention to past practice and craft skills can offer empirical and conceptual resources for exploring the geographies of animal (after) lives. Taxidermy practice is a case in point, opening up new spaces of enquiry into the material cultures of life and death that constituted animal collection, preservation and display in the 19th and early 20th centuries. Taxidermy skills were crucial to the colonial trafficking that made dead animals mobile, and ensured the long-term preservation of specimens in entirely alien environments. This paper sifts through technical manuals, the biographies of past taxidermists and collections, and draws on time spent observing and documenting taxidermists at work, to differently figure the working of bodies, and bodies at work. Taxidermy practice is routed through the spaces of the field, workshop and museum. By blending historical research with ethnographic enquiry the paper uncovers the multi-sensory relations existing between people, animals and objects. Through such practical lessons for knowing it is possible to reconsider the way we choose to understand the representation and display of animals, and also the methods through which we generate this historically-informed understanding.

Keywords: practice, embodiment, historical geography, taxidermy

Hrshikesh Patel, Boston University. Email: hrishi.p.patel@gmail.com; **Sucharita Gopal, Boston University. Email:** suchi@bu.edu; **Les Kaufman, Boston University. Email:** lesk@bu.edu; *Java-based Integrative Modeling System for Marine Area Monitoring and Management*

Marine conservation is increasingly gaining importance as nearly two-thirds of the world's people live within 150km of a coastline and are dependent on marine resources. The Marine Management Area Science Program (MMAS) advances the science and application of marine management areas in the service of marine conservation. Model-based decision tools created by MMAS are a great utility to managers and decision makers in MMA environments. We are developing a decision support system framework called MIDAS - Marine Integrated Decision Analysis System, which can integrate spatial and nonspatial data for examining interacting effects of governance, economics, and their supporting ecosystem in the watershed and continental shelf of 10 sites worldwide. A component of MIDAS is Integrative Modeling System developed in Java which allows the user to examine specific interactions amongst the three variables. Java is increasingly gaining momentum as a key language for modeling due to its advantages such as advanced graphical user interface, real-time environment, platform independence and an advanced object-oriented paradigm. Two specific JAVA simulations are presented in this paper to examine the condition of the coral reefs; first, the linkage between watershed, soils and runoff along the coasts and second, urbanization and coastal economic activity including commercial fishing. We will examine the condition of the reef and discuss the relevance of this work in terms of our ongoing global efforts related to MMA models. In addition, the utility of JAVA as a simulation tool is also discussed.

Keywords: Marine GIS, Java, marine conservation, interactive modeling

Reena Patel, University of Texas at Austin. Email: reenap_70@hotmail.com; *Working the Night Shift: Gender and the Global Economy*

The hyper-growth of the transnational call center industry in India represents the emergence of a "second shift," namely a night shift labor force in the global economy. Specific to the urban nightscape, women's mobility and access to public space intersects with the spatial and temporal construction of gender. The nightscape is primarily an exclusive, male domain. For example, the Indian 1948 Factories Act states: no women shall be required or allowed to work in any factory except between the hours of 6 A.M. and 7 P.M. Only as of March, 2005 was this act amended. In light of such dynamics, qualitative research methods such as participant observation and in-depth interviews were used to investigate how the global demand for 24-hour workers is re-configuring women's physical, temporal, social, and economic mobility because of the night shift requirement of call center employment. Another key concern is how households respond to changes in women's mobility. Dissertation fieldwork was conducted in 2006 in both Mumbai and Bangalore. Initial findings suggest that the presence of women in the urban nightscape is met with covert resistance. Although there are no visible barriers such as "men only" signs written into public space, women's bodies continue to be marked as a site of transgression.

Keywords: Feminist Geography, Gender, Women's Studies, India, Call Center Industry, Mobility, Globalization, Urban

Zarina Patel, University of the Witwatersrand. Email: patelz@geoarc.wits.ac.za; *Tools and trade-offs in environmental decision making*

Despite constitutional commitments to environmental justice in South Africa, evidence indicates that the poor and the natural environment continue to be marginalised in decision making. In understanding how injustices are perpetuated and maintained, this paper examines the role of environmental assessment procedures in shaping outcomes at the local level. The conceptual framework guiding the evaluation of the tools being used in decision making is shaped by the relationship between power, knowledge and rationality, and the effects these have on the engagement of the public in interventions fostering environmental justice. In the re-vamping of environmental assessment regulations in South Africa, much attention has been paid to streamlining the process of assessment. However, this paper argues that environmentally just decisions cannot be made in a context where debates are centered on process. Instead, debates need to be re-directed to qualities of outcomes, foregrounding the need for an approach grounded in questions of value. Recognising that the poor and the natural environment tend to systematically lose out in a context where environment is pitted against development, environmental assessment must be able to take into account the distributional consequences of decisions. Furthermore, the paper makes a case for the need to challenge the broader political context within which environmental assessments are conducted, as environmental assessments cannot replace broader strategic and policy debates. In the absence of this broader institutional challenge, political power will continue to work through decision making tools to perpetuate and maintain systems of injustice.

Keywords: Environmental assessment; Environmental justice; values; South Africa

Mark W.D. Paterson, University of the West of England. Email: Mark.Paterson@uwe.ac.uk; *Passion and Sensation in an Age of Reason*

Much maligned through the years, René Descartes is the author of significant work on the integration of the passions and reason. 'The Passions of the Soul' (1649) and, later, the posthumous 'Treatise on Man' (1664) inspired La Mettrie's equally provocative but more religiously scandalous work Machine Man. While much has been written on the appealing engineering and thought experiments known as automata, the philosophical work instigated was profound, casting the terms of subsequent discussions in the Enlightenment concerning the relationship between reason, sensation and emotion. Re-engaging with these philosophical implications, it is helpful to return back to Aristotle's protobiology, where in De Anima and in De Sensu et Sensibilibus he explores exactly this physiological territory. But in some key areas of Aristotle's texts we can discern the roots of later thinking of 'affects', whereby *paschein* is the affecting or altering of the faculties of the body through sensation. Thus, thinking through passion and sensation in this way, plus the repatriation of Descartes' ideas concerning the interaction of the mind and the body, leads to revealing insights within present debates within geographical debates concerning 'affects' and 'emotions'.

Keywords: Passion, sensation, affect, emotion, Enlightenment

Lynn Patterson, Kennesaw State University. Email: lpatters@kennesaw.edu; *Sustainable local economic development: a rising tide?*

The purpose of this research is to explore whether and how local economic development agencies in the United States are incorporating sustainability into their policies and programs. Local economic development agencies have traditionally concentrated on economic performance, such as job creation and revenue generation. While economic performance remains the priority for most agencies, there is increasing evidence these organizations are expanding their economic scope to include environmental responsibility and social equity. The research utilizes primary data from a recently conducted national survey of local economic development agencies and secondary data to examine the agencies' attitudes, activities and policies. Descriptive statistics and regression analysis indicate a growing interest in sustainability. This interest may be indicative of a new phase in local economic development policy and practice.

Keywords: local economic development, sustainability, policy

Mark Patterson, Ph.D., Kennesaw State University. Email: mpatters@kennesaw.edu; **Douglas Oetter, Ph.D., Georgia College and State University. Email:** doug.oetter@gsu.edu; *Local Impacts of Globalization: Forestry in Chile's Bio Bio Watershed*

This paper examines the local impact of Chile's attempt to join the international forestry market through national economic and land management policies. In particular, we explore policies forthcoming from Decree Law 701 and Decree Law 600, and Chile's shift to neoliberal economics in the mid 1970s. We focus on land conversion in the Bio Bio watershed (south-central Chile) using remotely sensed imagery, personal interviews, and population and economic

census data. Our preliminary findings suggest significant land cover change and rural to urban population migration are some of the local impacts of such policies.

Keywords: Globalization, Forestry, Chile

David K. Patton, Ph.D., Central Michigan University. Email: david.patton@cmich.edu; Brian L. Becker, Ph.D., Central Michigan University. Email: becke1b@cmich.edu; Jay D. Anderson, M.S. Student, Central Michigan University. Email: ander2jd@cmich.edu; Matthew A Comben, M.S. Student, Central Michigan University. Email: combe1ma@cmich.edu; Jessica L. Watmore, M.S. Student, Central Michigan University. Email: watmo1jl@cmich.edu; Laura R. Barrick, B.S. Student, Central Michigan University. Email: barri1lr@cmich.edu; Meagan K. Krawczyk, B.S. Student, Central Michigan University. Email: krawc1mk@cmich.edu; Toluca, Mexico Mapping Project

For this project students and faculty members from Central Michigan University (CMU) traveled to Toluca, MX for a week to work with students from Tecnológico de Monterrey, Toluca (Tec) to complete field mapping in Parque, Alameda (a 253 acre, Municipal Park located on the edge of the City of Toluca). The purpose for the mapping project was twofold: first, to provide the students at CMU and Tec an opportunity to interact and work together on a significant mapping and GIS project and second, to provide the Urban Design Program at Tec and the City of Toluca a functional GIS that could be used for analysis and the development of new designs leading to the betterment of the park. A major part of the project involved the creation of discrete layers of GIS data (e.g. roads, stream, lakes, buildings, boundaries, etc.). Land cover and land use layers were created by the CMU students from remotely sensed imagery prior to traveling to Toluca. Ground truth and elevation data was then collected in the field using GPS and Total Distance Stations. The project provided all of the students with the opportunity to plan and execute a complicated GIS project while also interacting with colleague from a different culture.

Keywords: : field mapping, Mexico, student project, GIS education

Wendy W Patzewitsch, Texas A&M University. Email: patzewitsch@tamu.edu; The Perception of Water Through an Assessment of Water Bonds

Using archival sources I show that during the late nineteenth century major fires destroyed significant amounts of the central business district of each of Texas' ten largest cities, leading to demand for the establishment of local waterworks. Fifty years of municipal bond records from the archives of the Office of the Comptroller were analyzed. Fifteen hundred water bonds were identified and input into a database. Time-slice maps were constructed to demonstrate the spread of waterworks funded by municipal bonds. Results indicate significant variations placed upon the value of waterworks in early twentieth century Texas towns.

Keywords: Historical geography, water bonds, geography of change

Kamal Paudel, Department of Earth Sciences, Montana State University, Bozeman, MT. Email: kamalpl2003@yahoo.com; David W. Willey, Department of Ecology, Montana State University, Bozeman, MT. Email: willey@montana.edu; Red panda (*Ailurus fulgens*) habitat use patterns in eastern Nepal using a Geographic Information System: A case study from Singhalila Redpanda Reserve

The Himalayan mountain range represents a transition zone between the Palearctic and Oriental biogeography regions. Mammal diversity in the Himalayan region has been observed to be diverse, characterized by species like the endangered red panda. Habitat loss of the red pandas has placed them in the list of the endangered species (Redpanda Project, 2006). Recent research suggests that red panda fecundity is low and mortality rate for juveniles is high. We used a Geographic Information Systems (GIS, ArcView, ESRI, Inc.) to investigate red panda habitat-use preference in the Singhalila Redpanda Reserve (SRR), Ilam, Nepal. Our investigation was conducted in collaboration with the Redpanda Project (San Francisco, CA). Results of our preliminary analyses indicate the red panda habitat use and movement patterns show concentrated use in areas of abundant bamboo production. Use of bamboo stands may occur rather close to zones of human disturbance, including roads, housing areas, and croplands. These findings provide evidence for non-random use of habitats in our study, and highlight the use of bamboo stands.

Keywords: Red panda (*Ailurus fulgens*), Singhalila Redpanda Reserve (SRR), Ilam, Red Panda Project, habitat loss, resource availability, Geographic Information Systems (GIS), spatial distribution and Goth (barn)

Alan Paul, UCLA. Email: alanpaul@gmail.com; From Homo Economicus to Homo Culturalis: Value Theory in Economic Geography

The original "New Economic Geography" (circa 1980s) replaced spatial science by moving the focus of economic analysis from individual actors to production systems. Although this paradigm shift was driven by a critique of

neoclassical utility theory, it offered no alternative theory of value, and economic geographers have gone about our business for almost 30 years with almost no discussion of value whatsoever. As the "New Economic Geography" is being replaced by "new economic geographies," our attention is returning to individual actors. Unfortunately, without clear notion of how economic value is defined and manipulated, we can say little about actors as creators and constituents of social order, or even about the nature of that social order. Here, I focus on individual actors as constructors of value and on the representational processes that transform their individual actions into normative economic strategies. Building on work by institutional economists (especially Marc Tool), I outline a cultural theory of economic value based on the tension between ceremonial and instrumental value. Sociologists and anthropologists are familiar with this approach, but geographers have overlooked it, so I attempt to delineate some geographical implications. I go on to illustrate the process of value formation with a case study of a newly emerging industry - biotechnology in the 1970s. Finally, I highlight some of the methodological problems inherent in trying to expose a concept like "value," which is interpenetrated with ideology and mythology.

Keywords: economic value theory

Bimal Kanti Paul, Kansas State University. Email: bkp@ksu.edu; Military vs. Mollah: Competition for Winning Hearts of Kashmiri Earthquake Victims

On October 8, 2005, a 7.6 magnitude earthquake struck Pakistan-administered Kashmir and neighboring areas of Pakistan, Afghanistan, and India. An estimated 87,350 people lost their lives in Pakistan alone. Following this disaster, both the Pakistani army and Islamist groups offered relief assistance to earthquake victims. Using information collected from secondary sources, this paper compares the disaster response to the Kashmir Earthquake undertaken by the army and the Islamist groups. A careful review of relevant materials suggests that the disaster response of both groups was effective. However, the quake-affected people of Pakistan-administered Kashmir were aided more by the disaster relief efforts of the Islamists than by the efforts of the Pakistani army.

Keywords: Kashmir, Pakistani army, Islamist groups, disaster response

Derek J Paulsen, Ph.D, Eastern Kentucky University. Email: derek.paulsen@eku.edu; Is Geographic Profiling alone enough? New Methods in serial crime investigation

Over the last several years there has been increasing interest in the use of expert systems in crime series investigations, with particular focus on geographic profiling systems. However, existing geographic profiling systems have come under scrutiny because of both their limitations and research into their accuracy. Specifically, traditional geographic profiling systems are incapable of profiling commuter offenders, a significant portion of all offenders, and their overall accuracy has been found to be no more accurate than simple centographic methods. Because of this, research is beginning to look to alternative ways to analyze crime series that go beyond traditional geographic profiling systems. In particular, this research reports on a new method of analyzing crime series that assist in determining commuters from marauders and then provides the optimal tool for analyzing the crime series. In addition to research results, discussion will include training and future issues in crime series analysis.

Keywords: Journey to Crime, behavioral geography, crime

Deborah D. Paulson, University of Wyoming. Email: debp@uwyo.edu; William L. Baker, University of Wyoming. Email: bakerwl@uwyo.edu; Envisioning a Society in Connection with a Non-diminished Natural World in Southwestern Colorado

The western United States landscape has been strongly transformed by waves of human activities, especially over the 150 years since Euro-American expansion into the region. Yet, natural ecosystems remain more intact in the interior West than in many other regions. While natural areas of the region are strongly valued by residents and visitors alike, nature continues to be not only transformed, but diminished by new waves of human uses—including rural residential sprawl and gas and mineral exploration. We explore past and on-going transformations, as well as attempts to restore the natural world in our recent book, *The Nature of Southwestern Colorado: Recognizing Human Legacies and Restoring Natural Places* (University Press of Colorado). In this paper we draw from the concluding chapter, where we consider how two philosophies—Aldo Leopold's land ethic and Gary Nabhan's cultures of habitat—might be applied to guide human choices in this region. Both philosophies envision a human society in connection with a non-diminished natural world.

Keywords: landscape transformation, human-environment relations, Western U.S.

Nels Paulson, Ph.D. candidate in Sociology, Arizona State University. Email: nels@asu.edu; *Conceptualizing the Place of World Society, the State, and Environmental Law*

To more fully understand the role of the nation-state regarding ecological change and environmental governance this paper looks theoretically at actual shifts in government structure that cannot be explained by traditional neo-realist approaches that emphasize security and economic interests (Baldwin 1993). Particularly, this paper evaluates state level environmental law as influenced by processes that can be explained better through a world polity perspective (Meyer et al. 1997). With world polity theory as a basis, this paper looks at international non-governmental organizations (INGOs) as a point of entry for understanding particular shifts from security or economic interests of the state to more science-based rationality in construction or reconstitution of laws and priorities regarding the environment in the United States and abroad. Environmental laws are increasingly written using language and influence of various INGOs. This pattern is explored specifically through INGOs that promote similar conceptions of science-based, formally rational structures. This paper argues that while local ecologies are affected by traditional state level interests, a shift toward world polity influence is increasingly changing locally significant environmental laws. Through a world polity perspective, using environmentally-minded and science-based INGOs as an empirical frame, we can see the changing place of the nation-state in constructing local ecologies via law.

Keywords: global, nation-state, world society

Tamlin M Pavelsky, University of California - Los Angeles. Email: pavelsky@ucla.edu; Laurence C Smith, University of California - Los Angeles. Email: lsmith@geog.ucla.edu; *Intercomparison of Four Global Precipitation Datasets and Their Correlation With Increased Eurasian River Discharge to the Arctic Ocean*

Recent increases in Eurasian river discharge to the Arctic Ocean have attracted considerable scientific attention but remain poorly understood. Previous studies have examined fire frequency, permafrost thaw, and dam construction as potential mechanisms. Here, we focus on precipitation as a driver, using 198 dam-free Eurasian river basins ranging from 151 to 897,000 km². Using R-ArcticNet monthly discharge data and four observational and reanalysis precipitation products from the University of Delaware (UDEL), University of Washington (UW), NCEP/NCAR (NCEP), and ECMWF (ERA-40), we (1) assess which precipitation datasets best capture spatially realistic patterns as inferred from agreement with river discharge (198 basins; 1958-1989); and (2) determine to what extent observed discharge trends follow Udel precipitation changes (66 basins; 1936-1999). Results from (1) show for the 74 (of 198) basins displaying statistically significant discharge trends (24 positive, 50 negative; -74% - +89%, mean=-1%), interpolated precipitation products significantly outperform reanalysis datasets, perhaps owing to the fine-scale resolutions examined here. Agreement between discharge and precipitation is 42-86% and 42-97% for UDEL and UW, respectively, but approaches zero for NCEP and ERA-40. Results from (2) suggest that precipitation increases play a significant role in observed long-term discharge increases. For the 40 (of 66) basins displaying statistically significant trends in discharge (32 positive, 8 negative; -23% - +50%, mean=+11%), 29 display corresponding trends in precipitation with 35-62% agreement between discharge and precipitation trend. Comparison of discharge trends with basin permafrost properties indicates a possible, but not strong role for permafrost thaw in the observed increases.

Keywords: Arctic, river discharge, precipitation

Vera Pavlakovich-Kochi, University of Arizona. Email: vvp@email.arizona.edu; Juliet King, University of Arizona. Email: julietk@email.arizona.edu; *Region-building in U.S.-Mexico border: Challenges for policymaking in the 21st century*

For many outsiders, it is a big puzzle how visions of transborder regions can be constructed amidst fence building, unresolved immigration issues and increasing border security along the U.S.-Mexico border. And yet, driven largely by economic forces, state and local governments continuously search for ways to increase their region's competitiveness by more efficient use of complementary resources on both sides of the border. An assessment of regional economic indicators has suggested that, since the implementation of NAFTA, geographical location in combination with region-specific infrastructure (socio-economic and physical) has resulted in increased spatial differentiation within the U.S.-Mexico border region. This has increased pressure on border states' governments to seek new partnerships and develop innovative approaches to cross-border collaboration. In this paper we first review arguments in support of crossborder collaboration. Preliminary findings suggest that major goals of the government-supported crossborder collaboration have not changed; they are still framed within competitiveness and prosperity. It is the political and economic landscapes in the border region that have changed dramatically since the beginning of the 21st century. We examine several cross-border collaborative initiatives in the U.S.-

Mexico border in order to determine what are the underlying factors and strategies that are being used to make collaborative intentions in these new conditions a reality.

Keywords: transborder regions, crossborder collaboration, collaborative initiatives, U.S.-Mexico border

Zoran Pavlovic, Oklahoma State University. Email: djuvedj@yahoo.com; Aswin Subanthore, Oklahoma State University. Email: Aswin.Subanthore@okstate.edu; *Wine in the Hindu Cultural System*

Although wine has been widely present in South Asia since ancient times, its role in Hindu lifestyle fell under the category of a major religious taboo. In India, the origin of wine consumption followed paths of cultural exchange with Greeks and later with Romans. Wine also diffused from China during the Mughal reign when it was used as a representative medium to denote status and class at social events. In southern India, wine production was indigenous prior to contact with Aryans and continued despite Hindu religious laws denoting alcohol ban on so-called moral grounds. Sanskrit scriptures and Hindu beliefs indicated that drinking was a pathway to distraction from reaching God-realization. With the European colonial influence, however, a major shift occurred in Hindu ideology among the upper caste members who perceived wine as an important indicator of status and class within the Hindu hierarchy. British colonization not only improved wine trade but several non-Hindu groups emerged to facilitate this process. Popular culture generated major changes in recent times, both in the area of viticulture, per se, and as a contemporary cultural and social phenomenon. Increased impact from South Asian Diaspora and globalization on India's society has necessitated wine consumption among all sections of Hindu population as a facet of interaction with the Western world.

Keywords: wine, hinduism, cultural system, India,

Marianna Pavlovskaya, Hunter College. Email: mpavlov@hunter.cuny.edu; *Post-socialist migrants in the US: Enacting the transition to capitalism in space*

The transition to capitalism in the former socialist countries can be thought of as a transition in time. There, a market-based economy is to be built in the space formerly occupied by the state socialist socio-economic system. Its widely adopted neo-liberal version privileges corporate interests at the expense of social welfare. Simultaneously, the neo-liberal subjects that are to inhabit the post-socialist world are being actively constructed, also with many contradictions. They are to be made out of their supposed antipodes, the citizens of a society that functioned for ¼ of the 20th century in the symbolic order opposed to capitalism and individualism. Along with this, another - and unrecognized as such - transition to capitalism has been unfolding. Hundreds of thousands of the former soviet citizens left their homelands since the 1990s to settle in the advanced economies of the West. Ethnically and culturally diverse, many these migrants are secular, participate in transnational networks and do not flee totalitarian state. Compared to multitude of other world migrants, however, they stand out because of they all share the complex identity of post-socialist subjects. And similar to those who live in the post-socialist world, they also must negotiate the neo-liberal logics of the society to which they have come although not through a transition in time but in space by engaging in an international migration. This paper raises some theoretical issues important for understanding the impact of the former soviet migrants who are carriers of post-socialism within the borders of the West.

Keywords: post-socialist migrants, New York City, post-socialism

Robert T. Pavlowsky, Missouri State University. Email: bobpavlowsky@missouristate.edu; *Geomorphic resistance and the lack of channel change in a disturbed Ozark river*

Channel form is controlled by the balance between force and resistance in the fluvial system. Nevertheless, most geomorphic studies focus on understanding the influence of hydraulic forces on the channel bed and banks and spend little effort on evaluating the resistance factors involved. This study examines the channel forms and fluvial processes within the South Dry Sac River located on the northern edge of Springfield, Missouri. The objective is to better understand the geomorphic resistance factors linked to apparent channel stability and little channel change over the past century along a 1 mile long channel segment despite chronic disturbance. Indeed, the river has been subjected to a long history of local- and watershed-scale disturbance including land clearing and settlement in the 1840s, mill and reservoir dam construction in the late 1800s, and urbanization since 1980. A preliminary evaluation shows that narrow valleys and shallow bedrock limit channel adjustments in most places. Further, riparian vegetation and the composite banks reduce the rates of channel enlargement and bank failure. The adjustment periods for both geomorphic lag and recovery seem to be relatively long in this system. The main driver for instability appears to be excess gravel sedimentation in mega-bars and plane-bed channels that forces bank erosion where they clog the channel. The source of the gravel probably started

during historical settlement but recent urbanization has also increased gravel loads from headwater tributaries due to bed scour and bank erosion.

Keywords: fluvial geomorphology, channel change, bedrock rivers, Ozarks

Firooza Pavri, University Of Southern Maine. Email: fpavri@usm.maine.edu; Vinton Valentine, University of Southern Maine. Email: ; Marc Carullo, Massachusetts Office of Coastal Zone Management. Email: ; Bruce Carlisle, Massachusetts Office of Coastal Zone Management. Email: ; Mark Zwetsloot, University of Southern Maine. Email: ; Michele Tranes, University of Southern Maine. Email: ; Dan Sampson, Massachusetts Office of Coastal Zone Management. Email: ; Thomas Millette, Mount Holyoke College. Email: ; *Coastal wetland mapping for Plum Island Estuary in northeastern Massachusetts*

Coastal marshes have come under increased scrutiny in recent decades as their ecological productivity and ecosystem contributions become apparent. With research over sea level rise and the increased frequency of extreme weather events, concern over their long-term viability has increased. This study uses high resolution multi-spectral airborne imagery and field data to produce wetland cover maps for Plum Island Estuary, an NSF Long Term Ecological Research (LTER) site in northeastern Massachusetts. The research conducted with the Massachusetts Office of Coastal Zone Management examines the efficacy of high resolution imagery to map wetland landscapes and associated plant species distributions. Results of these efforts can help wetland managers systematically monitor these ecosystems and develop appropriate and targeted conservation strategies.

Keywords: coastal wetlands, remote sensing, conservation

Eric Pawson, university of canterbury. Email: eric.pawson@canterbury.ac.nz; Student responses to PBL in geography

Problem-based learning (PBL) is an accepted pedagogical method, with most of the literature originating from disciplines where the purpose of holistic styles of learning can be clearly demonstrated, such as medicine and engineering. In geography, it is not clear how widely PBL is actually used, or what the barriers to its adoption might be. This paper discusses the initial results of a six-member team, from five countries, established under the auspices of the International Network for Learning and Teaching (INLT). It seeks to identify the contexts within which PBL is being used in geography, whether at the project, paper or curriculum level. It discusses the experiences of students in PBL courses to examine whether the claims made for PBL, in particular that it is student-centred and leads to more integrated comprehension, are borne out in practice.

Keywords: problem-based learning, international

Tony Payan, The University of Texas at El Paso. Email: lapayan@utep.edu; The Four Great Eras and the Three Wars of the U.S.-Mexico Border

Over the last century and a half, the United States-Mexico border has undergone three fundamental historical shifts. It has transitioned from a frontier to a customs border to a law enforcement border and now to a matter of national security. Each of these great eras was ushered in by fundamental changes in the United States and in Mexico and by international concerns, principally those of Washington DC. Each new ideological shift has come accompanied by increased bureaucracies, expenditures, laws and regulations, etc., all of which underlie the fundamental failure of both the United States and Mexico to provide order and stability on the borderlands. As a result, the historical pattern is one of closing the border, a pattern that has come accompanied only by increased policy failures. This presentation addresses the material and symbolic changes along the border and the potential future of the borderlands.

Keywords: Border

Yerlan Pazilov, DVM, Kazakh Science Center for Quarantine and Zoonotic Diseases. Email: jblack6@lsu.edu; Larissa Lukhnova, PhD, Kazakh Science Center for Quarantine and Zoonotic Diseases. Email: llu@kscqzd.edu; Zaurbek A Sagiyev, PhD, Kazakh Science Center for Quarantine and Zoonotic Diseases. Email: sua@kscqzd.kz; Alim Aikimbayev, PhD, Kazakh Science Center for Quarantine and Zoonotic Diseases. Email: aam@kscqzd.kz; Yerlan Sansyzbayev, PhD, Bechtel Corporation. Email: ysansyzb@bechtel.com; Martin E. Hugh-Jones, PhD, DVM, MPH, LSU Department of Environmental Studies. Email: mehj@vetmed.lsu.edu; Jason K. Blackburn, PhD, Louisiana State University. Email: jblack6@lsu.edu; Decadal Spatio-temporal and Hotspot Analyses of Anthrax Outbreaks in Kazakhstan from 1937 to the Present

Anthrax, a zoonotic disease caused by *Bacillus anthracis*, continues to be a serious problem in livestock and wildlife worldwide. In many agricultural regions of Kazakhstan, human infection rates remain high as a result of infected-livestock slaughter practices and limited veterinary intervention. Kazakhstan has a long history of anthrax outbreaks, as recorded through the anti-plague network

established under the previous government. This allows a unique opportunity to evaluate the spatio-temporal patterns of outbreaks nationwide. Today, Kazakhstan continues anthrax surveillance, vaccination, and control effort nationwide. This includes the development of a spatial database and GIS-based analyses to expand existing knowledge on the distribution of anthrax. This paper introduces a multi-decadal review of the distribution of anthrax outbreaks in Kazakhstan and reviews methodologies for defining risk at various spatial scales. Additionally, identifying areas of high incidence can provide a first-step towards improving disease control. This is an important process for maximizing public health resources and targeting areas with the greatest need. This paper also presents results of spatial cluster analyses designed to distinguish areas of high disease prevalence from what appears to be a uniform distribution of cases. While only aggregated vaccination data are available, these hotspots are evaluated relative to current vaccination efforts. As spatially-explicit data become available on vaccination, these analyses will aid in determining more appropriate distribution locations for vaccines and improve the flow of public health resources across the country. These analyses represent a larger in-country effort to expand spatial data infrastructure and improve disease reporting and control.

Keywords: anthrax, GIS-based surveillance, livestock, central asia, hotspot

Micha Pazner, Ph.D., The University of Western Ontario. Email: pazner@uwo.ca; Jadah Folliott, M.A., The University of Western Ontario. Email: jfolliott@uwo.ca; RS-GIS Wildfire Scar Pattern Analysis

Wildfire activity has been increasing since the 1980s and several researchers acknowledge that longer fire seasons coincide with warming temperatures and earlier springs. Based on a global warming trend, the impacts of climate change may include more frequent and severe fires, shorter growth periods between fires, younger stands, and a decrease in the carbon storage of forest areas. Increased wildfire activity will have feedback effects on climate. Wildfire scar pattern analysis may be used to help identify future trends in climatic and environmental change. Our research focuses on the question of how wildfire scar patterns can be better analyzed over very large land areas and over a 20-25 year period. For this research we will use Remote Sensing (RS) digital image processing and interpretation, and Geographic Information System (GIS) modeling and visualization to detect, analyze, and interpret spatial characteristics and patterns of wildfire scars at multiple scales. Existing methods will be used, and, importantly, new methods will be developed. The study area will include parts of Canada's boreal forest ecozones. Old and fresh burns will be visited for ground referencing and field model calibration and validation. The purpose of the paper is to present a conceptual framework for RS-GIS Wildfire Scar Pattern Analysis. This framework integrates the use of a fast-track interpretation mode and an in-depth analysis mode. The results are expected to show that RS-GIS wildfire scar pattern analysis is a useful method for deriving indicators of global warming.

Keywords: wildfires, Boreal Forest, remote sensing, GIS, global warming, climate change

Linda Peake, York University. Email: lpeake@yorku.ca; Post-colonial, feminist and quantitative? Measuring the extent of domestic violence in Georgetown, Guyana

The vast majority of feminist research in Geography eschews quantitative methods despite the understanding that all data are forms of representation. As a consequence feminist geographers have been prevented from pursuing certain research questions and epistemological paths of investigation. In this paper I investigate the consequences of this state of affairs and discuss the possibilities of a critical approach to quantitative techniques of analysis that incorporates feminist and post-colonial practices. I discuss the results of a survey study of 360 women conducted in 1998 with the Guyanese women's organisation, Red Thread, on the extent of domestic violence in the capital city of Georgetown. The study approximated a random design and took the form of a multi-level cluster survey. I conclude by assessing the importance of opening up feminist enquiry in Geography to the possibilities unleashed by the uncoupling of quantitative techniques from masculinist versions of positivism and of the particular importance of quantitative techniques in the transference of skills in north-south alliances.

Keywords: Guyana

Jamie Pearce, University of Canterbury. Email: jamie.pearce@canterbury.ac.nz; Tony Blakely, PhD, University of Otago. Email: tony.blakely@otago.ac.nz; Karen Witten, PhD, Massey University. Email: k.witten@massey.ac.nz; Obesogenic environments in New Zealand: A national study of the association between neighbourhood deprivation and geographical access to fast food retailing

The increasing prevalence of obesity that has been noted in a number of countries has generated considerable concern about the health burden of the disease. Further, it has been noted that there is a strong and growing social gradient in obesity. New Zealand is no exception to these trends as the preva-

lence of obesity has doubled over the past 25 years. Rates of obesity are twice as high in the most deprived quintile of neighbourhoods compared to the least deprived quintile. The explanations for the social gradient in obesity are likely to be multifaceted and to include characteristics relating to individuals (composition) and those associated with the environment in which people live (context). It has been suggested that contextual drivers may be more prevalent in deprived neighbourhoods resulting in neighbourhoods that support unhealthy eating, so called 'obesogenic environments'. This study examines whether access to fast food outlets in New Zealand varied by neighbourhood deprivation. Data were collected on the location of fast food outlets, supermarkets and convenience stores. GIS was used to calculate travel distances from each neighbourhood to the closest food outlet. There is a strong association between neighbourhood deprivation and access to fast food outlets, which may contribute to the understanding of environmental causes of obesity. However, outlets potentially selling healthy food are patterned by deprivation in a similar way. The results highlight the importance of considering all aspects of the 'foodscape' of a neighbourhood before developing environmental strategies to reduce the incidence of nutrition-related mortality and morbidity.

Keywords: Neighbourhoods; Health; Context; Social deprivation; Obesity; New Zealand

Tristan David Pearce, MA, University of Guelph. Email: tpearce@uoguelph.ca; Barry Smit, PhD, University of Guelph. Email: bsmit@uoguelph.ca; James D. Ford, PhD, McGill University. Email: james.ford@mail.mcgill.ca; Johanna Wandel, PhD, University of Guelph. Email: jwandel@uoguelph.ca; Mark Lebourdais, Helen Kalvik Elihakvik School, Ulukhaktok. Email: mark.lebourdais@yahoo.ca; Susie Memogana, Ulukhaktok. Email: ; Fred Kataoyak, Ulukhaktok. Email: fredkatoayak@hotmail.com; Inuvialuit Youth and Adaptation to Climate Change

Arctic communities have undergone rapid changes in the past half century. In recent years, communities have been exposed to additional stresses associated with climate change. These changes have transformed harvesting practices, community social networks, cultural and spiritual traditions, and have been linked to loss of identity and its associated social problems. In research conducted with the community of Ulukhaktok, Northwest Territories, Canada, community members identified specific concerns over the vulnerability of community youth. Adult community members and educators point to the potential loss of traditional land-based skills coupled with lack of workplace-relevant skills among the growing population of young Inuvialuit. For example, the role played by technology, globalization, and loss of language in conditioning how Inuvialuit youth experience and respond to climate change remains largely unexplored. In response to this community-identified research need, research is being undertaken in Ulukhaktok together with youth, elders and educators to identify how social change and climate change interact to affect the well-being of community youth, and to identify means for strengthening adaptive capacity. In previous research, youth expressed concerns including: lack of competency standards in education; limited employment; inadequate housing; drug and alcohol abuse; loss of language; and loss of traditional land-based skills. This research builds on these concerns and involves community youth in applied-participatory research through a host of methodological tools including: focus groups, participatory mapping, analysis of secondary sources, and the use of the Internet and video technologies. This paper describes the context for this new research and reports on preliminary findings.

Keywords: Arctic, Climate Change, Adaptation, Youth, Community

Tyler Rebecca Pearce, University of British Columbia. Email: tyler29@interchange.ubc.ca; *Conversations on The Edge: Spatializing "Unease" and the Racialized Politics of "Revitalization"*

In 2005, a Winnipeg real estate developer and a host of government funders announced the creation of The Edge Artist Village, a revitalization project that included both street-level commercial space and live/work lofts for working artists. Touted in the media as bringing about a much-needed change to the Main Street Strip that would turn this disinvested commercial strip and Winnipeg's "skid row" into a cultural hub for artists, the pronouncements about The Edge discursively ignored the revitalization work organized by Aboriginal organizations who have turned the northern-most section of the street into a hub for Aboriginal social and cultural services and political organizations. Indeed, Aboriginal community and cultural workers often note that they must continually challenge the racialized and racist characterizations of the street that pervade public discourse, including their tacit erasure in race-less, class-based histories of "skid row." Seeking to historically spatialize these dynamics, I turn to three conversations that led to the development of the research project with the store-front in-movers to The Edge - a feminist, and largely white arts organization who have been actively seeking to "decolonize" their organization and programs. Drawing on the intimate geographies of the pre-search, I discuss the ethical and political

lacunas, failings and flailings of the organization's two moves ? the first to "The Strip", the second to "decolonize." Exploring the content, context and ambivalence of each move, I suggest, can offer a productive reframing of gentrification and arts-based revitalization that conceptualizes "race" as more than an additive category.

Keywords: Racialized Space, Artists, Gentrification

Hamil Pearsall, Clark University. Email: cpearsall@clarku.edu; *Risk perception and brownfield redevelopment: Exploring community perceptions of contaminated properties*

Brownfields pose considerable challenges for many former industrial cities in New England. Contaminated properties compromise public health, create blight, and drive local businesses into surrounding areas. In the face of urban decline, brownfield redevelopment offers a promising economic and environmental alternative. Federal and state brownfields policies help developers and lending institutions overcome the financial and legal obstacles associated with contaminated properties by modifying cleanup standards, promoting new remediation techniques, and offering financial incentives and liability relief. This government assistance does not mitigate on-site contamination, but it encourages developers to take the risk of redeveloping brownfields. Little research has investigated public response to this strategy. This paper discusses how public fear of residual contamination after redevelopment could jeopardize economic and community revitalization. Relevant communities include neighborhoods in proximity to brownfields with residents who would potentially use redeveloped sites. To look at community perceptions of brownfield redevelopment, this paper suggests applying a modified version of Slovic's psychometric survey, which would produce quantitative measures of perceived risk for brownfield redevelopment. Exploring risk perceptions associated with contamination will allow policymakers to better understand how public response might affect brownfield redevelopment.

Keywords: Risk perception, brownfields, community revitalization

Kristina Pearson, . Email: Kristina@villageearth.org; *Protecting Indigenous Land in the Peruvian Amazon*

The Peruvian Amazon is being deforested at a rate of over 42 acres each day as estimated by the Food and Agriculture Organization of the United Nations. The indigenous peoples inhabiting the forests have sustainably-managed these lands for many generations. However, the Peruvian government opened up the farthest reaches of the Amazon basin in 2003 for oil exploration and other extractive enterprises (such as logging and mining). Although the Peruvian government has given many indigenous communities the titles to their lands, the indigenous peoples are not aware of the location of their boundaries and, therefore, cannot report infringements on their land as told to me by the representatives from local indigenous organizations. As well as lacking the technology to monitor and demarcate their lands, the region is so remote that communication with the outside world is difficult. By facilitating the organization of these communities around land issues, they can then mobilize to protect their territories. My research uses Geographic Information System (GIS) and Geographic Positioning System (GPS) technology, in collaboration with Shipibo and Ashaninka communities in the central Peruvian Amazon, to monitor land use and demarcate indigenous territorial boundaries. Around forty indigenous communities in the district of Iparia, Ucayali, Peru are attempting to organize to better protect their land and natural resources from the illegal extraction of these resources.

Keywords: sustainable development, Peru, land use

Michael Pease, Southern Illinois University. Email: peasemike@yahoo.com; *Encouraging Water Reallocation Using Incentive Structures*

As strain on freshwater supplies intensifies in the western United States, states must attempt to bring their water usage closer to their stated goal of maximum utilization. The uncertainty of climate change and the growing need to protect already strained ecosystems could compound this problem. Tough decisions must be made about how to encourage or require more efficient use of water. One option proposed is to facilitate water market operations; in most regions this has failed. Using empirical evidence from Oregon and California, this paper will evaluate whether the use of regulation, or conservation statutes could have the effect of encouraging water trades, increasing the amount of water available to uses with critical needs.

Keywords: water, water markets, prior appropriations, resource management

Patrick P Pease, University of Northern Iowa. Email: patrick.pease@uni.edu; Paul Gares, East Carolina University. Email: garesp@uni.edu; *Air flow transformations associated with the onshore movement of wind: a field experiment at Jockey's Ridge State Park, North Carolina, USA*

The influence of water waves on the vertical profiles of wind has been well documented. However, the transformation of airflow conditions during the transition from water to land is less understood. This study presents preliminary data from field experiments designed to examine the wind profile and shear stress associated with air flow moving from over water with small waves onto a relatively flat, sandy shore. The experiment was conducted at Jockey's Ridge State Park, North Carolina. Three masts with 5 anemometers each were used in the study. Mast 1 was located in 0.5 m of water, approximately 50 m from the shore. Mast 2 was located about 2 meters from the strandline, oriented normal to the beach relative to the offshore mast. Mast 3 was located 12 m further inland from mast 2, again, aligned shore-normal relative to the other masts. Each mast was also fitted with temperature and humidity sensors. Two pressure transducers, one located at mast 1 and the second located about 20 m from shore, were used to characterize the wave conditions during experimental runs. Additionally, 16 sand traps were placed in a transect between masts 2 and 3 to characterize variations in transport. Significant differences in the wind profiles at the three masts were seen during the transformation from water to beach. The roughness characteristics measured at mast one also showed significant variation with different wave regimes. The wind characteristics and transport potential are discussed for several wind regimes.

Keywords: Air flow; land-sea interactions, sediment transport; coastal dunes

Carl Pechman, Ph.D., Power Economics Inc.. Email: cpechman@powereconomics.com; *Territoriality of Electricity*

Electric de-regulation, the move to competition, is one of the most significant economic experiments ever pursued. Largely motivated by the desire to improve efficiency, many of the effects of de-regulation were not foreseen. One such effect is the increase in competition between regions. Using New York as a case study, this paper demonstrates how de-regulation has increased territoriality in electric markets and policy. Electricity is intrinsically territorialized. Corporate boundaries of electric utilities have historically been defined by geography. Vertically integrated utilities served all customers within a fixed service territory. Power plants to serve customers' requirements were located within a utility's service territory (or in the service territory of one of the partners in the construction of a power plant). De-regulation has not changed the relationship between space and power, due to the constraints in the physical infrastructure of electric generation. A second aspect of the territoriality of electricity is the changing nature of pricing under competition. Electricity pricing under regulation involved averaging of rates across the geographic area of the utility. Under deregulation, geographic differences in the cost of providing power are explicitly revealed. This is a particularly pronounced problem in urban areas, with old high cost generation and transmission constrains limiting the import of renewable and low cost generation. Cost differences revealed by deregulation increase political pressure for geographically based rates. These rates in turn increase the incentive for low cost areas to protest the construction of transmission lines that would move energy between low and high cost areas.

Keywords: deregulation, electricity, territoriality, competition, alternative energy

Jamie Peck, University of Wisconsin-Madison. Email: japeck@wisc.edu; *Remaking laissez-faire*

While the term has been in circulation for several decades, neoliberalism has received unprecedented attention from critical human geographers in the past few years. Like numerous other big-picture buzzwords before it (postfordism, globalization ?) its fate may already be sealed: following a critical backlash, the field seems destined to move "beyond" neoliberalism. Somewhat against the tide, perhaps, the paper will make an argument for the continuing utility of a refined concept of neoliberalism. But if the concept is to retain explanatory salience, it cannot be used as a half-empty signifier for the contemporary political-economic zeitgeist; it should not be used, in a "for-want-of-a-better-word" fashion, as a loose indicator for the ideological atmosphere. Rather, if it is to be useful, the concept must have (real institutional) content and (historical-geographical) specificity. By way of a critical commentary on uses and abuses of neoliberalism, the paper will suggest some analytical steps in this direction. Amongst other things, this entails looking at neoliberalism from the inside out, as well as the outside in, and conceiving of methodological strategies that both explicate and place stress on the concept.

Keywords: Neoliberalism, uneven development

Gregory T Pederson, U.S. Geological Survey / Big Sky Institute. Email: gpederson@montana.edu; Stephen T Gray, PhD, University of Wyoming. Email: sgray8@uwyo.edu; Jacqueline J. Shinker, PhD, University of Wyoming. Email: jshinker@uwyo.edu; Daniel B. Fagre, PhD, U.S. Geological Survey - Northern Rocky Mountain Science Center. Email: dan_fagre@usgs.gov; Lisa J Graumlich, PhD, Big Sky Institute / Montana State University. Email: lisa@montana.edu; *A novel approach for improving records of long-term, multi-scale snowpack variability in western North America*

Snow drives the majority of ecological and physical processes in the high mountain environments of western North America. Mountain snow also impacts distant lowland regions through runoff and streamflow. Despite the importance of snow, long-term records of spatial and temporal variability in snowpack are sorely lacking. For this project, information preserved in 200+ tree-ring records was used in combination with geospatial analysis techniques and instrumental climatology to produce gridded maps (cell sizes 10-150 km²) of Snow Water Equivalent (SWE) that span three or more centuries. Our initial work targets key high-mountain headwaters for the Upper Colorado, Upper Yellowstone/Missouri, and Columbia/Saskatchewan Rivers. Preliminary results show marked interannual to multidecadal variability in total April 1st SWE. Comparisons with existing proxy records of Pacific Basin climate show coupled ENSO and PDO influences on the total amount of mountain snowpack in these regions. However, the strength of the Pacific Basin teleconnection varies within each basin. In the southeastern portion of the Yellowstone/Missouri study area, for example, only the highest elevations show a consistent response to Pacific Basin forcing, while snowpack in lower elevations may show no response, or a weak response of opposite sign. Moreover, the strength and sign of these relationships varies over time. These and other results exemplify why long-term records are essential baseline information for evaluating recent and future changes in mountain snowpack. The overarching goal of this project is to lay the foundation for snowpack reconstructions that encompass high mountain areas in all of western North America.

Keywords: tree-rings, snowpack, western North America

Diego Pedreros, United States Geological Survey. Email: pedreros@usgs.gov; Chris Funk, Climate Hazard Group, University of California Santa Barbara. Email: chris@geog.ucsb.edu; Jim Verdin, United States Geological Survey. Email: verdin@usgs.gov; Saud Amer, Famine Early Warning System Network/USGS. Email: samer@usgs.gov; *Agro-climatic Tools to Analyze Food Security in Afghanistan*

This study introduces two new socio-climatic monitoring tools for Afghanistan. These tools combine normalized difference vegetation indices (NDVI), water availability information based on snow water equivalence estimates, livelihood information, and population data, providing the results at a district level. The evaluation of food security in Afghanistan requires the analysis of both environmental and socio-economic variables. The early identification of high risk areas enables decision makers to take appropriate actions. Since large and widely dispersed populations depend on pastoralism and agriculture, climate monitoring and forecasting are important inputs to food security analysis. The FEWS NET program has developed a series of agroclimatic tools to help monitor socio-climatic shocks. Several information sources identify hydrologic shocks. Satellite rainfall estimates (RFE) fill in gaps in station observations, and serve as input to drought index maps and crop water balance models. Gridded rainfall time-series give historical context, and provide a basis for quantitative interpretation of seasonal precipitation forecasts. Snow-water equivalent estimates help determine the availability of water for irrigated crops. Several socio-economic data sources provide a critical context for understanding the relative importance and food security consequences of environmental variations. Socio-economic district-level information describes livelihoods, coping strategies and population. We demonstrate the applications of these information products during the 2004 season, when a sudden increase in temperature changed the course of the growing season.

Keywords: Climate, Afghanistan, food security,

James S. Peet, Ph.D., Pacific Geographic LLC. Email: jpeet@myuw.net; *Geography of Modern Sea Piracy*

This paper presents the current geographic distribution and methods of modern sea piracy, an activity that takes the lives of hundreds and costs hundreds of millions of dollars annually. The difference between how piracy is defined by the United Nations Conference on the Law of the Sea, 1988, and the description developed by the International Piracy Centre, a branch of the International Chamber of Commerce, is discussed, along with an analysis of the geographic difference in activities considered maritime piracy. The analysis was derived from reports made to the International Piracy Centre. Trends over the years have indicated that most acts of piracy are reported in developing countries. Piracy methods involve activities ranging from simple boarding and theft of unsecured

property, to robbery from crewmembers and passengers, up to the theft and re-flagging of entire vessels into “phantom ships,” with passengers and crew either murdered or abandoned at sea.

Keywords: pirates, sea piracy, maritime crimes, transportation geography, ocean transportation

Smitha Peethambaram, Clark University. Email: f2000342@gmail.com; 3D Cross tabulation matrix for soft classified three map comparisons to validate spatially explicit land change models

This paper proposes a novel statistical method that generates a three-dimensional matrix that serves as the basis for summary statistics in terms of the percent of the landscape that is: 1) correct due to observed change predicted as change, 2) erroneous due to observed change predicted as the wrong gaining category, 3) erroneous due to observed change predicted as persistence, and 4) erroneous due to observed persistence predicted as change. The technique considers simultaneously three maps: 1) a reference map of time 1, 2) a reference map of time 2, and 3) a prediction map of time. The methodology compares these three mixed pixel maps and computes a 3 - dimensional cross tabulation matrix to calculate the error in prediction of the model at varying resolutions. This is particularly useful to assess spatially-explicit models of change among multiple categories of land. This paper is a breakthrough because the method allows each pixel in the map to have mixed membership to more than one category; therefore we can compute the statistics at multiple scales. The method is general so it is useful for any situation where a scientist needs to compare three maps simultaneously, such as comparing three different maps of various species.

Keywords: mixed pixels, crosstabulation matrix, resolution

Megan Peguero, United States Military Academy. Email: megan.peguero@us.army.mil; Land Use Visions and Population Realities - A Case Study of Alexandria, Virginia

Comprehensive plans focus on the planning goals and objectives of a state, city, or town to formulate a vision for the future. Zoning laws are a tool governments use to create that vision for the future. A government's vision will be more successful if the government's plans and zoning ordinances are integrated and complement one another. Alexandria, Virginia is a prime example where zoning laws were driven by the vision of the comprehensive plan. The zoning laws and subsequent land use decisions, intentional or not, played a direct role in determining the socio-economic makeup of the population within Old Town North, a neighborhood within Alexandria. Old Town North is less racially diverse than the City of Alexandria; while minorities make up 40% of the city's population, in Old Town North they only represent 25%. In addition, Old Town North residents have a much higher collegiate graduation rate than the surrounding city and there is a disproportionately low representation of children. The study also looks at incompatible land uses within the area and how that contributes to the population distribution. The paper then presents ideas on how to reconstruct the incompatible land uses to increase viability of the area and to increase diversity within the socio-economic makeup of the population.

Keywords: Virginia - Alexandria, zoning, land use, socio-economic

Mark Pelling, King's College London. Email: mark.pelling@kcl.ac.uk; Kathy Dill, University of Texas at Austin. Email: kathyswebmail@yahoo.com; Human Security and Disaster Risk Reduction

This paper interprets disasters as shocks to systems of political and social control, albeit associated with a natural hazard event. This understanding allows a study of the role of large natural disaster events in shaping ongoing political relationships and discourses. We are interested in the extent to which disaster events can be linked to human security through political conflict (discursive or material). Evidence is presented from a review of secondary data on 14 large natural disasters from an 1899 Hurricane in Puerto Rico to Hurricane Katrina the United States. A range of political consequences are identified. Most importantly it is pre-disaster political relations that influence the extent to which the potential for political change is realized as liberatory (opening space for nascent political forms to emerge catalysing more inclusive governance), or contained by the political elite further strengthening the status quo.

Keywords: Human Security, Natural Disaster, Risk Reduction, Reconstruction, Social Contract

Claude Peloquin, Natural Resources Institute, University of Manitoba. Email: umpeloqc@cc.umanitoba.ca; Fikret Berkes, Natural Resources Institute, University of Manitoba. Email: berkes@cc.umanitoba.ca; Variability, change, and continuity: insights from Cree cultural ecology

This study explores the interplay between variability, change, and continuity in a subsistence hunt in northern Canada, focusing on the Canada goose (*Branta canadensis*) hunt of the Cree people of Wemindji in James Bay, Quebec. The work contributes to the understanding of social-ecological processes in sub-arctic environments that are undergoing biophysical as well as social-cultural

change at multiple scales. We interviewed Cree hunters, and accompanied them to their hunting territories, learning about Cree ecological knowledge and environmental management practices. These inquiries focused on how Cree hunters read and adapt to the environmental variability characteristic of sub-arctic ecosystems. Small-scale ecological variability and unpredictability, such as weather, goose population dynamics and migration patterns, are mediated by local management strategies in which goose-hunting areas may shift in space and time. These strategies traditionally involve rotation of hunting sites, minimizing of some disturbance, and minor physical modifications (bush clearing etc.) to the landscape. Whereas these strategies are still practiced, fine-tuning local arrangements to local environmental conditions, they are (to some extent) overwhelmed by changes occurring at larger scales. Some of these external drivers are related to climate change and anthropogenic disturbances, others are related to social-cultural changes that influence resource-use patterns. We analyze some key ecological variables of this system and discuss how they interact, providing a preliminary model of how change occurs in a dynamic but resilient setting. The study explores linkages between drivers at different levels, linkages in social and ecological processes, and the nature of continuity in a changing world.

Keywords: James Bay Cree, Canada Goose, waterfowl, subsistence harvest, social-ecological resilience, change

Nancy Lee Peluso, professor, University of California. Email: npeluso@nature.berkeley.edu; Peter Vandergeest, York University. Email: pvander@yorku.ca; “The Forests are Surrounding the Cities!” Emergencies, Insurgencies and Forestry in Southeast Asia

From the 1950s through the 1970s, Malaysia, Indonesia, and Thailand experienced “Emergencies” and insurgencies during which political violence was staged in or from many of these countries' forests. We argue that these political movements are best framed not as of “non-state” or “recalcitrant” national subjects, but as alternative civilizing and state-making projects that launched or carried out their own territorializing and governing projects from forests. Both the insurgencies and counter-insurgency strategies produced new perceptions of ethnic identification with national states and of the need for central governments to manage the forest. Hundreds of thousands of people were moved, transforming settlement patterns at the landscape level. Suspect ethnic groups were often moved out of “jungles,” or their rights to land were ignored. People of ethnicities more closely allied with the national state were settled alongside newly zoned “forests” to practice agriculture. Counter-insurgency practices also channeled huge resources into intensified surveillance of forests and development projects in those regions where officials believed the residents' poverty made them susceptible to alternative political ideologies and civilizing projects. Military surveillance technologies and information were subsequently used by forest departments to strengthen their territorial control of political forests. The outcomes varied across sites according to the ethnic character of the different insurgencies and ideologies of the states; the relative influence of forestry departments in relation to agriculture and the civil service, the ways military power was used during and after conflicts, and broader state capacity to monitor and control peoples' activities in diverse ecologies.

Keywords: forests, southeast asia, environmental violence, cold war, counterinsurgency

Mark Pendras, PhD, University of Washington Tacoma. Email: jmpendras@gmail.com; Urban politics and the production of capital mobility in the United States

This paper identifies and investigates important political qualities of capital's capacity for mobility and considers the relationship between the historical political production of capital mobility and contemporary conflicts over urban politics and development. Emphasis is placed on the political character of capital mobility in reaction to how the mobility of capital has been naturalized in urban politics research and practice. Due to an overemphasis on technical and economic factors, researchers typically assume capital's capacity for mobility (or hyper-mobility), situate that mobility as the starting point for urban research, and then use it to explain the persistence of other development patterns, e.g., urban disinvestment, interurban competition, uneven development, etc. After a brief discussion of the challenges to effective and equitable urban development raised by the naturalization of capital mobility, I begin the task of denaturalizing capital mobility by developing a history of the political production of capital mobility in the US. Here I focus on key federal and state legislative and judicial decisions that redefined the public corporation - the institutionalized form of the more abstract concept of “capital” - in ways that also redefined the relationship between corporations and the place(s) in which they locate and operate. Critical examination of these political moments reveals how “placelessness” for corporations is a historical political achievement, one that both has important consequences for urban politics and development and is also ultimately open to contestation and redefinition through struggle.

Keywords: urban politics, capital mobility, local development

Eli I. Peneva, Department of Geography University of South Carolina. Email: peneva@mailbox.sc.edu; *Loss of Mangroves, Gain in Aquaculture: Spatially and temporally detailed means of tracking changes in land use and valuation in coastal Thailand*

The exploitation of mangrove forests in Thailand for aquaculture, particularly shrimp farming, over the past three decades has been extensively documented. The economic impact of this exploitation has been evaluated using economic and non-economic valuation methods and shows strong evidence that the total value of mangrove forests exceeds that of shrimp farms, even in the short-term. This study will use remote sensing-based land use/land cover classifications for five-year intervals from ~1985-2005 to determine the pattern of land use change for two provinces (Chanthaburi and Phangnga) in Thailand. The classifications will provide a means to track the subsequent land use patterns of mangrove forests that were converted to shrimp farming. An economic and non-economic valuation will be applied to the various land use types and assigned on a pixel-by-pixel basis to the classifications for each five-year interval. This will permit a spatially detailed means of tracking the economic fortune of converted mangrove forests. Field work will be conducted in several coastal communities within the two provinces to determine the indirect and, especially, the non-economic valuation of mangroves and shrimp farming. This study will help establish a methodology that will aid coastal communities in Southeast Asia in determining sustainable land use conversion approaches.

Keywords: mangrove, shrimp farm, land use/land cover classification, Remote Sensing, coastal communities

Robert Penfold, PhD, Winnipeg Regional Health Authority. Email: rpenfold@wrha.mb.ca; *Injured on the job: the workplace injuries of children in Ohio*

Little is known about the frequency, location and severity of injuries sustained by children at work. The PURPOSE of this research was to determine the most common injuries acquired by children at work and describe differences in injuries by age, sex, and location. METHODS We obtained 8 years (1997-2004) of complete hospital claims from the Ohio Hospital Association for which the Ohio Bureau of Worker's Compensation (BWC) was the primary payer. There were 2614 inpatient visits paid by BWC during this period. We selected 1132 records for which the primary, secondary, or tertiary diagnosis code was between 800 and 995 (injuries) and the patient was a child (

Keywords: medical health injuries pediatric

Geri Pepe, West Chester University. Email: gpepe@esri.com; *Traditional Survey Mapping Versus LIDAR Mapping: Delaware Seashore State Park and Surrounding Beach Communities*

Traditional surveying of beaches using classical leveling, transects and profiles, aerial photography and Global Positioning Systems (GPS) is time-consuming and labor intensive. In recent years, Light Detection and Ranging (LIDAR) has been widely employed in coastal mapping. Analysis of LIDAR data with Geographic Information System (GIS) software assists with a number of different coastal applications from measuring coastline erosion and changes to beach topography, to monitoring beach nourishment and evolution. The objective of this research is to analyze the accuracy and effectiveness of traditional survey mapping versus LIDAR mapping in Delaware Seashore State Park and surrounding beach town communities. The state park is bounded on the east by the Atlantic Ocean and on the west by Rehoboth Bay and Indian River Bay, a total of 2825 acres. The two beach town communities of Rehoboth Beach and Dewey Beach are located in the North corner of the park. The hypothesis is that LIDAR is more effective and accurate than traditional survey mapping for analyzing topography of the beach.

Keywords: LIDAR, beach geomorphology, beach volume change, survey, Delaware Seashore State Park, Rehoboth Beach

Randy A. Peppler, University of Oklahoma. Email: rpeppler@ou.edu; *Knowing weather and climate: how people understand, forecast and cope with meteorological events*

From the literatures on ethnoscience, traditional environmental knowledge, and environmental perception, I will review how people who rely on weather and climate for their livelihood traditionally recognize and forecast meteorological events and cope with extremes. This review is part of a planned historical examination to uncover native ways of knowing weather and climate within Oklahoma Indian Nations, framed by the claim that a person's perception of nature and its extremes is in part culturally or locally formed. Work in ethnoclimatology has sought to uncover local ways of forecasting weather and climate events and evaluate their scientific validity. One example I will review is from Orlove, Chiang and Kane (2002), who uncovered a scientific basis for the successful forecasts of coming rains by potato farmers in the Andes of Peru and Bolivia. The degree of obscuration of the stars in the Pleiades, as observed by the farmers, foretell either a normal rainy season (bright and numerous) or a delayed,

erratic one (dim and sparse), leading to different planting date strategies. The authors related the degree of obscuration to the lack or presence of El Niño-produced subvisual cirrus clouds. They suggest that people are not "fatalistically resigned" to accept climate variability as a reality but instead seek information useful for dealing with it. Such inquiries into indigenous knowledge uncover information that might serve as a model for studying present-day situational awareness during extreme events.

Keywords: ethnoclimatology, indigenous forecasting, weather

Lee Pera, graduate student, University of Oregon. Email: jpera@uoregon.edu; *"Tamagringo": Amenity migration and community change in Tamarindo, Costa Rica*

This paper explores struggles over development, identity and place on the Pacific Coast of Costa Rica where thousands of U.S. citizens have purchased real estate and settled over the past two decades. Significant scholarly attention has been given to immigration from Latin America to the United States, and, more recently, to amenity migration within the U.S. Yet growing numbers of North Americans are moving outside of the U.S. and seeking out less expensive, beautiful places to live permanently or to invest in second homes. Often called amenity migrants, they are a minor percentage of the total international migration stream; however, their impacts on both the landscapes and the communities of the places they settle are great and range from shifting class and race hierarchies to changing land titling systems. In the late 1980s Costa Rica began to court potential amenity migrants with tax and residency incentives, becoming a popular destination for North American amenity migrants. This paper analyzes results of twenty interviews conducted in Tamarindo, Costa Rica and textual analysis of publications written by and for the English-speaking expatriate community. I employ a citizenship framework to explore impacts of this relatively new population of North American migrants in one of the many relocation "hotspots" in the hemisphere. Finally, given the ability of U.S. amenity migrants in Costa Rica to exercise citizenship through their economic and political clout, I suggest that current amenity migration can provide a more nuanced examination of neocolonial relationships between the United States and Central America.

Keywords: amenity migration, citizenship, Latin America, transnationalism

Jose Peralta, Department of Sociology. University of Illinois at Urbana-Champaign. Email: peraltao@uiuc.edu; *GMO contamination of native corn in Oaxaca and resistance to NAFTA*

This paper discusses the struggles emerging in Mexico after the discovery of GMO contamination of native corn in 2000 in Oaxaca, a region considered to be a historic epicenter of corn diversity in the world. Based in data collected during the summer 2006 in Oaxaca -the Mixteca Alta and Sierra Juarez-, I explore the ways in which different segments of the population resist and make sense of GMO contamination as they confront the economic and social impact of NAFTA. In particular, I discuss the implications of situating GMO contamination in narratives of national and local histories, not only memories of a pre-Hispanic technological development of corn but also farmers' experiences with the green revolution. I question how these narratives as well as farmers' strategies for evaluating imported agricultural technologies and changes in the markets enable them to decide on ways to negotiate and resist the process of neoliberalization affecting their everyday lives and economies.

Keywords: GMO, NAFTA, corn

Gary M. Pereira, PhD, San Jose State University. Email: gpereir1@email.sjsu.edu; *Diversity in the Modeling of Individualized Autonomous Agents*

The use of agent-based or individual-based models for the investigation of geographical and ecological phenomena is well-established. However, the principle of parsimony is adhered to a bit excessively, particularly with regard to the representation of individualized behavior. It is demonstrated that even the simplest representations of individualized diversity in dynamic models can provide insights into geographical properties that would remain hidden if such models treat autonomous or separable entities solely as members of behaviorally homogeneous classes. The focus here is on the generative capabilities of agent-based models, their ability to investigate the emergence of spatiotemporal patterns and behaviors from multiple, distributed interactions of well-defined agents, when such patterns and behaviors are not implicit in their isolated characterizations or local interactions. Findings support the hypothesis that diversities of behavior yield stable patterns of organization, provide coherence, enhance efficiency, and improve resilience in a variety of geographical domains, through the creation and satisfaction of functional niches. The need to properly model, and possibly encourage, functional and behavioral diversity in planning for resources, hazards, transportation, agriculture, and other domains is discussed. A sampling of models is used to illustrate this point. A vehicular traffic flow model that provides a range of acceleration rates among individual vehicles is

shown to yield greater flow rates at higher densities than equivalent models of vehicles with identical behaviors. A set of resource allocation models investigates the emergence of patterned coherence, with improved systemic yield and resilience, in the dynamics of behaviorally diverse mobile consumer agents.

Keywords: Agent-based models, diversity, pattern formation, resilience

Harold Alan Perkins, Ph.D, Ohio University. Email: perkinsh@ohio.edu; *Laboring through Neoliberalization: The Cultural Materialism of Urban Environmental Transformations*

Human labor transforms nature into urban forms, resulting in symbolic and material cultural engagement with the environment. From this, aspects of urban environments considered 'natural' such as the urban forest, can actually be considered cultural artifacts produced by human labor for the survival and prosperity of people. However, what appears to be an engagement with nature for the prosperity of everyone is actually a process appropriated by late capitalism, geared toward the expansion of profit. Instead of equitably distributed green urban environments, the unevenness inherent to the cultural materialism of a neoliberalized capitalist political economy within the United States has produced inequitable urban environmental geographies in cities like Milwaukee. Generally, neoliberal capitalist processes are a reversion to market led urban service provisions. This research investigates how these neoliberal forms of governance have affected efforts to (re)forest and revitalize urban green infrastructures, and what effect they may have upon the ability urban poor communities to consume them. A qualitative methodology is employed to conduct a scalar investigation into the effects of these processes. Thirty-six stakeholders involved in urban forestry and revitalization of park spaces were interviewed to determine the extent to which neoliberalizing processes are impacting provision for, and access to, green infrastructures. While the situation is contextual, devolution of responsibility for the production and maintenance of infrastructures from the state to the local and bodily scale is occurring.

Keywords: culture, materialism, neoliberalization, parks, scale, urban forests

Matthieu Permentier, Utrecht University. Email: m.permentier@geo.uu.nl; Gideon Bolt, Utrecht University. Email: g.bolt@geo.uu.nl; Maarten van Ham, University of St. Andrews. Email: maarten.vanham@st-andrews.ac.uk; *Neighbourhood reputations: differences and similarities between internal and external reputations*

Reputations of urban neighbourhoods are thought to have several consequences for residents' lives. These consequences can be economical, social or psychological: jobs are not offered to people residing in neighbourhoods with a bad reputation, engaging in social relationships can be troublesome and people possibly internalize the neighbourhood's stigma. Neighbourhood reputations are a social construct and both residents of a neighbourhood and outsiders can think differently about the reputation of a neighbourhood. Little is known about the similarities and differences between these internal and external types of neighbourhood reputations, and the relationship between these types of reputation and neighbourhood characteristics. This paper will address two points. First, we investigate to what extent neighbourhood reputations differ between groups (residents and non-residents) and within groups. Second, we investigate to what extent these neighbourhood reputations are associated with neighbourhood characteristics. We use data from a survey which we carried out in the spring of 2006 in Utrecht, the fourth largest city in the Netherlands. We collected information on 1400 residents in 24 different neighbourhoods and also questioned 38 real estate agents. Analysis of the data shows that neighbourhood reputations are higher rated by residents and realtors than other city residents. Within the group of other city residents we find differences in rating based on socio-economic status, ethnicity and education. In relation to the second point we conclude that neighbourhood reputations are most significantly correlated with socio-economic and ethnic characteristics, while physical and functional neighbourhood characteristics are of less importance.

Keywords: Neighbourhood reputations, residents, neighbourhood characteristics

Eric P Perramond, Colorado College. Email: eric.perramond@coloradocollege.edu; *The Devil's Wire and Neo-liberal Enclosure: Material and Conceptual Privatization in Sonora, Mexico.*

In the latter half of the 20th century, private ranchers in the Rio Sonora region of Sonora, Mexico began to seal off open range using barbed wire. The "Devil's wire" as some local communal farmers and ranchers called it, disrupted access to regional grazing pastures and facilitated the de facto control over previously open range cattle grazing. Since the reforms to Article 23 of the Mexican Constitution, in 1992-93, a new and "virtual" form of enclosure is now occurring; one based less on physical space and material disruption of livelihoods. Instead, the new "neo-liberal enclosure" is closing former commons by offering "opportunities" to communal farmers and ranchers, namely, renting and selling their previously communal lands. If human agents were directly responsible for

the material enclosure of rangelands, it is the Mexican federal government and federal agencies now leading the push to virtually enclose the ejido, Mexico's post-revolutionary land reform invention. This paper discusses the details of this latest wave of enclosure, documented through ethnography and analysis of household economics and decision-making, and illustrates how conceptual "enclosure" may help explain the closing of livelihood options and the short-circuiting of locally important institutions such as the ejido in Mexico.

Keywords: ejido, neo-liberalism, Mexico

Thomas A. Perreault, Syracuse University. Email: taperrea@maxwell.syr.edu; *A volatile mix: Natural gas, national imaginaries, and social movement politics in Bolivia*

Contestation over the governance of Bolivia's natural gas reserves - the second largest in South America - is at the heart of the country's ongoing social conflict. This includes recent moves by the government to 'nationalize' Bolivia's natural gas, the efforts of the recently formed Constitutional Assembly to rewrite the constitution (and thereby 're-found' the nation), and the centrifugal forces of regional autonomy movements. Since the 2003 'gas war,' which led to the ouster of President Gonzalo Sánchez de Lozada, natural gas has taken center stage in Bolivian politics, as both the foundation of economic development, and a signifier of national meaning. This paper examines the political ecology of natural gas in Bolivia. It considers the ways that gas has figured into conflicting regional imaginaries of the nation, and the ways that the geography and materiality of natural gas help shape these conflictive politics. Natural gas is an expansive and highly volatile substance, which is brought into circuits of production and social reproduction only through complex engineering systems oriented toward its extraction, refinement, conveyance and combustion. In contrast to its political centrality, it is extracted from fields located at the periphery of Bolivia's national space. The paper examines the ways in which the geography and materiality of Bolivian gas have contributed to the social and political forms in which it is imagined, governed, and contested.

Keywords: Bolivia, natural gas, political ecology, resource conflict

Marc J. Perry, U.S. Bureau Of the Census. Email: mperry@census.gov; *Population Trends in Coastal America: 1950 to 2005*

The number of Americans residing in a coastal county recently passed 150 million, making the coastal population larger than that of the entire U.S. population in 1950. More than one-half of the U.S. population is coastal, even though the 673 coastal counties, as defined by the National Oceanic and Atmospheric Administration, constitute only about one quarter of the country's landmass. In this poster we use decennial census data and recent population estimates to examine population growth patterns for coastal areas in recent decades. We examine trends in population growth and population density for coastal and non-coastal areas. For the period 2000 to 2005 we examine the individual demographic components of population change to determine the relative contributions of natural increase, domestic migration, and immigration to the growth of the coastal population. In recent decades, many coastal areas likely have had sizable increases in their seasonal populations, a trend not immediately apparent in population data from decennial census or postcensal population estimates, both of which reflect an area's permanent population. The poster examines the growth of the seasonal housing stock in coastal areas and includes more detailed case studies of several areas reflecting this trend. Finally, the poster concludes with a discussion of the percentage of the U.S. population that lives within 50 miles of the coastline. A wide range of estimates of this percentage has appeared in the media, and this poster includes the first Census Bureau calculation.

Keywords: coastal, population, demography

Timothy D. Perry, Oregon State University Geosciences Department. Email: perryti@geo.oregonstate.edu; Aaron Stone Arthur, Oregon State University Geosciences Department. Email: arthuraa@geo.oregonstate.edu; Julia A. Jones, Ph. D., Oregon State University Geosciences Department. Email: jonesj@geo.oregonstate.edu; *Long-term responses to forest thinning and clearcut treatments from the Coyote Creek paired watershed study, revived after a 25-year nap, Southwestern Oregon*

The long-term consequences of forest thinning treatments on water yield, especially in seasonally drought-stressed climates, are essential for planning contemporary forest management in southern Oregon. After a 25-year snooze when streamflow and vegetation measurements lapsed, new records from the Coyote Creek watersheds in the South Umpqua Experimental Forest are providing insights into long-term vegetation and streamflow responses to forest treatments conducted in 1970. Historical vegetation and streamflow records were collected from 1963 to 1981 on four small watersheds, where clearcut and overstory thinning treatments occurred in 1970. In 2000, the U.S. Forest Service in cooperation with Oregon State University resumed streamflow monitoring,

and regenerating vegetation was surveyed in the summer of 2006. Multi-decade changes in forest composition and structure were related to landform effects (soil, slope, aspect, topographic position) and disturbance legacies (clearcut, overstory thin, and small patch clearcut harvest treatments, roads, proximity to harvest patch edges). Streamflow responses were related to the range of harvest treatments to determine the relationship between fractional canopy removal, subsequent vegetation regrowth, and water yield. Results from the clearcut basin showed an emerging water deficit in spring, summer and fall, under young plantation forests, but less pronounced long-term responses to thinning and partial harvest treatments. Interactions among forest harvest treatments, vegetation regeneration and water yield were more complex than could be described using simple relationships of leaf area removed vs. water yield changes. These results show awakening moribund experimental watersheds can yield important ecological and hydrologic findings relevant to contemporary forest management issues.

Keywords: long-term ecological research, paired watershed analysis, streamflow response to logging, water storage, water use, Coyote Creek

Rudy Persaud, Federal Highway Administration. Email: Rudy.Persaud@fhwa.dot.gov; NDGPS

This paper describes the development the Nationwide Differential Global Positioning System (NDGPS), which augments the Global Positioning System (GPS) and provides 1 to 3 meter positioning accuracy in real time and 2 to 5 centimeter accuracy using post processing. NDGPS currently provides single-station coverage service over 97% of the continental U.S., Alaska, Hawaii, and Puerto Rico, and dual coverage over approximately 67% of the same area. Improved accuracy is secondary in the Wide Area Augmentation System (WAAS), and John Deere's Star Fire transmits their corrections from geostationary satellites. The ability to use the WAAS or John Deere's at or near the surface of the Earth is sometimes limited based upon terrain or local obstructions. In general, a ground-based augmentation system is required for surface transportation activities such as intelligent transportation system, positive train control, and 911 responses. Such a system is the NDGPS. The goal of the NDGPS dual terrestrial coverage of the continental U.S. and Alaska to support a wide range of current and future positioning and navigation requirements for federal, state and local government agencies. Some of the current and future needs of the private sectors may also be satisfied, but this is not the primary purpose of the system. Dual coverage will improve system availability from 99.7% to 99.9% to meet the accuracy, integrity, and availability requirements of many safety-of-life applications. The implementation of NDGPS in U.S. and Alaska to accomplish a common goal of providing a seamless navigation and positioning system with unprecedented accuracy, integrity, and availability.

Keywords: GPS, NDGPS, WAAS, augmentation, accuracy, integrity

Lisa M Pesnichak, San Francisco State University. Email: lpesnich@hotmail.com; Analysis of an Archaeological Site Cluster in the San Francisco Bay Area

Prehistorically, the San Francisco Bay Area was densely occupied, leaving behind hundreds of archaeological sites -many which have been documented and studied by archaeologists over the past century. The methods used to record archaeological sites have not been consistent, resulting in irregularities within the archaeological record. The San Francisco Bay Area Shellmound Project - headed by Kent Lightfoot (UC Berkeley) and Edward Luby (San Francisco State University) - aims to consolidate this documentation. As a result, a database (in Microsoft Access) of the prehistoric sites in the San Francisco Bay Area has been established using verbatim data from the original site records. In addition to being valuable to archaeologists for basic research, the database also allows for analysis using Geographical Information Systems (GIS) programs, such as ArcGIS. This presentation will use ArcGIS to evaluate one specific site cluster within the San Francisco Bay Area -using the Shellmound Project database. The main research question will focus on the spatial relationships between and patterns amongst different site-types.

Keywords: Archaeology, San Francisco Bay Area, GIS

Michael W. Pesses, Graduate Student - California State University, Northridge. Email: gorillamap@gmail.com; Authentic Spaces of Bicycle Tourism

In the past thirty years, bicycle touring has become a legitimate form of tourism. This paper serves as an attempt to examine bicycle touring as an "authentic" form of tourism as well as to examine how the trip affects the bicycle tourist's sense of identity. Through a qualitative analysis of the journals of bicycle tourists, this paper will look into how authentic space and authentic experiences affect the individual's concept of identity and self. The authenticity of the toured space is in constant tension with existential authenticity; one cannot exist without the other in bicycle touring. To find meaning in one's travels, and consequently in one's life, both forms of authenticity are constantly

being challenged by the experience and the landscape.

Keywords: Tourism-bicycle, authenticity, landscape, produced spaces

Sandra Petermann, University of Mainz. Email: s.petermann@uni-mainz.de; Rituals make places. Commemoration of landing of Allied troops in Normandy

1945. Large parts of Europe were razed to the ground in the wake of World War II. Many citizens of the European countries affected by the war entertained the hope that they would soon be free of the effects of turmoil and destruction and could leave behind the war-related traumata. The dissertation illustrates by reference to the commemoration of D-Day in June 1944 what attempts were made to shape a peaceful future in Europe during the postwar period and why war commemoration rituals captivate thousands and thousands of people even to this day. Based on action-theoretical concepts, the dissertation demonstrates how rituals create various place constructions. To this end, more than 100 qualitative interviews were conducted with designers of former war zones, ritual participants and battlefield tourists and analyzed together with extensive archive material. The interviews have been evaluated by way of a qualitative content analysis. It can be demonstrated that further place dimensions, which may be conceptualized as political, sacred and historical places, are evolving in ritual war memories besides commemorative places. These place dimensions are based on the spheres of ideology, beliefs and knowledge and besides being a ritual can lend a sense of security to people who were rattled by the warlike mass murder and order the experienced chaos. They help people to come to terms with their traumatic past: People can channel their shaken trust to these dimensions, which in turn continue to aid them in structuring their constantly more complex world in which to live.

Keywords: social geography, political geography, historical geography, religious geography, war, rituals, places, France-Normandy

Deike Peters, Center for Metropolitan Studies, TU Berlin, Germany. Email: deike.peters@tu-berlin.de; A New Era of Downtown Revitalization by "Grand Urban Schemes"? Los Angeles' "Grand Avenue" and New York's "Atlantic Railyards" Projects

Taking the rise of very large-scale urban revitalization schemes in the central areas of major metropolises around the world as a general starting point, this paper asks whether we might be seeing a return to a more visionary, comprehensive approach to urban planning and plan-making precisely during a new era of multi-level metropolitan governance characterized by public officials' diminished powers to implement large-scale visions, and how this seemingly paradoxical situation might be explained. Via a comparative analysis of two case studies from two key U.S. American world-class cities - Los Angeles and New York, the paper seeks to elaborate and ultimately confirm the proposition that there is indeed a current new generation of billion-dollar 'grand urban schemes' emerging that is different from the typical mega-projects of the 1980s and early to mid-1990s in that a) they are directly linked to a renewed wave of physical, economic and social restructuring in the central areas of world-class cities and b) they constitute a deliberate attempt by visionary urban leaders to capitalize on the renewed attractiveness of central urban locations for work, life and leisure in order to promote wide-ranging restructuring schemes for central urban areas. An additional point of investigation in this context is the role of star architects in downtown redevelopment (both the downtown L.A. and Downtown Brooklyn cases are Frank Gehry projects).

Keywords: Urban redevelopment/revitalization, Los Angeles, New York, mega-projects

Evelyn J. Peters, University of Saskatchewan. Email: evp818@duke.usask.ca; "[T]hey promise natives education and housing in treaties." First Nations hidden homeless men's and women's housing strategies and the geography of rights to housing

This paper addresses the housing histories over 18 months of hidden homeless adult First Nations men and women in a Saskatchewan city. "First Nations" is a term often used to refer to one group of indigenous people in Canada. Hidden homelessness was defined as staying with friends or family in order to avoid absolute homelessness. The paper attempts to avoid essentializing First Nations people and cultures by situating their experiences within the continuing effects of colonialism and the resulting geography of rights First Nations people have to housing. The paper frames the analysis in the literature on urban poverty, and especially work on the "underclass". This literature fixes poor people in space and associates them with "underclass" neighborhoods. It also constructs the poor as homogeneous populations living within bounded space. These frameworks may be particularly problematic for understanding First Nations people homelessness because many still have connections to rural reserves. Differences between First Nations men and women obviate the heterogeneity of this population.

Keywords: Homelessness, gender, First Nations, urban

Jacob J. Peters, University of Southern California. Email: jjpeters@usc.edu; *Thinking Code: Software as a Cultural Product, Free/Open-Source Software, and Ideology.*

This paper analyzes aspects of Free/Open-Source Software (FOSS) in order to ask how code might be taken seriously as a cultural product. Taking code out of the realm of the universal (where code's assumptions, precepts and functioning are the same everywhere) while also thinking about the rhetorical work that code does when thought of as universal, particularly in relation to racialization and ideologies of difference, is the crux of this paper. Code can be understood as a system of representation - having a flux of structures, protocols, histories and geographies? all which matter not only when thinking about how code is produced but also when thinking about how code, software and computing technologies are understood and made to mean. Code can also be seen as a system of production? to create code requires the intricate organization of human labor and many cases (relatively) unfixed capital. Legitimizing and maintaining the current normative mode of code production (proprietary software development) requires a great deal of energies, time and structuring from its active consumers as well as from the law and the state. How might FOSS's alternative systems of software production engender new sorts of social relations that expose and help think about how code as a cultural product relates to logics of racialization and difference? That is, what work does code do in excess of its computational functions? How might ideologies of difference be tied up in how code is produced, used, understood, theorized and imagined?

Keywords: free/open source software, code, ideology, difference, racialization

Katharine E Peters, State University of New York at Geneseo. Email: kep12@geneseo.edu; *Traditional Farming Villages to Overcrowded Urban Clusters: An Ethnographic Study of China's Future Development and Increasing Social Devastation*

The People's Republic of China has become one of the world's fastest growing, industrializing, and globalizing economies. While the nation's overall wealth is expanding, the rural sector, comprising nearly two-thirds of the population, is experiencing economic decline resulting in rural-urban disparities. As a result, a growing percentage of rural residents are migrating to cities in search of higher wages. This paper examines the current social, housing, and economic trends in China to predict social changes in future generations. Analysis is based on recent field work, primarily interviews and observations, in both rural and urban sectors. Rural villages on Hainan Island and the cities of Beijing, Xian, and Shanghai are analyzed and compared to contemporary research. Qualitative data from this study demonstrates that structural barriers in China cause rural residents to face difficult decisions regarding whether to remain in poor villages or risk moving to cities. Contrary to some current research, movement to urban areas often does not lead to higher quality of life in China. This research argues that the rapid movement from rural to urban is devastating the lives of all of China's residents. In order to ensure the future protection and welfare of its residents, the Chinese government must refocus its attention inward, on the urban conditions and lives of the rural residents, instead of outward, on its position in the rising global economy.

Keywords: China, urbanization, migration, inequality

Kevin Peters, Rutgers University. Email: kipeters@eden.rutgers.edu; *The Contemporary Landscape in Art*

This paper addresses ideas of how landscape is conceived, perceived, depicted, and understood in the contemporary visual arts. It focuses on how artists choose to depict a contemporary geographic reality that has been variously described as "postmodern," "fragmented," "confused," "heterotropic" or "Thirdspace." As case studies, I take four artists whose work embodies these concepts: Benjamin Edwards, Robyn O'Neil, Mark Lombardi, and Julie Mehretu. Each challenges the idea of what a landscape is and forces a broadening of how the genre is understood. I conclude that these artists are essentially working as cutting edge geographers in their engagement with landscape. They demonstrate that landscape can no longer aspire visually to traditional notions of truth and reality, but must embrace unprecedented levels of complexity.

Keywords: Landscape, Art, Visual Geographies, Postmodern, Fragmented, Painting

Paul A Peters, University Of Texas. Email: papeters@prc.utexas.edu; *Spatial Segregation in Complex Urban Systems: Addressing the micro-macro link*

Changes in policies and planning brought about by globalization and neo-liberal agendas strongly influence the patterns and processes of urban change in Latin America's largest cities. Globalization and the neo-liberal policies that often accompany it, are frequently seen as unavoidable and powerful processes, promoting a homogenization imposed from above, contrasted with a fragmenting localization from below. Tracing the patterns of urban development within this context is complex and involves incorporating the interactions between civil

society, markets, and the state, operating at both micro and macro levels. Of key importance is the manner and degree to which the interaction or isolation between different agents shapes development patterns. This research examines how residential segregation in Latin American cities in general, and Santiago, Chile in particular, is influenced by shifts in policy and planning and how advanced research methods can expose the linkages between social segregation, planning policy, and urban development. The primary goal of the research is to examine the nature of class-based segregation in Metropolitan Santiago and the role that public planning agencies and public housing provision plays in (re)producing or reducing the separation of different social classes. Using a mixed-methods approach, the research relates the policy and planning of housing programs, analytic evaluation of segregation patterns, and the simulation of segregation processes over time. The central methodological contribution of the research is the employment of a simulation approach, whereby formal methods that reinforce or reduce segregation are examined within a multi-level cellular automata model.

Keywords: Segregation, Cellular Automata, Complexity, Chile, Latin America

James F. Petersen, Texas State University - San Marcos. Email: jp01@txstate.edu; Richard A. Earl, Texas State University. Email: re02@txstate.edu; *An analysis of stream terraces and pediment surfaces in Big Bend National Park, Texas*

The landscape of Big Bend National Park is best known for the Chisos Mountains, and three major canyons on the Rio Grande. Widespread areas of the park, however, are dominated by a fairly continuous gravel-surfaced pediment that grades from the foothills of the Chisos Mountains toward the Rio Grande. This pediment, interpreted to be of middle Pleistocene age by the USGS, is beveled across badland-forming K-T sediments, as well as some dikes as wide as 8 meters. Grading downstream toward the river, the pediment surface is increasingly dissected by tributaries to Terlingua Creek on the west, Tornillo Creek on the east, and direct Rio Grande tributaries to the south. Fluvial dissection is characterized by a complex of terrace levels that step below the pediment surface down to the modern drainage channels. Many terrace remnants, however, appear to be surfaces abandoned by stream piracy or the result of baselevel control by resistant dikes that cut across the drainage channels. Field study of the pediment surface and terraces in the west side of the park are interpreted based upon topographic position, gradient, underlying geologic structures and relative dating techniques.

Keywords: Big Bend National Park, Rio Grande, pediment formation, fluvial terraces

Tagge Petersen, Centre for Regional and Tourism Research. Email: tagge@crt.dk; Tagge Petersen, TP, . Email: tagge@crt.dk; *Destinations and places seen as part of an innovation system*

The economic impacts of tourism are normally measured as the tourists' expenditures at the destination they are visiting, either for their vacation or for business. These impacts also include the broader contribution of tourism through its multiplier. In Scandinavia in general and as a part of a 6th EU frame-project called "Eurodite" several projects at the moment look at and analyse tourism and destination development from a learning and innovation perspective. In innovation theories, the user/producer interaction is one of several driving forces behind the innovation of new products or the appearance of new productions processes. Looking at tourism from this perspective — which recognizes that tourism is more than about the money used at the destination but also accounts for a demanding market in terms of customers using various production facilities — widens our perspective of this sector as a driving force of regional economic growth. This paper will consist of a short presentation of the theoretical framework. A discussion of why a theoretical framework on innovation is relevant from a destination's perspective is illustrated with examples from the Islands of Bornholm and Lesbos, as well as examples from literature and research. The presentation will conclude, that especially in peripheral regions, tourism can be seen as a primary driving force in the development of new companies and economical activities that are not necessarily included in the tourism sector. Finally, a discussion will demonstrate how this positive effect of tourism can be promoted by local business programs and initiatives.

Keywords: Tourism, Innovation, Destination,

Steven K Peterson, University of Idaho. Email: pete3397@uidaho.edu; *A Social Geography of the Near Southside of Fort Worth, Texas 1990-2000*

Using GIS and spatial regression, the social geography of the near southside of the city of Fort Worth, Texas is examined. The study involves cartographic/GIS analysis of changes in population, racial mix, property values and income between 1990 and 2000 by census tract. Measures of income inequality are also created to examine changes in the urban social structure. The study concludes with several geographically weighted regression models examining inequality and changes in inequality as measured by a Gini coefficient.

Keywords: urban, spatial modeling, inequality

Rosanna Petralia, San Diego State University. Email: petralia@rohan.sdsu.edu; *"See no evil, hear no evil, speak no evil": the obliteration and the silent commemoration of Mafia landscapes in Sicily*

The Sicilian Mafia is an entity with which Sicilian political leaders and citizens almost invariably deny being associated. This is the great lie upon which all Mafia enterprise is based. Nonetheless, the signs of its myriad crimes, and the institutionalized political corruption it has engendered, indelibly mark the Sicilian landscape, and are omnipresent. Some of these signs are emblematic of the widespread collusion between political leaders and organized crime that has characterized the history of Sicily since the end of WWII. Others come in the form of ad hoc memorials: stories of doomed heroism on the part of the long list of assassinated judges and journalists who have tried to root out the parasitism of Mafia influence. The shame felt by the Sicilian social elite for the messages conveyed by mafia landscapes threatens their future existence and undermines the possibility of transforming them into sites from where a renewed civic involvement could stem. The present paper, based mostly on landscape observations, attempts to tell the story of some selected mafia landscapes in Sicily, analyzes their current symbolism, and muses on their fate.

Keywords: landscape, memory, Sicily

Andrey N Petrov, University of Toronto. Email: andreyn.petrov@utoronto.ca; *Residual regions: regional dichotomies and spatial logics of marginalization in the Russian and Canadian northern frontier*

Frontier regions in Canada and Russia have been developing under very different economic and political regulation regimes. Nonetheless, an attentive observer would notice that the Canadian and Russian North share similar economic problems and face similar development challenges. These similarities stem from a fundamental process of economic marginalization of resource peripheries manifested in both capitalist and (post-)socialist economies. In the recent decades, changes in the world economic order have deeply affected northern peripheries and contributed to multidimensioning of spatial logics of marginalization. This paper explores the present status of marginality in the resource frontier of Russia and Canada along the multiple vectors of marginalization. Quantitative analysis unveils similar and distinct processes and spatial patterns in the two regions. It is argued that the contemporary relationships between northern regions and national economic centers are best described as multiple core-periphery dichotomies. Emerging 'post-modern' peripheries are fractured and deeply marginal. These empirical findings are conceptualized from the positions of the regulationist approach to regional development in attempt to connect the logics of marginalization with spatial modes of regulation in their particular forms in the two countries. One conclusion, among others, is that the residual position of northern regions in economic, social and political spatial domains, as well as in the development discourses and practices, contributed to the continuous marginalization of the Russian and Canadian frontier. To accomplish regional breakthrough, frontier regions from being residual have to become central in development policy and public discourse.

Keywords: regional development, periphery, economic policy, regulation

Christopher J Pettit, Dr, Department of Primary Industries, Victoria. Email: christopher.pettit@dpi.vic.gov.au; Ian D Bishop, Professor, University of Melbourne. Email: i.bishop@unimelb.edu.au; *Using computer based tools to assist with planning at the urban rural interface in Victoria*

There are a myriad of computer based tools that have been developed to assist municipalities in planning for a sustainable future. These tools are generically referred to as planning support systems (PSS). Many applications and developments of PSS technology to assist decision-making has been driven by technology push rather than demands worked through with the end-users (planners). This paper discusses recent experiences in Victoria (Australia) in working with both State Government and local municipalities in understanding user requirements. We then examine the deployment of a suitable PSS technology for addressing issues associated with competing land uses within the urban rural interface surrounding the City of Melbourne. Within the next 30 years it is expected that Melbourne will need to accommodate about 1 million new residents. The projected population increase will place significant stress on the

natural resources and agricultural land comprising the surrounding rural hinterland. Within this paper particular focus is given to the engagement exercise with the Shire of Mitchell, which is situated to the North of Melbourne, along the Hume Growth Corridor. We discuss the application of the What if? collaborative geographical information system (GIS) based PSS in developing a number of land suitability scenarios to understand the implications of potential land use change within the Shire. The paper concludes by discussing the key learnings in working with the planners and applying the PSS tool to inform land use change dynamics.

Keywords: planning support systems, GIS, what-if scenarios

Illene Pevec, University of Colorado, Boulder. Email: Illene.Pevec@colorado.edu; Myra Margolin, University of California, Santa Cruz. Email: mmargoli@ucsc.edu; *Creating Change: The Use of Participatory Video to Explore Life Narratives with Youth in Southern Brazil*

Participatory video is a research, communications and social action tool with the ultimate goal of transformation and empowerment (White, 2003). Through participatory video, members of a community learn to use video technology to explore social issues that impact their lives. This technique can serve a range of community and individual needs: identifying community environmental and social issues, planning for change, building self-esteem and community pride, increasing media literacy, exploring solutions to social challenges, communicating with government officials, and resolving intercommunity conflict. In 2004, the authors conducted a participatory video workshop through the community development project "A Child's Garden of Peace" in the Centro Sul neighborhood of Santo Ângelo, a small city in Rio Grande do Sul, Brazil. Eight teenagers participated in the month-long course. The multi-faceted goals included encouraging reflection and introspection amongst the teenagers and producing documents to share the lives of these young people with the larger world. The project focused equally on process and product. In the conceptualization process, it became clear that the teens were unaccustomed to viewing their lives as narratives. They had never seen a documentary film and were given few creative or introspective activities at school. Initially, they insisted that there was nothing interesting about their lives but slowly began to identify strengths and challenges present within their personal, community, and societal spheres. One of the goals of this project became helping the teens shape positive personal narratives which could also serve as narrative models for others in the community.

Keywords: Children/youth, social issues/social justice, participation, communications, technology.

Jamie A Pfadt, . Email: jxp1775@sruc.edu; Travis Anderson, . Email: ; Shawn Widing, . Email: ; Jack Livingston, . Email: ; Patrick Burkhardt, . Email: ; *Species Area Relationships in Terrestrial Habitat Fragments*

Species area relationships were examined using Carabidae Sp. among the pediment remnants (sod tables) of the White River Badlands. Sod tables are resistant remnants of alluvial and colluvial fans that provide habitat between areas of sparse cover. This study continues to examine the relationship between patch size, isolation, and species number among naturally occurring habitat fragments that began in the previous year. Using updated control points of vegetation and isolation characteristics, an insight will be provided of habitat characteristics. Samples were collected from sixty sod tables over three field seasons using pit traps for fossorial organisms. Sod tables were mapped in the field using GPS. Control points were used to locate land cover areas on DOQ, land cover types will provide information concerning habitat characteristics within the study area. Area isolations and matrix effect were determined from aerial photography for each sod table. Distance relationships were established using a statistical analysis in GIS. Distance and species relationships were analyzed with regard to the matrix and neighboring tables.

Keywords: species area relationships, White River Badlands, Natural Habitat Fragments

Edwin L. Pfeifer, United States Geological Survey, Western Geographic Science Center. Email: epfeifer@usgs.gov; Barry R. Middleton, Geographer, U.S. Geological Survey, Western Geographic Science Center. Email: bmiddleton@usgs.gov; Bradley C. Reed, Research Geographer, U.S. Geological Survey, Western Region Geographic Science Center. Email: reed@usgs.gov; *Effects of Climate Change, Glacial Retreat, and Loss of Snowfield on Habitat Conditions and Wild Sheep Populations in Polar and High Mountain Ecosystems in Alaska, Far Eastern Russia, and Central Asia A comparative Study*

This study takes a detailed multi-decade look at glacial retreat and loss of permanent snowfields and the resulting land-cover and land-use changes in the Brooks Range and Wrangell Mountains of Alaska and selected mountain ranges in far-eastern Russia and Central Asia. A variety of remotely sensed satellite data, ground-based observations, and historical databases serves as the primary sources of information to derive glacier extent. Data in the Global Land Ice Measure-

ments from Space (GLIMS) database are used to identify past changes in glacial margins and extent of permanent snowfields. Ancillary data, such as historical aerial photography, topographic maps, and historical reports are used for additional interpretation. A literature search was used to identify historical maps of the study areas before 1900; these maps are used to help identify glacial margins and snowfield extent prior to availability of remotely sensed data and are integrated into the baseline dataset. Moderate Resolution Imaging Spectroradiometer (MODIS) data are used in the study to analyze phenological change at a high temporal resolution. Current and historical animal location data (radio-collar and visual observations) are coupled with information derived from various satellite data and other datasets to construct models of habitat preference and change by applying various classification and statistical methods. We investigate the possible development of models to predict future phenological and habitat change. We hypothesize that climatic changes are altering the traditional favored habitat for high-mountain large mammals, particularly wild sheep and goats.

Keywords: Glacier, Snowfield, Wild Sheep, Remote Sensing, Phenology

Deborah A. Phillips, University Of Leeds. Email: d.a.phillips@leeds.ac.uk; *Negotiating Spaces of Difference and Belonging: British Asian Narratives of the City*

Ethnic segregation, particularly as it relates to people of South Asian origin, is at the centre of public debates about 'race' and 'difference', integration, citizenship and belonging in multicultural Britain. Persistent ethnic segregation may, however, be read in different ways. This paper takes a critical look at discourses of segregation and challenges interpretations based on cultural 'otherness' and normative assumptions about patterns of social and spatial integration and the 'whiteness' of the city. Drawing on research in Leeds and Bradford in the UK, the paper presents insights into how British Asians perceive, and make sense of, the urban spaces in which they are living and through which they are being enjoined to disperse. Their narratives of the city reveal multiple readings of ethnic segregation, the multi-ethnic inner-city and the suburbs. The paper explores how experiences and perceptions of urban space (real and imagined) play a role in understandings of both 'self' and 'others', sense of belonging and rights to space and other resources. It argues that this has implications for British Asians' sense of identity, feelings of belonging, inclusion and exclusion, whether this is at the scale of the family, the 'community' or the city.

Keywords: multiculturalism, ethnic, integration, Britain

Emily C Phillips, United States Geological Survey. Email: ecphillips@gmail.com; *Evaluation of Challenges to Sustainable GIS Technology in Post Hurricane Mitch Central America*

A geographic information system (GIS) is a crucial component of mitigation, recovery, and reconstruction operations, often transferred to areas of need after natural disasters and other complex emergencies. In such situations there can be significant challenges associated with implementation of the technology that can affect the long term sustainability of the GIS. While an initial needs assessment cannot fully address all of the eventualities which may be encountered during GIS implementation, post-transfer long term follow-up provides additional information that can help identify obstacles specific to a locality or region. Using a questionnaire, this study conducted such a long term review of a GIS transfer to 75 Central American municipalities affected by Hurricane Mitch in 1998. The results indicate that within the municipalities the program was successfully used for mitigation purposes in only a few jurisdictions. Two main dynamics, identified as obstacles for the region which may have played a role in the selective sustainability, are: the potential for staff loss due to political turnover and weak linkages between local municipalities and higher governmental levels. After a final summary of obstacles to the sustainability of GIS for hazard mitigation is completed, a secondary study can be conducted to determine successful strategies for more efficient, cost effective, and sustainable technology transfers in the future.

Keywords: GIS, Central America, hazards, mitigation, reconstruction, sustainability

Martin Phillips, University Of Leicester. Email: mpp2@le.ac.uk; *The Production and Consumption of Gentrified Nature: Images From An English Village*

This paper draws on research undertaken on the gentrification of rural nature as part of the UK's Rural Economy and Land Use (RELU) research programme. The paper notes how environmental change has widely been associated with agricultural developments before highlighting studies that have suggested that residential space can be a driver of ecological change in the countryside. Attention is drawn to the way that gentrification, widely seen as an important dynamic in the reconstruction of rural built environments, may also impact on nature and how nature is itself drawn into the processes of

gentrification. The paper highlights Ingold's (1995, 2000) notions 'building' and 'dwelling' perspectives, suggesting that research on rural gentrification has largely drawn upon the former but that investigation of the production and consumption of gentrified nature might usefully draw upon the latter perspectives, which connects to post-constructionist and performative approaches to nature. The paper draws upon detailed investigations of an English village undergoing gentrification utilising a complex series of ecological and social survey methods to explore how human and natural actants dwell and live together, and apart, in spaces of gentrification.

Keywords: Gentrification, Rurality, Nature, Dwelling

Richard S Phillips, Dr, Liverpool University. Email: Richard.Phillips@liv.ac.uk; *Contested common ground: anti-imperialism in contemporary anti-war movements*

Movements can be energized and extended when disparate activists cross boundaries, translating the differences and distances between them into common ground, through which to advance common projects. Contemporary anti-war activists have set aside some of their differences and found common purpose by re-imagining and re-articulating themselves and their relationships. Not only opposed to war, these activists have agreed to varying extents upon opposition to: racism, breaches of civil liberties and - the subject of this paper - imperialism. Anti-imperialism is a powerful, contested area of common ground for a wide range of activists. The unity and difference of anti-imperialisms can be traced to disparate experiences and forms of imperialism, different ways of thinking and speaking about imperialism, and different rhetorical and real spaces of imperialism.

Keywords: Imperialism, anti-imperialism, anti-war, resistance.

Tasha Phillips, University of Minnesota. Email: phil0344@umn.edu; *Community-Based Mapping for Sustainable Disaster*

Natural disasters occur at the most unexpected times. It is at these times that we find out how prepared or unprepared we are to deal with natural disasters. Hurricane Katrina exposed its citizens', its government's, and its city's lack of preparation for a storm such as Katrina. It is important that we begin to change our actions and become more personally involved in getting ready for natural disasters. This project aims to enhance community and high school students' awareness about disasters through service learning. Students in Imagine College at Pearl-Cohn High School in Nashville, Tennessee, will be involved in working with the community members, community organizations, and their classmates in developing a plan for disaster preparedness. This plan will be implemented through using ArcGIS software to map places of shelter or safety for members to go in times of emergencies. These maps will include things such as locations of food shelters, tornado shelters, and areas of land more vulnerable to damage from a disaster. Students will create these maps themselves with help from Dr. David A. Padgett, Associate Professor of Geography, at Tennessee State University and the Neighborhoods Resource Center. The maps will be used during a series of community seminars for all community members, merchants, parents, children, and organizations to increase their knowledge of how to become prepared for a disaster. In addition, the State Farm Good Neighbor Grant will be sought to help aid in the development of a sustainable GIS lab for Pearl-Cohn High School students.

Keywords: natural disasters, community mapping, sustainable development

Alan G. Phipps, University of Windsor. Email: phipps@uwindsor.ca; *The Usefulness of an Internet Mapping and Surveying Project in Windsor, Ontario, Canada: A Cultural-Historical Activity Theory Perspective.*

This study is an evaluation of residents' responses about whether browsing an internet mapping and surveying project contributed to, and corroborated with, their knowledge of events in their neighbourhoods. These residents browsed The Glengarry and Wellington-Crawford Geographical Monitoring Project (GWCGMP) via the internet at <http://www.gwc.uwindsor.ca>, during 2003 to 2005. They answered the project's entry questions before selecting from 26 sequences of computer-animated maps and graphs of the locations and timings of crime and disorder events, and house sales and prices, in their neighbourhoods. Before exiting the project, they answered questions linked to their particular entry answers, and browsed maps and graphs. As one indicator of the project's inferred usefulness, almost all of 29 respondents answering a linked series of questions, had found and focussed on their home's location if it was on a map. As another indicator, usually less than one-half of approximately 30 respondents thought that their area had the same amount of either disorder offences, offences against people, or property violations, as on the respective maps. In conclusion, from the perspective of cultural-historical activity theory, the GWCGMP is an example of a technological tool that residents may use for more timely information about the events around them.

Keywords: Internet, mapping, crime.

Michel Phipps, University of Ottawa. Email: mpphipps@uottawa.ca; *Entropy Reduction, Data Mining and Knowledge Discovery*

This presentation proceeds from a basic tenet: data mining bears strong analogy with information entropy reduction. A cascade of entropy falls between specific entropy levels adequately sketches this reduction process and these levels necessarily entail a decrease of uncertainty about the state of an observed system. This approach is implemented using an algorithm dedicated to the analysis of environmental systems (ecological landscape). It reduces the spatial entropy of a target attribute using information provided by an optimized combination of other attributes. It operates in a stepwise, divisive way, selecting divisive attributes according to their relative information. Although not new, this approach regains relevance in the wake of data mining advent. Its most salient features include its inductive nature, its strong spatial significance, its use of information metrics to specify various parts of the system. Among these, some deserve mention: the rule-based knowledge structure as the procedure's end product; the map of entropy left unreduced after the algorithm has exhausted all available information; the Omega function relating the amount of information extracted to the computational complexity necessary to discover this novel knowledge and finally, the correspondence analysis allowing a meaningful interpretation of the unveiled structure. Discussed applications represent various conditions (area and data set size, scale). Contrasted to a similar algorithm (C4.5), this entropy reduction algorithm exhibits comparable performance. Moreover, its proper features spelled out above make it an efficient tool fulfilling most objectives deemed essential to data mining and knowledge discovery, particularly useful in a research exploratory phase

Keywords: data mining, knowldgw discovery, environmental system

Michael Phoenix, Ph.D., ESRI. Email: mphenix@esri.com; *Global perspective on GIS education*

The author will provide a comprehensive view of where we stand in GIS education around the world. The spread of GIS Education around the world has been amazingly successful. Thousands of people in almost 200 countries have contributed to a tremendous increase in the teaching and awareness of GIS. Perhaps 200,000 students a year are learning something about GIS in a classroom. Distance education in GIS is reaching thousands more every year. New degree programs are being developed at all levels and GIS is being taught in secondary schools in many countries.

Keywords: GIS, Education,

Frederick S. Pianalto, University of Arizona. Email: pianalto@email.arizona.edu; Stephen R. Yool, Ph.D., University of Arizona, Department of Geography and Regional Development. Email: yools@email.arizona.edu; *A Combined GIS and Remote Sensing Habitat Model of Valley Fever Pathogens in Southern Arizona.*

Coccidioidomycosis (Valley Fever) has increased significantly in Arizona within the last decade. Valley Fever is produced in Arizona by spores from the soil-dwelling fungus *Coccidioides posadasii*. Outbreaks appear driven by environmental and climatic changes. Dispersion-related conditions are important predictors of incidence. This study explores the hypothesis linking human disturbance of soil to dust generation and fungal growth and spore dispersion. We use air quality dust permit and building permit databases to create a GIS soil disturbance map for Pima County, Arizona. The disturbance layer is used also to identify areas of land change predisposing spore dispersion and to guide development of change detection techniques. We apply change detection techniques to Landsat Thematic Mapper satellite images over the period of 2000 to 2005 in eastern Pima County to identify locations and extent of human disturbance such as grading, subdivision construction, road construction and trenching. Standardized principal-component analysis of two-date images and single date unstandardized first and second principal components are classified and compared in change tables to identify areas of soil disturbance likely to disperse fungal spores. Results serve as inputs to a disturbance-climatic decision support model for Valley Fever mitigation in southern and central Arizona.

Keywords: Valley Fever, coccidioidomycosis, Geographic Information System, remote sensing, principal component analysis, Landsat Thematic Mapper, change detection.

Stephane Olivier Picault, Institut National De La Recherche Scientifique (INRS). Email: stephane_picault@hotmail.com; *Is there a spatial structuring effect of large shopping malls? The case of Montreal's CMA.*

This research aims at demonstrating the importance of large malls in the capitalistic urban system. Urban spaces are incontestably a representation of society and of the economic system which articulates it. There is production of space (Lefebvre, 1971) with the creation of spaces of capital (Harvey, 2001) predominantly in cities. Because we are immersed in those spaces we have often forgotten to look at them for what they are: spaces made by capital with the sole goal to generate more of it, through consumption. If true, we would then be in a

consumer society (Baudrillard, 1970; Jayne, 2005). Consequently it is reasonable to think that urban spaces and their population are criss-crossed by commercial zones underpinning mass-consumption. These commercial centers by their attraction effect are playing a role in the structuring of space. The study of large malls, can help us better understand their importance in the capitalist system. Using the case of Montreal, Quebec, Canada, we will observe large malls' location and evolution using maps and aerial photographs spanning over several decades. We will be trying to identify to what extent residential development occurs in the vicinity of large malls after they have been built: to the extent that this occurs, it will suggest that urban space is being structured by these malls, rather than malls merely opening in vicinity to existing residential areas. We will also demonstrate that malls are controlled by powerful corporations managing them like networks, in which finance is predominant (Wrigley and Lowe, 1996, 2002).

Keywords: retail geography; consumer society; production of space; spaces of capital; urban form; shopping centers; malls; aerial photographs; Canada; Montreal.

James B. Pick, University of Redlands. Email: james_pick@redlands.edu; *A Framework for Enterprise Geospatial Software Systems: Empirical Findings on Current Applications and Uses*

Enterprise systems are being integrated with GIS and spatial technologies. The paper provides a framework for understanding geospatial enterprise architecture and the interoperability between these systems. The underlying foundation includes data-bases, data warehouses, servers, and mobile devices. The inter-relationship of leading enterprise software applications among each other and with the underlying foundation is examined. They include enterprise GIS, enterprise resource planning (ERP), customer relationship management (CRM), business intelligence (BI), and supply chain management. For each type of major enterprise system, the role of GIS and spatial technologies is analyzed, as well as its integration with other enterprise components. These include, for example, for ERP plug-in connectors between ERP and GIS software; for supply chain management, relationships between supply chain and spatial aspects of RFID technology; and for business intelligence, close connections with data warehouses as well as with GIS. The extent of actual integration of GIS with enterprise systems in businesses is analyzed through research findings from interview surveys of lead corporate GIS managers in seven medium- and large-sized companies and from intensive case study analysis of GIS and CRM at Chico's, an apparel firm; and GIS, ERP, and mobile applications at NESA, a Danish electrical utility. The paper provides a set of general conclusions on the current extent of adoption and types of integration of geospatial enterprise systems.

Keywords: GIS, geospatial, enterprise systems, integration, spatial architecture

Jenny Pickerill, Leicester University. Email: j.pickerill@le.ac.uk; *Walking side by side? Muslim anti-war activism in Britain*

The prominence and voice of Muslims within peace and anti-war campaigns has increased dramatically in recent years. This involvement of a challenges the political left to accommodate and understand Muslim concerns. Parallels could be made with the anti-war movement in the US and its treatment of Black and Latino communities. The contemporary anti-war movement is thus a broad and contested alliance of a myriad of groups. Tariq Ramadan (2005) identifies Muslim involvement in the British anti-war movement as part of the 'silent revolution' "working in the name of common values" as "evidence of ... a new movement that is coming out of our presence". However, there is suspicion that Muslims are being tokenised and appropriated by secular anti-war groups so such groups can appear inclusive and draw on broader support. Many challenges remain for Muslim and non-Muslim activists to acknowledge these debates and their implications: "We are forcing open a space not only within the Marxist left but also in contrast to the right-wing Islamists as well. We have multiple identities and need multiple spaces. Those who want to engage with us have to recognise our rights to these identities and spaces" (Rehman, 2004). Using empirical work (as part of an ESRC-funded project with Frank Webster and Kevin Gillan, City University), this paper examines the complexity of Muslim anti-war activism in Britain and raises questions as to how coalitions work, how commonality is shared and tested and the spaces of communication between differing factions.

Keywords: activism, Muslims, anti-war, social movements, Britain

Roger M. Picton, Ph. D. Candidate, University of Toronto. Email: rmpicton@gmail.com; *"Hewers of Wood and Drawers of Nature:" Canada's National Capital Commission and the Political Economy of National Nature*

Recently, the National Capital Commission (NCC) has led a private-public development on LeBreton Flats in the heart of the Canada's federal capital under the veil of the neo-liberalism's "golden path" of entrepreneurialism. Overlooking the tragic expropriation of working-class neighborhood on the shores of the Ottawa River, this redevelopment mimics the global language of urban-chic green development(s). This paper investigates the dream-image of natural regeneration

and the political rationale and practices which drive the state-intervention in the development and redevelopment of LeBreton Flats. This paper contends that urban political economy and neo-liberalism does not adequately explain the actions of the NCC and its institutional momentum. It will argue that the constellation of power on the Flats resulted in a particular politics of scale that is unique to the Canadian context. By exposing the historical and geographically embedded working relationship with nature forgotten and replaced by a sanitized national-identity, the case study elucidates the importance of considering the issue of practical and symbolic sovereignty as part of the neo-liberal production of nature.

Keywords: nationalism, political ecology, neoliberalism, urban, Ottawa, sovereignty

Sonja K. Pieck, University of Chicago. Email: spieck@uchicago.edu; Sandra Moog, University of California, Berkeley. Email: samoog@essex.ac.uk; Competing Entanglements: Thoughts on the Geography of Global Civil Society

Observing developments throughout the 1990s, much of the early literature on the rise of transnational politics and global civil society struck a rather optimistic tone. The participation of NGOs and their grassroots partners was seen by many as a potentially powerful catalyst for social and political change. Midway through the first decade of the twenty-first century, however, observers even within the global civil society literature have grown less sanguine. Global civil society does not, ultimately, represent an independent "third sector" buffered from nation-states and global capital; rather, it is constituted precisely through its articulation with geopolitical and market forces, and is therefore inevitably shot through with many of the same inequalities which plague these other spheres of social life. Clearly this is true, but how can we conceptualize this? We suggest that the concepts of "entanglements" and "institutional knottings" - based on geographical debates on the politics of scale and place? can offer a better understanding of the concrete ways in which particular kinds of attachments to political and market forces enable or disable democratic processes. In other words, if global civil society is not wholly independent from market and political forces, then what kinds of strings are attached? And when and how do these "competing entanglements" matter? This paper explores the potential for transnational advocacy organizations to provide voice for disempowered groups through an assessment of one recent experiment in transnational network-building: the Amazon Alliance, a coalition between US environmental and human rights NGOs and Amazonian indigenous federations.

Keywords: NGOs, networks, global civil society, politics of scale

Brent J. Piepergerdes, University of Kansas. Email: bpieps@gmail.com; "The Real Italy?": Interrogating the Cultural Hegemony of the Italian Economic Miracle in Pasolini's *Comizi d'amore*

As Italy's preeminent theoretical-political filmmaker of the 1960s and early 1970s, Pier Paolo Pasolini signified, via his controversial deconstruction of Catholicism and his valorization of the subproletariat, the vital role that cinema plays in challenging dominant structures of national socio-cultural identity. More than any of his internationally renowned films, Pasolini's often overlooked 1964 documentary *Comizi d'amore* (Love Meetings) is the clearest embodiment of a true 'film inquest' in which an objective attitude toward the phenomenal world (as characterized by neorealism) is replaced by a more critical analysis of 'reality'. On the surface, the film is a shockingly frank survey of the sexual attitudes and mores of Italians across multiple regions, highlighting the disparate responses between inhabitants of the industrialized cities of the North and the rural, familial South to the 'sexual problem'. Underlying Pasolini's inquiry however, is a reliance on Antonio Gramsci's concepts of language, hegemony, and the "Southern Question" in relation to the widespread cultural and economic transformations instigated by Italy's postwar "economic miracle". In his critique of the uneven development between North and South, city and country, Pasolini challenges the notion of postwar modernization as harbinger of a new Italian nationalism. Through a visual mapping of the pervasive retention of regional- and local-level identity, Pasolini disputes the homogenizing influence of the emerging consumer culture.

Keywords: Italy, hegemony, regionalism, film

Andrew Pierce, Penn State University. Email: adp179@psu.edu; Alan H. Taylor, Dr., Penn State University. Email: aht1@psu.edu; Spatial Patterns of Regeneration and Interspecific Competition in Mixed Aspen-White fir Forests in the Southern Cascades, USA

Aspen (*Populus tremuloides*) provides habitat and forage for wildlife, timber resources, and scenic value in the western United States. However, nearly a century of fire suppression and livestock grazing has significantly reduced Aspen regeneration and promoted regeneration of White fir (*Abies concolor*), increased competition between aspen and conifers, and lead to replacement of aspen by conifers. Using principles of symmetric and asymmetric competition, this study

assesses the effects of spatial proximity and density on aspen and conifer growth rates and species' regenerative patterns in five pairs of 625m² plots in mixed and pure stands in the southern Cascades. Quantitative data on size, age, height, spacing, growth, and light levels are collected in each plot. The null hypotheses tested include i) within stand spatial patterns aspen and conifers are random; ii) aspen and conifer growth rates are similar in pure and mixed stands; and iii) aspen regenerates in both pure and mixed stands, regardless of light levels. The spatial analysis of stems and growth rates indicate that number and size of nearest neighbors influences change in biomass over the preceding decade. Furthermore, aspen can regenerate in both pure and mixed stands, but ramets in conifer dominated stands die quickly possibly due to low light levels and wildlife browsing.

Keywords: Aspen (*Populus tremuloides*), conifer invasion, competition, tree regeneration, spatial analysis, Cascades - southern

Peter M. Piet, City of Elmhurst. Email: peterpiet@meginet.net; Richard P. Greene, Northern Illinois University. Email: rgreene@niu.edu; Juice Bars, Immigrants and Sunshine: The Varying Influences on Population Growth and the Expanding Metropolitan Fringe, 1980-2005

Having recently crossed the 300 million threshold, the United States continues to increase rapidly in population, but in an uneven fashion, with much of the increase occurring in metropolitan and adjacent exurban counties. Expanding earlier work investigating population change at the metropolitan level, demographic, social, economic and climatic variables are used to investigate the factors determining county-level growth rates. The varying influence of these factors over the period from 1980 to the present will be examined.

Keywords: metropolitan, amenities, counties, GIS

Lisa Pietro, University of Delaware. Email: ; Michael A. O'Neal, University of Delaware. Email: michael@udel.edu; Jack Puleo, University of Delaware. Email: ; David R. Legates, University of Delaware. Email: ; Large Scale, High-Fidelity Surface Models of Rehoboth Beach, DE

Since November of 2005, monthly topographic surveys were completed using a terrestrial-based LIDAR (Light Detection and Ranging) system along a 1-km stretch of Rehoboth Beach, Delaware. The survey data are used to construct sub-meter scale (horizontal) digital terrain models (DTM). However, each monthly dataset of 5 to 9 million survey points must first be filtered to remove unwanted natural and man-made features that obstruct the beach surface (i.e. drift wood, grasses, trash cans, fences, debris, and people). Therefore, a filtering technique was developed that examines data in a 1 m² "moving window" and removes unwanted points based on differences in elevation, group membership in a cluster analysis, and outliers beyond one standard deviation of the mean elevation. The difference between the average elevations of data from the filtered 1m² area and those of the bare-earth control set is 5 millimeters on average, underscoring the effectiveness of the technique. The filtered data are critical to the development of accurate DTMs that are used to: 1) assess the response of the beach geomorphology to storm events, local climate variability, and seasonal climate patterns, 2) determine monthly volumetric variability of sediment within the measurement area, 3) assess the performance of the soft-sediment stabilization project in the study area, and 4) integrate with the University of Delaware SANDcam video system for video-measured beach widths and associated volumes.

Keywords: LIDAR, Delaware, Digital Terrain Model

Roos Pijpers, Radboud University Nijmegen, the Netherlands. Email: r.pijpers@fm.ru.nl; The migrant flexworker: circular labour migration and the anchoring role of International Employment Agencies

In the literature on social migrant networks and transnational migration flows, the constitutive role of employers and their recruiting actors remains somewhat underexposed. This is despite a known and persistent economic demand for migrant labour which is cheap, readily available and easily dismissed. Aiming to contribute to a further understanding of how the recruitment of migrant labour, instigated by employers, works, this paper focuses on the example of International Employment Agencies. It is argued that these agencies currently are the anchors of the circular labour migration between Poland and the Netherlands. In the Netherlands, private labour market intermediation is a fully legal and common phenomenon, allowing the agencies to transfer part of the Polish employment from the underground to a more legal and visible presence. When regarded through a post-Fordist regulatory lens, these migrant workers could be named migrant flexworkers. Apart from analysing the origins and current functioning of the International Employment Agencies, the paper discusses their development prospects as well as some more normative aspects of migrant flexwork.

Keywords: Migrant flexwork, International Employment Agencies, Poland, the Netherlands

Andy Pike, Dr, Newcastle University. Email: andy.pike@ncl.ac.uk; John Tomaney, Professor, Newcastle University. Email: john.tomaney@ncl.ac.uk; Andrés Rodríguez-Pose, Professor, London School of Economics. Email: A.Rodriguez-Pose@lse.ac.uk; What kind of local and regional development and for whom?

This paper asks the question what kind of local and regional development and for whom? First, issues of definition are examined to understand what is meant by local and regional development, to establish its historical context and to emphasise the importance of space, territory, place and scale. Second, the nature, character and forms of local and regional development are explored to reveal its different varieties and principles and values in different places and time periods. Third, the objects, subjects and social welfare dimensions are addressed to explain the often socially uneven and geographically differentiated distribution of who and where benefits and losses from particular forms of local and regional development. Last, a holistic, progressive and sustainable version is outlined and reflections offered upon the limits and political renewal of local and regional development. Our argument is, first, that we need to consider the basic principles to get a better analytical purchase on the question of 'what kind of local and regional development and for whom?', and, second, locally and regionally determined models of development should not be developed independently of more foundational and universal principles and values such as democracy, equity, internationalism, justice, and solidarity. The specific local and regional forms and articulations of such principles and values are normative questions and subject to social determination and political choices in particular national and international contexts.

Keywords: Local Regional Development

Richard J. Pike, Research Geologist, United States Geological Survey. Email: rpik@usgs.gov; Debris Flows in Guatemala from Hurricane Mitch Localized by Wind-driven Rain?

Shallow rainfall-triggered landslides are a major natural hazard in Central America. My analysis of previously published observations from the catastrophic 1998 Hurricane Mitch suggests that hillside aspect and storm-wind direction are slope-instability criteria that could narrow the uncertainty in predicting locations of future landslides. Two contrasting distributions of slope aspect from a digital elevation model are plotted in 10-degree bins: initiation sites for a sample of 2,951 debris flows in the Sierra de los Minas of southeast Guatemala (on 15- to 55-degree slopes above 1200 meters), and about 1,000,000 10-meter grid cells for topography in the same area. Topographic aspect is fairly evenly distributed by compass direction, whereas 61% of the debris flows are concentrated on east-to-south-facing slopes (70 to 200 degrees). A constant wind from the southeast, a direction characteristic of hurricanes of Category 3 strength, may explain this dramatic difference. The most substantial evidence for a persistent, strong southeast wind during Hurricane Mitch is from the azimuth-frequency distribution for 200 uprooted mangrove trees on Isla Guanaja, Honduras, where 76% of the trees fell between orientations of 105 and 135 degrees. The two similarly skewed distributions are consistent with a slanting wind-driven rain that delivers more moisture to windward slopes than to level terrain or leeward slopes. I propose that southeast-facing hillsides in Guatemala were exposed to heavy rain driven by strong winds from the southeast whereas leeward slopes were partially sheltered from the inclined rain, resulting in preferential initiation of debris flows on southeast slopes.

Keywords: landslides Hurricane Mitch wind-driven rainfall Central America

Steve Pile, The Open University. Email: s.j.pile@open.ac.uk; A Dream of a Method? Psychoanalysis, space and the interpretation of dreams

In the main, psychoanalytic approaches to geographical questions have relied for their techniques on two fundamental tactics. On the one hand, they have used psychotherapeutic techniques to bolster, broadly, an ethnographic approach. On the other hand, they have used psychoanalytic theory to bolster psychodynamic interpretations of specific situations. In both cases, there is the use of what we might call strong method and strong theory. Naturally, there's nothing wrong with being strong - with being rigorous. Strong does not, for example, mean insensitive or indeed brutish. Even so, I'd like to offer a weak psychoanalytic approach. Weak, not because it is not rigorous, but because it is always unfolding; not because it is open to new meanings and interpretations, but because it demands them. This "weak" psychoanalytic method is based in Freud's description of dream interpretation. Dream interpretation, of course, has been widely used in the social sciences and humanities. In this paper, however, I use it as a model of city life ? and not just as an interpretative technique ? because this means city life is always somewhere other than you thought it was. Don't worry: I'll use examples.

Keywords: psychoanalysis, city life, dreams, networks of meaning, methodology

Igor V. Pilipenko, Lomonosov Moscow State University. Email: igor_pilipenko@yahoo.com; The territorial-industrial complex approach: a revival in the Russian market economy?

The theory of territorial-industrial complex (TIC) realized the idea of industrial production optimization in the planning economy within a certain territory according to its resource endowments. It was employed most actively in the 1950-1980s fulfilling the Soviet paradigm "The shift of productive forces to the East", when a range of large industrial areas were constructed from almost nothing in developing Eastern and Southern regions of USSR (Western and Eastern Siberia, Far East, Central Asia). But after the collapse of USSR and the transition of Russia to the market economy the TIC approach was left behind as almost all the enterprises that formed TICs were privatized, and it was not already possible to realize large-scale interregional project from a united decision-making center. Since the beginning of XXI century the cluster concept has become popular among regional authorities, but it is often confused with the TIC approach that lead to regional policy failures. In this paper we compared and made a clear distinction between these two concepts using a number of characteristics: definition, genesis, spatial organization, mathematical apparatus, specialization, the role of human and information factors. Development of various forms of production organization in Russian regions also evidences differences between the TIC theory and the cluster concept. Using a case study of Lower Angara region it is shown that TIC approach can be also applied in the market economy in a form of public-private partnership. Moreover these two approaches can supplement each other in regions with considerable disparities in economic development.

Keywords: Territorial-industrial complexes, clusters, developing regions, USSR

Udesh Pillay, Dr, Human Sciences Research Council. Email: upillay@hsr.ac.za; Are Globally Competitive 'City Regions' Developing in South Africa?: Formulaic Aspirations or New Imaginations

This paper chronicles the process of global city region formation across the world. The paper sheds light on the emergence of this phenomenon in the developing world, and assesses the extent to which the process of 'city region' formation/development has been occurring in South Africa's major metropolitan areas. The paper begins with a review of the literature on emerging global city regions, before contextualising this phenomenon in the developing world and among African cities. The discussion then turns to the contemporary status of South African cities, following which detailed (primarily economic) profiles of South Africa's 'big four' urban agglomerations are offered, and their prospective growth and development trajectories assessed. The paper then reflects on the applicability of the city region literature has in a South African cities context. It is argued that while South Africa's larger urban agglomerations do constitute dense sub-national and spatial formations, they do not necessarily qualify as global city regions. Against a critical review of the international literature it is suggested that the city that may be South Africa's best 'global' prospect, and is most likely to approximate city region status, is Johannesburg and, in particular, a spatially-quadrangular tract of land referred to as the 'urban'core of the province of Gauteng. The paper concludes with observations on the critical need among urban scholars and practitioners in the developing world to begin a process where new and alternative ways of imagining cities, and ones less rooted in a strict adherence to 'global city' formulations, can be negotiated.

Keywords: City Regions, developing world, South African Cities

Ngai Pindell, University of Nevada - Las Vegas Boyd School of Law. Email: ngai.pindell@unlv.edu; The right to the city in Las Vegas

My paper chronicles the impact of the Southern Nevada Public Lands Management Act (SNPLMA) on the availability of shelter to the homeless and the lowest income residents of Las Vegas. SNPLMA is a federal law that regulates public land sales in Southern Nevada. Approximately 13,000 acres of land have been transferred from public to private ownership at auction since the law's inception in 1998, generating over \$2.7 billion for Nevada. This economic windfall to Nevada has not produced corresponding increases in affordable housing for median income residents or for residents further down the economic ladder. At the same time SNPLMA made thousands of new acres available for residential development, Las Vegas and the rest of the nation experienced tremendous housing price increases. These increases put even more pressure on the already scarce supply of affordable housing. This paper surveys housing trends in Las Vegas between 1998 and the present, particularly trends in the availability of housing and shelter for Las Vegas' lowest income residents. Inspired by the global right to the city movement, my paper will suggest that SNPLMA legislation should be amended to include specific requirements mandating the inclusion of affordable housing. Without the inclusion of specific requirements, which could be considered limited rights to housing, these residents are excluded from the huge economic gains the region has made within the last eight years and precluded from sharing in future gains. This paper also considers

the social and political benefits and costs to including these rights.

Keywords: Las Vegas, affordable housing, right to the city

David Pinder, Queen Mary, University of London. Email: d.pinder@qmul.ac.uk; Cities on the Move: Walking, Plugging In, Floating, Dissolving

What is to be made of demands for cities to become mobile? To leave behind static forms and embrace movement, even to grow legs, to develop floating structures and to take flight? Many visions of the modern city emphasise mobility, dynamism and speed. They often seek to remake urban space to enable rapid transit through the provision of necessary infrastructure. This chapter, however, is concerned more with calls for cities to become mobile themselves, to embody a restlessness and energy supposedly in keeping with modern times. It concentrates on imagined cities and architectural projects from the European avant-garde from the 1960s that outlined mobile and nomadic alternatives to the stasis not only of traditional monumental design but also to modern movement orthodoxies. It explores the attraction of these forms of mobility for elements of the avant-garde, as well as their political and social implications, setting them in the context of a key tension in much urban literature between settlement and movement. In so doing it addresses concerns about the qualities of movement and their spatial politics, concerns that remain in need of interrogation in cities today.

Keywords: cities, architecture, mobility, avant-garde

Adam M Pine, Ph.D. Candidate, Rutgers University. Email: apine@eden.rutgers.edu; Performing Citizenship in the Neoliberal Metropolis

One of the key issues within neoliberal urbanism is how new immigrant communities interact with civil society. As the state devolves and hollows-out, the institutions that make up the shadow-state are playing an increasingly important role providing for citizens. Therefore, entry into these institutions is vitally important for immigrant communities. Yet their admission is not always guaranteed; instead civil society is an institution with boundaries policed by unwritten codes of behavior that reflect the cultural, ethnic, and class affiliations of its members. In this paper I examine how Dominican grocery store owners in Philadelphia are negotiating their entry into the communities surrounding their stores. I use Judith Butler's theory of 'performativity' to suggest that the grocers' position as transnational entrepreneurs makes them feel as perpetual outsiders, yet they perform the acts of engaged citizenship in a conscious attempt to present themselves as community insiders. The grocers understand this performance as a defensive strategy: only if they are seen as conforming to community mores will they be physically safe in their stores. The grocers' experiences 'performing' citizenship demonstrate the difficulty for immigrant groups of the ascendancy of civil society as a supposedly neutral space that can effectively mediate between the state and the individual. I argue that the grocers are disempowered members of their community, and their 'performances' of citizenship hinder the enactment of transnational citizenship and demonstrate the role that civil society plays in policing nonconforming activity.

Keywords: Migration, Neoliberalism, Citizenship

Alasdair Pinkerton, Royal Holloway & Bedford New. Email: a.d.pinkerton@mac.com; Broadcasting geopolitics: the BBC World Service as 'Britain's Voice around the World'.

Since the launch of the BBC's Empire Service in 1932, radio has been utilised as a powerful form of direct 'public diplomacy' by the United Kingdom government when communicating with international audiences. This was confirmed in 1997 when the UK's Foreign Secretary, Robin Cook, described the World Service [renamed after 1965] as 'Britain's Voice around the World'. Cook's remark, however, disguised a longstanding uneasiness between the BBC and UK/international governments regarding the relative independence or complicity of the BBC's international services from/in British foreign policy. This paper examines these uneasy relationships by drawing on audience/listenership evidence, and archival sources, relating to the BBC's reporting of post-colonial India and, in the year of its 25th anniversary, the Falklands conflict in 1982. In so doing the paper explores the significance of 'radio' as both an information/news medium and mode of geopolitical expression, particularly in environments where television had comparatively little penetration.

Keywords: Geopolitics, Radio, Public Diplomacy

John M. Pipan, Cornell University. Email: ; Michelle Goman, Ph.D., Cornell University. Email: mg254@cornell.edu; Mid to Late Holocene Paleohydrology and inferred Paleo-Precipitation for upstate New York

Temperate peat land deposits provide a long-term, continuous archive of paleoclimate conditions for much of the Holocene. Here we present a high-resolution reconstruction of paleohydrology focusing on mid-late Holocene timescales from a site in upstate New York, where paleoreconstructions have tended to focus on the deglacial history of the region. A 7m long sediment core

was collected from Purvis Road Bog. The site, about 1 acre in size, is blanketed by a variety of Sphagnum mosses, discrete highbush blueberry (*Vaccinium corymbosum*) clumps exist and the protected carnivorous pitcherplant (*Sarracenia purpurea*) is relatively common. White pines (*Pinus strobus*) appear to be encroaching on the bog surface, suggesting a possible drying phase in the past. Multiproxy data (LOI, density measurements, pollen, macrofossils, testate amoebae, and A.M.S. dates) were collected from the core. Basal sediments indicate that the site, which was originally a kettle pond, began to infill about 13,000 calibrated years ago. Sphagnum peat and true ombrotrophic (rain fed) conditions appear to be in place by about 4500 cal yrs B.P. Preliminary analysis of high-resolution density data suggests possible changes in climate conditions lasting on the order of centuries. Further, the testate amoebae indicate that a period of much wetter conditions occurred between about 1500-2500 cal yr B.P.

Keywords: Holocene, paleohydrology, peat, testate amoebae, New York

Michael Pirani, PhD, North Carolina Central University. Email: mpirani@nccu.edu; Student Perspectives on Iraq: Applying a Theoretical Framework

Applying a well developed theoretical framework can assist students in understanding and conceptualizing complex situations. In our upper-level political geography class, students used the theoretical perspective developed by Jared Diamond in his book *Collapse* (Penguin Books, 2005) to contextualize the internal and external conflicts that are ongoing in Iraq. This theoretical framework seeks to understand and explain how some societies fail under the weight of environmental, social, economic or political problems, while others come to terms with and overcome the same sets of difficulties. The students were instructed to choose the society discussed in the text that they believed most closely parallels the situation in Iraq and compare their similarities and differences. They also chose a contrasting example. Nine students believed that Iraq resembled states that had collapsed under the burden of several of the above criteria, while one argued that Iraq was trending toward a positive outcome. The comparative examples and the factors that the students argued were common and contrasting between the different states will be illustrated. The application of a carefully designed, well constructed framework proved very useful in helping students to organize a variety of complex and sometimes conflicting information, consider the factors behind the current situation in Iraq, and speculate as to possible positive and negative outcomes to Iraq's problems. The conceptual framework used by Diamond, with carefully explained criteria and a focus on comparative examples, was ideal for use in this context and generated thoughtful and rigorous discussion and research among the entire class.

Keywords: Iraq, Politics, Education

E. Mark Pires, Long Island University. Email: mark.pires@liu.edu; A Historical Political Ecology of Land Use in the Southeastern Peanut Basin of Senegal

In this paper I present a generalized history of twentieth-century human occupation and agricultural expansion in the southeastern Peanut Basin in Senegal, West Africa. I describe social and cultural characteristics of the region's population relevant to an analysis of environmental challenges that have affected this region over time. I also address the significance of state intervention, during both colonial and post-colonial times, in agricultural resettlement schemes that were intended to control access to land-based resources in this less densely populated part of the country. This examination of historical land use dynamics in the southeastern Peanut Basin informs current conditions and future concerns regarding natural resource management in the region.

Keywords: Political Ecology, Senegal, Agricultural Land Use

Michael F.J. Pisaric, Carleton University. Email: michael_pisaric@carleton.ca; Alex J.M. MacIntosh, Carleton University. Email: ; Doug King, Carleton University. Email: doug_king@carleton.ca; Robert Bemrose, Carleton University. Email: ; Using forest health scores and dendroecological methods to examine the impact of the 1998 ice storm on the health of sugar maple (*Acer saccharum*) dominated forests in Gatineau Park, Quebec

In the mixed forests of eastern North America disturbance results from a number of factors and occurs across a variety of spatial and temporal scales. Important natural disturbance factors include pathogen outbreaks, defoliating insects, and ice storms. While ice storms are one of the most frequent forms of disturbance, the ice storm of January 5-9, 1998 was unique in both scale and intensity. Up to 110 mm of freezing rain fell in eastern Canada and the northeastern United States during the five-day event. The area of ice accumulation was approximately 10 million hectares, although forest damage was highly variable and patchy. Following the 1998 ice storm, a research study was established in Gatineau Park, Quebec with the goal of monitoring structure, composition and health changes in response to ice storm damage over the long term (10-20 years). Since 1998 we have conducted a temporal analysis of forest

cover and ground vegetation change to examine the relations between stand dynamics and damage incurred during the 1998 ice storm. In 2005 we also conducted a dendroecological investigation of sugar maple growth with the aim of quantifying growth trends prior to and following the ice storm. Combined, our monitoring study and the dendroecological investigations provide new insights into the physiological response of sugar maple forests to disturbances events such as ice storms.

Keywords: ice storm, forest dynamics, eastern North America

Lisa Marie Piscopo, Ph.D., University of Denver. Email: lmurphy@du.edu; *Explaining The Variability in Colorado Student Assessment Program (CSAP) Scores in Denver*

The Colorado Student Assessment Program, or CSAP, is the Colorado standardized testing program that measures student progress in reading, writing, and mathematics for all public schools in the state of Colorado. The scores vary across the state between districts, neighborhoods, and schools. Is there any pattern to this variation in scores? Is there one primary factor that explains this variation? At which scale are factors most significant? This project uses GIS to map the CSAP results and to correlate CSAP scores with neighborhood demographic variables such as income, race, educational attainment, as well as school related variables such as teacher salary and percent free lunch. The hypothesis that school scores are influenced by the characteristics defining the neighborhoods in which the students live challenges the theory that educational success is independent of these social factors. The most explanatory variable used in the analyses was percent free lunch. The higher the percentage of students that qualify for free lunch in a school, the lower the average CSAP scores for that grade at all scales of analyses. The school scale provided the strongest correlations between the CSAP scores and percent free lunch.

Keywords: standardized tests, gis

Angel Pita-Duque, Graduate Group in Geography, University of California at Davis. Email: apitaduque@ucdavis.edu; Stephen B. Brush, Professor, Department of Human and Community Development, University of California at Davis. Email: sbbrush@ucdavis.edu; *Effect of Mexican Farmers' Integration to Non-Agricultural Market Labor on Maize Diversity: Preliminary Findings*

The aim of the paper is to discuss some aspects involved in the relationship between the farmers participation in off-farm works and the maize diversity at both household and village level. A study case was conducted in five villages located in the Puebla Valley, Mexico, where maize production is combined with other agricultural and non-agricultural activities as well. Among these villages there are notorious differences in the participation of households in off-farm works, ranging from households basically devoted to agricultural activities to other households with strong connections with the labor market at different levels. In this area most of the maize populations managed by farmers belong to the Conico race. However, farmers differentiate two groups of maize varieties that are adequate for either valley or foothill conditions. The maize fields are located in two contrasting conditions. Two villages are in the valley (2100 to 2300 meters above sea level), another two are located in the foothills of the Popocatepetl and Iztaccihuatl volcanoes (2400 to 3000 meters), and the farmers from the fifth village have maize fields in both physiographic conditions. Under this context, the relationship between farmers' integration to an off-farm labor market and maize diversity is neither direct or simple. This relationship is mediated by complex interactions that affect farmers' outcomes in terms of maize diversity. Some of these interactions are discussed in this paper, having the allocation of labor by households a prominent role in order to fulfill the requirements of the different activities they are engaged.

Keywords: Crop diversity, maize Mexico, off-farm work

Steven C. Pitts, UC_Berkeley Center for Labor Research and Education. Email: spitts1@berkeley.edu; *Bad Jobs for Black Workers: A Study of Job Quality and Black Workers in Four Cities*

Traditional discourses on the job crisis in the Black community focus on the high levels of unemployment in central cities among the Black labor force. This discourse is a narrow one because it ignores the high level of low-wage employment among Black workers. The narrow focus supports a limited approach to addressing job problems facing Black workers. The UC-Berkeley Center for Labor Research and Education is completing a multi-city study of low-wage and Black workers documenting the prevalence of low-wage worker between 1970 and 2000. Since the existence of low-wage work reflects the spatial confluence of several factors — among them race, ethnicity, gender, and industrial structure — a key question asks how the nature of low-wage work among Black workers varies by region. This study will begin to shed light on this question.

Keywords: Low-wage work; Black Workers

Jessica Place, MA, NRES (Candidate), University of Northern British Columbia. Email: mcgregoj@unbc.ca; Neil Hanlon, Associate Professor, University of Northern British Columbia. Email: hanlon@unbc.ca; *Expanding the mine, killing a lake: a case study of competing environmental values, perceptions of risk and First Nations' health*

In recent years, uncertainty concerning the long term future of British Columbia's forest industry has led to renewed interest in the mining sector as a means of generating economic growth. While unresolved treaty negotiations and ongoing land claims with First Nations remain significant issues in the evaluation of potential resource development projects, a second set of concerns has also emerged. These concerns centre around the legal obligations of the provincial government to establish meaningful processes of consultation with First Nations regarding the impacts of mining activities on their environment, health and traditional ways of life. Political ecology holds much promise as a critical framework for exploring the uneven power relations and discursive strategies that underlie these consultative processes between state, industry and Aboriginal groups. Using the proposed Kemess North mine project in northern BC as a case study, I employ qualitative research methods to explore the competing claims and discourses of environmental risk and welfare development. The linkages between the Takla Lake First Nation and the Tsay Keh Dene's perceptions of risk, environmental values and health are explored in the context of this political process of environmental review, and it is suggested that health and well-being are undermined when First Nations perspectives are not effectively acknowledged and incorporated into the assessment.

Keywords: perceptions of risk, environment, health, First Nations, political ecology

Lorne Platt, . Email: laplatt@uwm.edu; *Pastoral and Political Nature: Milwaukee's urban parks as tamed wilderness*

This paper investigates national discourses of nature and their influence on the evolution of urban parks in Milwaukee, Wisconsin. In the last decade of the nineteenth century, local park advocates and civic leaders sought the guidance of Frederick Law Olmsted to help design parks in the rapidly industrializing and growing urban landscape of Milwaukee. Olmsted's rationale for park placement and design incorporated an inherent duality in emphasizing both culturally elite landscapes and the impact such spaces could have on the toiling masses. This paper subsequently investigates the early years of the twentieth century as both a part of this vision, but simultaneously as a time when the bourgeois ideology of Olmsted was being contested and challenged by urban growth and social change. At a time when immigrants and workers were flocking to the city for jobs, Charles B. Whitnall sought to promote parks as part of a wider Socialist agenda for Milwaukee. It is the Olmstedian ideology of the picturesque, and Whitnall's emphasis on social and environmental improvement through parks that conflate in the varied cultural representations of Milwaukee's parks.

Keywords: nature, urban parks, Milwaukee

Rutherford V. Platt, Ph.D., Gettysburg College. Email: rplatt@gettysburg.edu; *Modeling Structure Location for Wildfire Hazard Assessment*

Evaluating wildfire hazard in areas close to structures can help inform evacuation plans and wildfire mitigation strategies. Unfortunately, the location of structures is not generally known within socioeconomic units such as tracks or parcels. If wildfire behavior is homogeneous within the socioeconomic unit, then the exact location of structures within parcels is not needed. If however, wildfire behavior is heterogeneous, knowing the exact location of structures will improve estimates of proximate wildfire hazard. This study has two primary research questions: (1) To what degree does wildfire behavior (i.e. fireline intensity and preponderance of crown fire) vary between and within parcels? (2) If within-parcel variability turns out to be large, can a decision tree model improve our estimate of structure location based on relative location within-parcel, topography, amenities and accessibility? It was found that a large amount of variation occurs within-parcel for all but the smallest parcels, thus an average measure of wildfire behavior within a parcel is not necessarily representative of the location of the structure. Within small (i.e. < 4 acres) parcels, structures tend to be located away the edge of the parcel. Within large parcels (i.e. >= 4 acres), structures tend to be located in areas of low slope, away the edge of the parcel, in open stands, and in valleys. The decision tree model incorporating these factors improved prediction of structure location over a null model. Thus the model is useful for refining the location of structures to improve estimates of potential wildfire behavior close to structures.

Keywords: wildfire, land use, hazard, gis

Lee Ebinger Plowman, USDA/National Agricultural Statistics Service. Email: Lee_plowman@nass.usda.gov; *Statistical and Geospatial Data from the National Agricultural Statistics Service*

The National Agricultural Statistics Service (NASS), an agency in the United States Department of Agriculture, conducts national agricultural surveys and censuses and prepares reports covering various aspects of the nation's agriculture such as crop and livestock production, prices, expenses, chemical use, land use, farm equipment, and farm and operator characteristics. As part of NASS' mission to provide timely, accurate, and useful agricultural statistics, NASS offers national, state, and county level statistical and geospatial data in digital format. The data are available online in the form of static maps, graphs, and published statistical reports; interactive applications which display dynamic maps and tables for querying and examining agricultural census data; and downloadable data files for use in spreadsheets or geographic information systems (GIS). The data files include statistical survey and census data, and geospatial data of state and county level agricultural census boundary files, state level land use strata showing percentage of land cultivated, and satellite imagery of categorized cropland for specific states. This paper introduces the GIS community to NASS, familiarizes users with the NASS web site (www.nass.usda.gov), and explores the different types of digital agricultural data available to the public. It primarily focuses on statistical and geospatial data files for GIS applications so that geographers interested in analyzing economic, environmental and/or demographic aspects of agriculture can take advantage of the wealth of data provided by NASS.

Keywords: agriculture, agricultural statistics, geospatial data, census, survey, United States

Ian Benjamin Plummer, Florida State University. Email: ibp03@garnet.acns.fsu.edu; *Making Dangerous Places: The Use and Abuse of Political Risk Assessment Services*

This paper critically examines Political Risk Assessment Services (PRASes), business-consulting firms that provide corporations with rankings wherein places are evaluated based on their potential danger to the client's investments and/or employees. This study builds upon the insight that idealized Western versions of reality often coincide with (or manufacture) "othered/dangerous" non-Western versions of place and that such representations often are constitutive of, as well as reflective of the actual experiences of place. To achieve these constructions of place, PRASes rely not only on ideas about a distinct thing called "place" (which they essentialize into a rank-order number or textual description) but also on assumptions about distinct phenomena of "politics" and "risk." Through assertions of certainty, these firms construct ideals of their own authority to navigate clients through the world of dangerous places that the PRASes themselves discursively construct. Thus, this paper reveals the complex intersections of power, knowledge, authority, and the will (and ability) to discursively construct place that underlay a little studied aspect of multinational commerce.

Keywords: risk, political geography, economic geography, corporate behavior

Bryan Poirier, Ph.D. Candidate, Department of Geography, University of Guelph. Email: bpoirier@uoguelph.ca; *Risk, Relevance, and the Role of the Teacher: Lessons from Theory and Practice on Fostering Learning in the Undergraduate Classroom*

For many students, a teacher's pedagogical approach can be a key determinant of their willingness and ability to learn. The literature on experiential learning identifies a number of variables that can affect a student's level of engagement, including: 1) the extent to which elements of risk are incorporated into curriculum in a pedagogically constructive manner; 2) student perception of the relevance of the intended curriculum; and, 3) the roles and responsibilities assumed by the teacher. Insights on these three variables will be drawn from the literature on experiential learning and compared with findings from an empirical study of the pedagogical beliefs of selected expert teachers. These insights will be supplemented with lessons learned from practical experience in the researcher's efforts to foster student interest and learning in the undergraduate geography classroom.

Keywords: Learning; Education-Geography; Pedagogy

Anne Pollard, National Geographic Society. Email: apollard@ngs.org; *My Wonderful World: A Campaign for Geography led by National Geographic*

In May 2006, National Geographic and leaders from the business, nonprofit and education communities unveiled a public-engagement campaign designed to give U.S. students tools to become more informed global citizens. The goal of the five-year, multimedia campaign — My Wonderful World — is to improve the geographic literacy of young people ages 8-17 by motivating parents and educators to expand geographic offerings in school, at home, and in communities. A 2006 National Geographic-Roper geographic literacy study provided alarming evidence that Americans ages 18 to 24 — those who most recently

leaving the education system — still display a disturbing lack of basic geographic knowledge about the world. The My Wonderful World coalition is utilizing public-service advertising, promotional events, grassroots activities, and Web media to educate and motivate the public about the importance of geographic literacy. Some of the 20-plus coalition members include AAG, National Council for Geographic Education, ESRI, and World Affairs Councils of America.

Keywords: geographic literacy, sustainable development, education

Jane S. Pollard, Newcastle University. Email: J.S.Pollard@ncl.ac.uk; Cheryl McEwan, Durham University. Email: Cheryl.McEwan@Durham.ac.uk; Nick D Henry, Newcastle University. Email: Nick.Henry@ncl.ac.uk; *The non-'Global City' of Birmingham, UK: a gateway through time*

Recent years have witnessed numerous critiques of the concept of global cities from a variety of different perspectives. Alternative views point towards the benefits in attending to the diversity of urban experiences, propose alternative urban theories based on difference, 'ordinariness' and connectedness of cities, and broaden the scope of analysis beyond the economic. Drawing on such approaches, this paper explores the status of Birmingham (UK) as a long-established 'urban immigrant gateway city'. We begin by examining briefly the nature of gateway cities in the UK. We then consider Birmingham as a gateway city, using census and other data to demonstrate that it is an established gateway. Exploring Birmingham as a gateway city through time, we argue, following Ley (2004) and Smith (2001) that current patterns have their roots in specific urban and migratory histories that are, in turn, related to much older patterns of globalization. We thus highlight the importance of understanding gateway cities as constituted through (relations structured in) time and space. This provides a basis for understanding Birmingham as a contemporary gateway city, the socio-cultural impact of immigrants and their role in shaping the contemporary urban economy. Finally, we reflect on what this means for the gateway city concept, particularly in the UK context.

Keywords: Birmingham, cities, gateway, globalization, immigrants, time

Patricia E. Polo, . Email: poloalme@email.unc.edu; Carlos F. Mena, . Email: ; Stephen J. Walsh, . Email: ; Christine M. Erlien, . Email: ; Amy L. McCleary, . Email: ; Julie P. Tuttle, . Email: ; Laura Brewington, . Email: ; *Inputs, Drivers and Models of Land Use/Land Cover Change in the Northern Ecuadorian Amazon*

Relying upon longitudinal socio-economic survey of colonists, a community survey, a remote sensing image time-series and GIS coverages of resource endowments and geographic accessibility, land use/land cover (LULC) dynamics are examined in the Northern Ecuadorian Amazon, a region undergoing pronounced social and ecological changes that have implications for forest fragmentation, biodiversity, vulnerability of protected areas, food security, and the nature of interactions among diverse stakeholders. Framed within the context of a coupled human-natural system, the questions that motivate the research include: What are the reciprocal pattern-process relations between population change and landscape dynamics? What are the scale dependent and non-linear relationships among people, place, and the environment that influence LULC change patterns? Based on theoretical and analytical frameworks in the social, natural, and spatial sciences, different scenarios of actors and their interactions with changing environments are analyzed using a host of analytical techniques. Cellular Automata (CA) and Generalized Linear Mixed Models (GLMM) are used to generate spatial and statistical models used to examine the causes and consequences of LULC dynamics. Working in iterative time steps, the CA model determines the state of LULC based upon initial conditions, neighborhood associations, and growth or transition rules. The GLMM are used to examine the composition and spatial configuration of LULC types on household farms to assess the drivers of change and the degree of forest fragmentation.

Keywords: Ecuadorian Amazon frontier, land use/land cover change, land fragmentation, relationship human - natural systems, models.

Colin Polsky, Clark University. Email: cpolsky@clarku.edu; *Vulnerability Research at the Science-Policy Interface*

"Global Change Vulnerability" has emerged in recent years as an important topic in both the global change and natural hazards research literatures. The two communities view this topic slightly differently, but they share the same motivation and general goal: to understand, in order to reduce, human and material damages resulting from natural hazards. It is increasingly recognized that a precondition for achieving this goal is a concerted, sustained and productive interaction with stakeholders, i.e., where researchers work closely with not only the people whose vulnerability is to be reduced but also the people who exercise policy influence over the process. This idea is not new in social science (even though it remains somewhat controversial), but the idea has not been applied much in the "vulnerability" research domain. This paper first details this problem, second presents some recent vulnerability research where the stake-

holder interaction model is being followed, and third discusses methodological challenges associated with following the stakeholder-interaction model.

Keywords: vulnerability, science-policy interface, stakeholders, global change, mixed methodology

Alina Polyakova, University of California, Berkeley. Email: apolyakova@berkeley.edu; *Ethnic Entrepreneurship and the Socialist State: Russian Entrepreneurs in the United States*

Sociological research on ethnic entrepreneurship has focused almost exclusively on the study of non-white ethnic minorities with high rates of self-employment. As a result, theoretical approaches seeking to understand immigrant economic incorporation cannot explain why Russian immigrants tend to exhibit high rates of self-employment in comparison to other immigrant groups. Moreover, current immigration studies rarely encompass immigrants' sending countries in explaining entrepreneurship. I propose that to understand the full extent of entrepreneurial behavior among Russians in the United States, we cannot privilege the receiving country context over that of the sending country. This paper explores the relationship between Russian immigrants' tendency to become entrepreneurs in the United States and the socialist state structure of the Former Soviet Union (FSU). Analyzing interviews conducted with Russian entrepreneurs in Atlanta, GA, and in Moscow, Russia, I examine how the skills and knowledge acquired by individuals under state socialism influence entrepreneurial behavior. I argue that everyday practice in FSU, which involved innovative circumvention of economic shortages and bureaucratic obstacles, endowed individuals with the ability to perceive opportunity openings within constraining social structures. The resulting set of skills, or cultural "tool-kit," positively affects Russians' tendency to engage in entrepreneurship as immigrants in the United States and in the transition economy of post-Soviet Russia.

Keywords: Russia, entrepreneurship, socialism, immigration

Lars Pomara, University of Texas - Austin. Email: larspomara@mail.utexas.edu; *Environmental and Human Influences on Regional and Landscape Distributions of Bird Communities in the Peruvian Amazon*

This research assesses the biodiversity status of particular places as outcomes of multiple natural and cultural processes operating at multiple spatial scales. Causes of biogeographic diversity may include spatial and temporal variability in climate, soils, topography, interspecific interactions, and dispersal abilities. Additional complexity may be contributed by human influences including hunting, agriculture, and forestry. Surveys across variable forest landscapes in the western Amazon basin are used to test the relative influences of such factors on the geographical distribution of bird species assemblages, or species turnover. Measurable proxies used to test hypothesized causes of diversity include plant species composition, forest structural characteristics, elevation, location relative to major dispersal barriers (rivers) and biogeographic zones (ecoregions), distances among sites, and accessibility relative to local human settlements and regional markets. Associations are tested at both landscape and regional scales. Avian surveys were conducted at 12 sites in northeastern Peru during 2005 and 2006 in primary non-flooded forest. Results may indicate a complex situation in which different groups of bird species respond to different factors at different spatial scales. Plant species composition (driven by soil type), position in relation to the Amazon River, and human disturbance all appear useful in explaining differences in bird species composition. Because proxies for each of these factors are extractable from satellite imagery, it may be possible to partially predict community distinctiveness across wide areas at high spatial resolution for the purposes of conservation and development planning, subject to validation with new survey data.

Keywords: birds, peru, amazon

George M. Pomeroy, Shippensburg University. Email: gmpome@ship.edu; *Examining the Land Use and Community Planning Outreach Efforts of a Public Regional University*

Recently, attention has been focused on the "public purposes of public colleges" with respect to both scientific research and citizen education. This paper examines the Center for Land Use at Shippensburg University of Pennsylvania, a partnership effort involving the university, the Pennsylvania State Association of Townships (PSATS), Pennsylvania State Association of Boroughs (PSAB), the County Commissioners Association of Pennsylvania (CCAP) and the Governor's Center for Local Government Services. With the assistance of an Advisory Board comprised of local stakeholders that includes planning directors in a five county service region, the Center works to strengthen the university's contributions to regional development. These efforts are focused on land use and community planning, through faculty scholarship, consultation, education/training, and other forms of outreach and assisted through funding provided by the U.S. Department of Education.

Keywords: urban, land use, planning

Jennifer Pomeroy, University of Maryland at College Park, University of Maryland at College Park. Email: pomeroy9913@gmail.com; *Revisit Gottmann's "Megalopolis" by Remote Sensing Approach*

Since Jean Gottmann first coined the term "Megalopolis" describing continuous urbanized chain of cities on the northeast seaboard of United States, 45 years have passed and many changes have taken place within the region. This poster revisits "Megalopolis" as a region with using remote sensing application.

Keywords: Gottmann, Megalopolis, Remote Sensing

Robert Gilmore Pontius, PhD, Clark University. Email: rpontius@clarku.edu; Mang Lung Cheuk, University of Oklahoma. Email: mlcheuk@ou.edu; *A generalized cross-tabulation matrix to compare soft-classified maps at multiple resolutions*

This paper addresses two grand challenges in the development of methods for Geographic Information Science. First, this paper presents techniques to compute a cross-tabulation matrix for soft-classified pixels. Second, it shows how to compute the cross-tabulation matrix at multiple scales. The traditional approach to construct the cross-tabulation matrix uses a Boolean operator to analyze pixels that are hard-classified. For soft-classified pixels, the contemporary approach uses a Multiplication operator; the fuzzy approach uses a Minimum operator; whereas this paper proposes a multiple-resolution approach that uses a Composite operator. There are difficulties with the traditional, contemporary, and fuzzy methods of computing the cross-tabulation matrix. The proposed multiple-resolution method resolves those difficulties. Furthermore, the proposed method facilitates multiple-resolution analysis, so it can examine how results change as a function of scale. The paper derives the equations to compute cross-tabulation matrices at multiple resolutions and connects those equations to ontological foundations of GIS.

Keywords: accuracy, fuzzy, GIS, ontology, remote sensing, scale, statistics.

Jessie P. Poon, Ph.D., University at Buffalo-SUNY. Email: jesspoon@acsu.buffalo.edu; *Pluralist research, Intersubjectivity and the Internet*

Recent interest in reconciling paradigmatic distinctions in Geography has tended to occur at the level of methodology. In this paper, we propose reconciliation of alleged exclusive research domains at another level, namely that of positionality. We argue that the third person object and first person subject are interrelated and such an interrelationship is mediated by a second position intersubjectivity. We demonstrate the triangulation of the objective, intersubjective and subjective using examples from Internet research on the virtual interactions of economic communities.

Keywords: Internet, Positionality, Intersubjectivity

Barbara Poore, United States Geological Survey. Email: bspoore@usgs.gov; *Scientific information, technology, and emergent behavior during the hurricane seasons of 2004 and 2005*

In the very active hurricane seasons of 2004 and 2005, earth scientists at the US Geological Survey were called upon to provide technical and geographic information, traditionally produced to support the production of peer-reviewed assessments of coastal change, to a wide range of new and unexpected customers. These research projects combine cutting edge remote sensing technologies such as experimental Lidar systems, digital media such as film, and GIS. The overwhelming increase in the magnitude and frequency of storms in 2004 and 2005 combined with new communications affordances of the Internet to focus attention on scientific knowledge and made it easier for the media and the public to access this information directly in near real-time. At the same time these technologies allowed the scientists to communicate with peers and with federal, state, and local emergency managers in new ways. This talk presents work-in-progress on an ethnography of scientific information use in recent hurricane seasons. The hypothesis of this research is that new technologies grouped under the rubric of Web 2.0 (Google Earth mashups, wikis, blogs) support emergent behavior during disasters and that distributed GIS is being used in a variety of new ways to support emergency response and recovery. How scientists deal with these non-traditional roles and the blurring of boundaries between scientific knowledge and local knowledge will be interrogated.

Keywords: hurricane, hazards, information, GIS

Gregory A. Pope, Associate Professor, Montclair State University. Email: popeg@mail.montclair.edu; Jennifer Reynard, doctoral candidate, Montclair State University. Email: rockhound123@verizon.net; Walter Bien, Professor, Drexel University. Email: ; Matthew Goring, Associate Professor, Montclair State University. Email: ; *Fires and Pedogenesis in the New Jersey Pine Barrens: Preliminary Results*

Fire is a dynamic component of pine barrens ecosystems. While impacts of forest fire on erosion, sedimentation, and hydrology within geomorphic and soil systems are well studied, pedogenic factors are relatively unstudied. The sandy

parent material, acidic organic input, and complex hydrology all play an important role in the unique New Jersey Pine Barrens soils, yet there is little understanding of the impacts of regular and occasionally intense fires. Our initial studies look at physical, mineralogical, and chemical attributes in order to ascertain both short term and medium term (ca. 10s of years) signatures of fire-influenced pedogenesis. Our study site, in the vicinity of the Air National Guard Warren Grove Range and Preserve, is in the Pygmy Pine Plains of southern New Jersey, a unique ecosystem with dominating fire influence as well as a long history of forest management. In surface horizons, clay mineralogy, bulk chemistry, cation exchange capacity, and texture all appear to exhibit an immediate impact and shock to the soil system, followed by years of gradual stabilization until the next fire event. Ongoing studies will establish how fire-impacted surface attributes incorporate into lower horizons by illuviation. Pedogenic processes beyond ca. 100 years are difficult to ascertain, though the repeated fire frequency on top of rare catastrophic high-intensity burns may well have long term effect. Just as fire influences the ecosystem's temporal and spatial complexity, it stands to reason that the soil itself is at dynamic equilibrium with "pyrogenetic" factors.

Keywords: soils, pedogenesis, pine barrens, New Jersey, critical zone

Jeff Popke, East Carolina University. Email: popkee@ecu.edu; Rebecca Torres, East Carolina University. Email: torresr@ecu.edu; *The Antinomies of Neoliberal Transnationalism: Latino Migration and the Case for a Rural Cosmopolitanism*

Recent commentary has suggested that a deepening transnationalism can be potentially liberating or emancipatory. From one perspective, the transnational migrant is seen as challenging the hegemony of fixed borders and fostering a form of nomadic subjectivity that constitutes the multitude. From a different perspective, it has been suggested that transnational spaces are conducive to a cosmopolitan imaginary with the potential to foster greater responsibility toward different and distant Others. Both perspectives, however, are challenged by the realities of migration to rural areas. Using the example of the US South, this paper will examine the contours of neoliberal transnationalism in rural areas. We will argue that the rural South is witnessing a transnationalization of its population and economy but without a concomitant transnationalization of consciousness and responsibility. To redress this requires an ethic of rural cosmopolitanism, within which we can reclaim the economy as a site of responsibility and, on this basis, reposition the migrant as the subject of an ethics of hospitality.

Keywords: migration, transnationalism, rural, cosmopolitanism, US South, hospitality

David F Porinchu, Department of Geography, The Ohio State University. Email: porinchu.1@osu.edu; Glen M MacDonald, Department of Geography - UCLA. Email: macdonal@geog.ucla.edu; Katrina A Moser, Department of Geography - University of Western Ontario. Email: kmoser@uwo.ca; *High-Resolution Quantitative Reconstructions of Holocene Climate Change in the Central Canadian Arctic: Implications for Human Occupation*

The biological, physical and geochemical properties of sediment cores recovered from the central Canadian Arctic are used to resolve decadal to centennial-scale temperature variability and identify the impact of climate change on vegetation and people during the Holocene. More specifically, I am attempting to identify the impact climate change had on the Paleo-Eskimo community present on Victoria Island, Nunavut, Canada, approximately 4000 years Before Present. Based on the abundance of dwelling features found on well-dated former marine shorelines, it appears that Paleo-Eskimo populations in southwest Victoria Island experienced pronounced population rise between 4500 and 4000 yr BP, peaked between 4000 and 3800 yr BP and underwent a rapid and sustained decline in population within a few decades of 3800 yr BP. This decline was coincident with a widespread decline in late pre-Dorset occupation intensity throughout the Canadian Arctic. In this presentation I will discuss the role of climate change in the 'boom-bust' cycles in the Paleo-Eskimo population documented in the archaeological record of southwestern Victoria Island over the last ~5000 BP. A midge-based transfer function for summer surface water temperature (SSWT) has provided a robust model for estimating past fluctuations in SSWT. The current model is based on 51 lakes and has $R^2_{jack} = 0.690$ and a RMSEP = 0.62°C. I will present the results from the down-core reconstructions and discuss how post-glacial environmental change may have influenced human occupation history on Victoria Island.

Keywords: Holocene, paleoclimate, Arctic, chironomids

Alison Porter, Swansea University. Email: a.m.porter@swansea.ac.uk; Angela Evans, Swansea University. Email: A.Evans@swansea.ac.uk; *Spaces of engagement in action research*

This paper presents learning from a government-funded Sustainable Health Action Research Programme (SHARP) in Wales, UK, which worked with deprived communities to find new approaches to addressing the determinants of

health inequalities. It examines the spaces of engagement - houses, community centres and so on - where the programme staff drawn from those communities encountered other community members, and considers the symbolic, emotional and functional value of those spaces. The action research process which took place there brought together a range of orthodox and unorthodox research methods with action largely based on building social networks and finding new ways to promote healthy behaviours, in a complex and sometimes messy mix. The spaces of engagement - bounded, secure, under control, and the scene of manageable encounters - are nested within neighbourhoods where having a sense of place can mean identifying with a label of poor health status and deprivation, but which can also represent loyalty and belonging. The paper considers the means by which the programme moved from being a set of assumptions and expectations about a place to being a series of encounters acted out in the spaces of engagement. It discusses how this process was shaped both by community members' own ambiguous relationship with the place where they lived, and by their relationship with the action researchers who came from the same communities.

Keywords: action-research, health-inequalities, community, Wales

James Jonathan Porter, King's College London. Email: james.porter@kcl.ac.uk; *The co-production of fluvial modelling and flood risk policies?*

In 2006, the UK's Met. Office held a flood simulation exercise, to bring together the treads of science and policy. In a single moment, a dazzling array of visual props played out, blurring what constituted science, truth, and reality, as floodwaters engulfed London. Modelling, in this instance, promised to answer the government's prayers, the ability to produce clear and unambiguous answers to an open and indeterminate future. With this technology the state could engage in 'politics of uncertainty' and prevent the horrors of tomorrow from unfolding today. Over the last decade the UK has experienced number of major flooding events. The rising toll from these floods, and growing concerns over climate change, has prompted a major shift in UK flood policy, now emphasising 'softer' measures to reduce and manage floods. Technologies like the Environment Agency's Flood Map are promoted as ways to curtail climate change, by disciplining people's imaginations of 'risk', through the creation of responsible subjects. Here, modelling has become indicative of a changing governance of science, one that invokes a particular kind of science (commercial) and a particular kind of politics (neo-liberalism), in an attempt to shape a new 'public' that is not only enlightened but self-reliant. By exploring scientific practices and objects, this paper looks at the way science and politics are co-produced to reveal how knowledge-making is incorporated into practices of state-making, and equally how practices of governance influence the making and use of knowledge, bound up in the politicised world of science-policy.

Keywords: Modelling, Risk, Floods, Co-production, Uncertainty, Science, Governance

Jess C. Porter, M.S., Oklahoma State University. Email: jess.c.porter@okstate.edu; *Redefining the Dust Bowl: Popular Notions of an Event, Era, and Region*

The Dust Bowl is simultaneously recognized as event, era, and region in academic and public spheres. Divergent perceptions of the three Dust Bowl concepts can be noted in any sample of Dust bowl literature as academicians have defined and refined these concepts over the past 70 years. Published Dust Bowl survivor accounts also suggest differing understandings of the Dust Bowl phenomenon in the general public. These accounts, however, provide only anecdotal evidence regarding the general public's perceptions and knowledge of an unparalleled episode of American geography and history. Furthermore, these accounts focus on the perspective of the Dust Bowl survivor, neglecting the perspectives and knowledge of later generations. Therefore, a systematic appraisal of public perceptions and knowledge through time provides a new and unique contribution to the body of Dust Bowl literature. This poster presents preliminary results of a questionnaire designed to examine Dust Bowl knowledge and perceptions. The questionnaire was administered to individuals from four age cohorts in 93 Dust Bowl counties. The results detail striking differences in knowledge of the Dust Bowl as event and era and perception of the Dust Bowl as region. These differences are readily apparent along both locational and generational lines.

Keywords: Dust Bowl, environmental perception, region

Michael Porter, CUNY Graduate Center. Email: mporter@gc.cuny.edu; *A sustainability fix in the entrepreneurial city: Florida's brownfields and the historical specificity of environmental justice*

Over the past 15 years underused, abandoned, and contaminated properties known as brownfields have become the target of state-level redevelopment policies. Located in primarily low-income, minority, and urban neighborhoods, brownfields redevelopment has served as a cornerstone of the federal environ-

mental justice policy. This presentation investigates one state policy, the Florida Brownfield Redevelopment Act (FBRA), and argues that instead of reducing environmental inequities, FBRA transforms and displaces them. In order to understand this transition, however, it is necessary to situate FBRA in the context of the entrepreneurial city and urban governance in late capitalism. Faced with inter-urban competition and in hopes of attracting real-estate capital, cities are forced to roll-back existing environmental regulations. At the same time, a city's growth is contingent on the image of a clean and safe environment. Government in the entrepreneurial city is thus faced with the contradictory needs for economic growth and sustainable development. Environmental policies crafted to assuage this tension never fully resolve the dilemma but serve as only partial and temporary solutions. Brownfields policies, like FBRA, are one such "sustainability fix" (While et al 2004). Contrary to claims that brownfields policies reduce environmental risks in poor and minority neighborhoods, FBRA enables developers to contain, rather than remediate, existing contamination. As such, environmental inequities are not reduced, but re-produced in new forms. By examining the ways that environmental injustices emerge within the entrepreneurial city, this presentation extends claims of contextual specificity by arguing that environmental injustices not only vary between places but change in time.

Keywords: Environmental Justice, Brownfields, Urban Geography, Urban Political Ecology

Trevor J. Porter, Carleton University. Email: tjporter@connect.carleton.ca; Michael F.J. Pisaric, Carleton University. Email: mpisaric@ccs.carleton.ca; Steve V. Kokelj, DIAND. Email: kokeljsv@inac-ainc.gc.ca; A dendroclimatic investigation using ring-width, carbon-13, and oxygen-18 of white spruce trees (*Picea glauca*) in the Mackenzie Delta, NWT, Canada

The Mackenzie Delta in northwestern Canada is an ecologically significant and climatically sensitive region. Because of the hydrologic regime of the delta, forest fires are a rare occurrence and, thus, the opportunity exists to develop long proxy records of climate from trees in this region. White spruce trees growing in the delta are typically long-lived because of the lack of disturbance. The Carleton University Paleoecology Laboratory has developed a number of well replicated ring-width chronologies spanning the past 500 years from this region. One of these site chronologies (Timber) covers the period 1529 to 2003 and was developed using sixty increment tree cores from thirty trees. A subset of cores (six cores) from Timber was analyzed for annual-resolution carbon-13 and oxygen-18 isotope ratios for the period 1850-2003. Statistical relations between the three proxies and climate were examined over the period 1957-2003, for which detailed meteorological data from the Inuvik climate station are available. Carbon-13 was found to be highly correlated with maximum growing season (June/July/August) temperatures, while oxygen-18 is highly correlated with minimum December-July temperatures. Relative humidity during the growing season was also significantly correlated with both isotopes. These results reflect the dependence of carbon-13 on environmental conditions which affect stomatal conductance of trees during the growing season, and the dependence of oxygen-18 on environmental conditions which affect the isotopic composition of source and plant water throughout the year. In these trees, standard ring-width was not found to be as sensitive an indicator of climate compared to the isotopes.

Keywords: Mackenzie Delta, stable isotopes, tree rings, dendroclimatology

Christopher W. Post, University of Georgia. Email: cpost@uga.edu; Contestation, Race, and the Memorialization of John Brown in Kansas

The memory of Kansas abolitionist John Brown has been highly contested since his death in 1859. Many citizens have praised his abolitionism and freeing of slaves while others have ridiculed him for his violent tactics. Still Brown's behavior in Kansas has permanently linked him to the state. This past is reified through the cultural landscapes of the John Brown State Park in Osawatimie, a statue of him in the African American neighborhood of Quindaro in Kansas City, and his depiction in John Steuart Curry's mural in the Statehouse in Topeka. This paper discusses these landscapes, their contestation, and how race has played a role in their development and identity with John Brown and his tenure in Kansas during the state's territorial period. Tourism revenue and invention of tradition together with the aforementioned concepts of race and identity have influenced the memorialization of Brown in Kansas

Keywords: Cultural landscape, memorialization, identity, Kansas

Tracey J. Potts, University of Nottingham. Email: tracey.potts@nottingham.ac.uk; Floral Tributes: Emotional Geographies of Traumatic Loss

Material practices around bereavement are changing. The laying of wreaths and flowers can be seen increasingly to spill beyond the cemetery and into public space. Occasioned usually by "bad" deaths' floral tributes form an ever more established element in the popular repertoire of emotional expressiveness around traumatic loss. Such spillage is itself the site of emotional expressivity as those

who object to the 'cluttering up' of the landscape refer vociferously to outbreaks of 'sentimental hysteria'. Floral tributes, for some, constitute signs of a generalised sentimentalisation of culture. Epitomised by the public response to the death of Princess Diana, so-called 'outpourings' of grief expressed with flowers and teddies become readable as aesthetic evidence of a chronic cultural malaise, marking a rising tide of bad taste. This paper views floral tributes otherwise: as nodal points in emotional geographies of traumatic loss and as forms of vernacular creativity. Roadside shrines constitute emotionally charged landmarks that breach the mundane landscapes of the everyday. Further, for the passer-by, the chance encounter with the scene of a stranger's death offers a potential experience that punctures the complacent fictions of metropolitan living. Rather than effect rational and emotional distance, pausing to register the pain and losses of others proffers the promise of an end to a certain form of loneliness. Following Norbert Elias' definition of the lonely the symbolic violence (Bourdieu) that structures 'moral' objections to floral tributes is reconfigured as an ethical issue pertaining to the ability to feel and to connect as human beings.

Keywords: emotional geography, vernacular creativity, death, loneliness

Michael Poulsen, Associate Professor, Macquarie University. Email: mike.poulsen@mq.edu.au; Ethnic Segregation and Social Mobility: Determinants of Segregation Outcomes

What we need in segregation studies is not the endless development of yet more segregation indices, but the utilisation of established measures that challenge the policy perspective that the geography of segregation is simply a contextual matter. One approach that is well suited to producing extensive measures that are comparative is the PJF (Poulsen, Johnston, and Forrest) typology. Not only does it make more use of the information contained in the census data than the traditional segregation indices, it provides both aspatial and spatial measures of segregation, including the mapping of segregated areas. By linking this methodology to the study of social mobility we can address the issue of whether the geography of segregation is important in a policy context.

Keywords: Ethnic Segregation Social Mobility

Joseph B. Powell, U.C. Santa Barbara. Email: jpowell@lsu.edu; Wine Regions and Edible Landscapes: An Example from the Vinho Verde Region of Northwest Portugal

In this paper I use the concepts of hybridity and socionatural landscape production to explore the notion of the wine region as a socionatural process understood through the theoretical construct of the "edible landscape." The edible landscape refers to both a physical setting and the social relations between humans and non-humans that are co-produced in dialectical relationship with this setting and which render it consumable and reproducible through food. A focus on the edible landscape of northwest Portugal, home of the "vinho verde" region, reveals wine regions as unfolding within the broader socionatural networks of food production and consumption in which wine-related activities are embedded. In this case, the key processes include cultivation, harvesting and consumption of maize (*Zea mays* L.), a companion crop to wine grapes in northwest Portugal. In the context of the edible landscape framework, wine regions can be understood as a specialized subset of routines, practices, knowledges and social relationships within wider geographies, or landscapes, of food production and consumption. This perspective allows the analysis and interpretation of wine regions to account for "non-wine" actors and processes that nevertheless play a functional role in producing wine regions. The paper illustrates and elaborates on these points with visual data from ethnographic fieldwork in the Sousa Valley of northwest Portugal.

Keywords: edible landscapes, socionature, vinho verde, northwest Portugal

Gareth Douglas Powells, Durham University. Email: g.d.powells@yahoo.co.uk; Domestic Energy Efficiency in the UK: Ontological Politics in the New Carbon Economy

It is estimated that four million British households will be in fuel poor in winter 2006/2007 (NEA 2006), and that around 29,000 over 65s died as a result of living in cold damp homes in winter 2005/2006 (Help The Aged, 2006). At the same time, domestic energy use is responsible for 27% of UK carbon dioxide emissions (Friends of the Earth, 2005). This paper uses contemporary thinking in actor-network theory (ANT) and non-representational theory to consider domestic energy efficiency in a landscape in which governmental interventions attempt to reduce carbon emissions as well as save lives. Policy responses to energy efficiency in the UK are largely framed by cognitive as well as non-cognitive experiences of 'the market' and go on to perform the market in interventions such as the Energy Efficiency Commitment. Energy ethics are questioned by moving away from caricatures of environment, social equity and commercial interest being in antagonistic opposition to consider how they are mutually enmeshed in actor-networks. These hybrid actor-networks gather space, resources, knowledges and affects, opening up new worlds of opportunity for

researchers, politicians and people. Among the results are a series of ethical questions around the new carbon economy. These dilemmas are considered with reference to 'ontological politics' (Mol, 1999; Law, 2004) which asks social scientists to consider their creative role in generating worlds such as the new carbon economy.

Keywords: energy efficiency, domestic CO₂, ontological politics, Actor-Network Theory, fuel poverty.

John M Power, NOAA/CSC. Email: john.power@noaa.gov; Providing Inundation-Related Support to Coastal Communities

Working to enhance the resilience of coastal communities to storm surge inundation and flooding, the NOAA Coastal Services Center is building decision-support tools focused on visualizing and mapping coastal inundation. In addition, the Center is developing a Coastal Inundation primer to serve as a source for inundation-related resources. The coastal surge model is being built using the Advanced Circulation Model (ADCIRC), a finite element model for solving time dependent, free surface circulation and transport problems in two dimensions. An unstructured grid was created to include higher resolution in shallow coastal areas near channels, inlets, and beachfronts as well as to indicate the natural and built environments as obstructions to flow. The model will be calibrated to reproduce the water levels recorded during Hurricane Ivan. This Gulf of Mexico project covers the areas impacted by Hurricane Ivan (2004) and includes communities in the Pensacola Bay, Florida, to the Mobile Bay, Alabama. The model results will be validated with high water marks collected after Ivan and inundation maps developed by FEMA (FEMA Flood Recovery Maps, 2004). Model output will be displayed as 2D or 3D depth of water over land surface visualizations, in a GIS and as high-end animations. The primer will provide a one-stop source for such things as tools developed by the Center to assist coastal communities, information relating to tsunamis, high waves, flooding and storm surge, such as tutorials and resource guides, and links to hurricane evacuation studies and hurricane evacuation zone maps.

Keywords: gis, storm surge, coastal inundation, models

Steven D. Prager, University of Wyoming. Email: sdprager@uwyo.edu; Representation and Analysis of Complex Networks for Understanding Geographic Phenomena

Many significant advances in understanding complex geographic phenomena can be attributed to advances in representation. At the same time, however, issues of representation are almost inevitably bound to the geography of location. An alternative perspective, the explicit characterization of the geography of interactions and relationships, is required to make the leap from analysis centered about where things exist to analysis addressing the consequences in changes in that existence. The limited dimensionality of Euclidean space and the relatively strict set of entity-relationship rules imposed by even the most sophisticated spatiotemporal data models still embody explicit assumptions regarding the geography of location and its role in defining the spatiotemporal process. Moving beyond limitations in current GIS requires a perspective that moves away from a focus on structures and refocuses on explicit consideration of relationships, process and concepts. This paper illustrates how complex network theory and related representations can be used to significantly enhance our understanding of relationships and interactions occurring across geographic space. A case study of the United States domestic airline transportation network will be used to illustrate the concept of functional geographies, how these geographies exist and change within the context overlying networks, and how complex network theory can contribute to a greater understanding of geography in general. Using the aforementioned example, this paper will address the integration of complex network analysis with GIS, issues relating to geographic visualization, and existing libraries for construction, visualization and analysis of complex networks.

Keywords: complex networks, geocomputation, GIS, interaction, spatiotemporal

Kathryn Pratt, University of Minnesota. Email: prat0033@umn.edu; Reaching Through the Fog: Ambiguities and Tensions in the Development of Community-based Forest Conservation in Chile

In recent years the temperate rainforests of southern Chile have been declared a critically endangered ecosystem by international environmental organizations. This "threatened" status has spawned a plethora of new forest conservation and management programs. These range from grassroots efforts to sustainably harvest forest resources to large-scale forest reserves funded by northern NGO's. A common thread in most programs is a profound commitment to community development and involvement. Though enthusiasm for "community-based" approaches remains high, they occupy an uncertain place in national environmental policies, local and international resource economies, and NGO politics. Specifically, community forest conservation efforts have been challenged by an inadequate policy framework, the regional dominance of industrial

forestry, new and diverse forms of collaborative conservation, and conflicting conceptualizations of human-forest relationships. Drawing on case studies, this paper explores the tensions and ambiguities that have characterized the growth of community-based forest conservation in Chile. I argue that new ways of describing and implementing meaningful collaboration are necessarily for successful local involvement in conservation.

Keywords: Community, Conservation, Forestry, Chile

Rhea Presiado, PhD, University of Wisconsin - Platteville. Email: presiador@uwplatt.edu; Wayne Weber, PhD, University of Wisconsin-Platteville. Email: weberwa@uwplatt.edu; Morphologic and Genetic? Body size variation along a latitudinal gradient for the smooth brittle star.

Brittle stars (ophiuroids) have a cosmopolitan distribution, however few studies have investigated their genetic variation along large latitudinal gradients. This study investigates the link between genetics and latitudinal variation in body size of the brittle star *Ophioplocus esmarki* (Lyman 1875) from California and Baja California. Body size data were collected from 532 individuals of *O. esmarki* at 24 research sites from 36°N at Santa Cruz, California south to 27° N in Bahía Asunción, Mexico. The genomic content (DNA from 86 individuals) of *Ophioplocus esmarki* was analyzed and compared. We believe that the genetic variances within these sequences and our DNA analysis will allow us to explain some of the differences in body size between *O. esmarki* populations in geographically distant locations.

Keywords: marine biogeography, genetic variation, DNA, Pacific coast

Valerie Preston, York University. Email: vpreston@yorku.ca; Ann Marie Murnaghan, York University. Email: amfm@yorku.ca; Audrey Kobayashi, Queens University. Email: kobayasi@post.queensu.ca; Immigrants in the Suburbs: The Impacts of Transnational Social Fields

Recognition of immigrants' efforts to maintain simultaneously social ties and social identities at their places of origin and destination is challenging current explanations of the spatial patterns of immigrant settlement. Unprecedented numbers of international migrants are settling directly in the suburbs of North American cities. The residential decisions that underpin the current suburbanization of immigrants are not well understood. Recent immigrants have been characterized as suburbanites seeking the advantages of new and spacious housing in suburban environments. Others have emphasized that recent immigrants' transnational connections facilitate new residential and commercial concentrations of immigrants in suburban locations. We explore the nature and causes of suburbanization by case studies of recent Hong Kong immigrants in Toronto, Canada. More affluent and better educated than earlier migrants, Hong Kong immigrants are pioneering transnationals who have concentrated in unprecedented numbers in the Toronto suburbs. Focus groups and in-depth interviews with immigrant women highlight the impact of transnationalism on residential decisions and the appeals of suburban housing.

Keywords: transnational migration, immigrant settlement, suburbs

Robert Preston-Whyte, Professor. Email: preston@ukzn.ac.za; Catherine Oelofse, lecturer. Email: oelofsec1@ukzn.ac.za; Coastal resort development in South Africa

The recent history of coastal resort development has been one of intense property speculation and investment in new, reviving and previously 'undiscovered' areas, as well as progress in conservation environments geared towards community involvement. The increasing demand for holidays in coastal towns and cities, the ongoing construction of holiday homes in coastal resorts, new 'economy' developments in previously undeveloped areas and the accelerated provision of state-managed and community-driven ecotourism experiences in wildlife conservation areas, are explained by 'drivers' that initiate the creation of the bustling waterfronts, the search for new lifestyles, the rejuvenation of stagnating resort towns, the conservation of pristine wilderness shorelines, the shaping of community-based tourism ventures in tribal areas and the search for undiscovered locations. The discussion of these drivers is structured in relation to (a) increased domestic and international demand for the consumption of coastal resources, (b) improved linkages to the global economy, (c) increased levels of expendable income, (d) shifts in quality of life expectations, (e) government insistence on policies of economic redistribution constructed around the notion of 'responsible tourism' and (f) the quest for authenticity. Coastal tourism resorts are then shown to have a variety of faces that reflect global trends, meet different needs, respond in new ways to political visions, adjust to the racial transformation of society and accommodate increasing levels of expendable income.

Keywords: coastal resorts, drivers, communities, rejuvenation, authenticity

Donovan Preza, University Of Hawaii. Email: preza@hawaii.edu; Donovan C Preza, University of Hawaii?i at Manoa - Geography. Email: preza@hawaii.edu; *Hawai'i's Great Mahele - Between a Rock and a Hard Place*

The Mahele of 1848 represents a transition from the "traditional" feudal-like governance to a freehold system of land tenure. This occurred 28 years after the arrival of missionaries but also only 5 years after Hawai'i was an explicitly recognized independent nation-state. The Mahele was effectively carried out using non-written knowledge systems. Many complications occurred following this division which led to the use of "western" style paper maps and surveying techniques. A majority of academic scholarship on the Mahele perceives the Mahele negatively, more specifically as a means of dispossessing the Hawaiian people. This presentation will contextualize the Mahele to determine if dispossession did in fact occur as a result of the Mahele. If Hawaiians were not materially/physically dispossessed of lands as a result of the Mahele, then the interaction between the "West" and the "Other" may not have been as one sided as previously argued. This could have significant implications for other issues such as human agency, methodology, notions of dispossession, and logical fallacies of causation in the context of Hawaiian Political Geography. The Mahele represents a complex place of interactions between "traditional" Hawaiian knowledge systems and other "Western" forms. It is viewed as a progression from the "traditional" to "western" articulations of land tenure. This is an attempt to articulate a perspective of that interaction.

Keywords: Hawaii, map, land, land tenure

Katie Price, University of Georgia. Email: kprice@uga.edu; *Effects of forest conversion on baseflows in the southern Blue Ridge: A cross-landscape comparison of synoptic measurements*

Basin forest cover is understood to influence stream baseflow in a variety of ways, most significantly via increased soil infiltration and increased evapotranspiration (ET). Extensive forestry experimentation has consistently demonstrated a negative relationship between forest cover and baseflow, attributed to ET losses associated with greater forest cover. However, it is unclear whether this relationship can be extrapolated to larger spatial and temporal scales. Spatially, larger basins may contain greater subsurface storage capacity, potentially overriding the effects of ET losses on baseflow and contributing to a positive relationship between forest cover and baseflow. Temporally, non-forest land uses may be associated with pronounced soil modification, reducing infiltration and baseflow discharge, again resulting in a positive relationship between forest cover and baseflow. This study addresses the relationship between forest cover and baseflow in mesoscale sub-basins of the upper Little Tennessee River basin in Rabun County, Georgia and Macon County, North Carolina. Ten pairs of basins ranging from three to 33 km² were created by aligning key physical traits (e.g. basin size, aspect, and total relief), while allowing forest cover to differ within the pairs. Three series of synoptic measurements were conducted in July and August, 2005. In most pairs, greater baseflow per unit area was associated with higher forest cover, and an overall positive relationship was demonstrated between forest cover and baseflow among all twenty sub-basins.

Keywords: baseflow, low-flow, watershed hydrology, water quantity, Appalachian, mountain streams

Kevin P. Price, Dr., University of Kansas. Email: price@ku.edu; Jonathan B. Thayne, University of Kansas. Email: jonthayne@ku.edu; Fangfang Yu, University of Kansas. Email: fangfangyu@hotmail.com; Matthew E. Ramspott, Dr., University of Kansas. Email: merampott@frostburg.edu; Derrick W. Voisey, University of Kansas. Email: dwvoisey@gmail.com; Jude H. Kastens, University of Kansas. Email: jkastens@ku.edu; Loretta C. Johnson, Dr., Kansas State University. Email: johnson@ksu.edu; *Estimating Cover of Red Cedar and Modeling its Invasion Patterns in a Central Great Plains Tallgrass Ecosystem*

Conifer red cedar (*Juniperus Virginiana*) is a native and widely distributed tree species in the eastern Great Plains. Of all the woody species invading into the tallgrass prairie, red cedar may pose a greater threat than other invading species since it thrives on both lowland and upland area, and its evergreen growth-form allows it to more effectively compete for soil moisture and nutrients. Over the past several decades, invasion of red cedar into the tallgrass prairie has been widely documented and has raised concerns of land managers because the growth of the woody species can adversely affect grazing productivity. Furthermore, its invasion into the grasslands can alter biogeochemical and biophysical processes, trace gas fluxes, biodiversity, and consequently change vegetation climate interactions. The goal of this study was to develop remote sensing methods for mapping changing tree distribution patterns and estimating percent cover. Methods used for estimating cover, and animations of tree distributions over a 15 year period will be discussed and demonstrated. A linear spectral mixing model approach was used to map tree cover. Our model was validated using e-Cognition classification of multispectral high spatial resolution

airborne imagery. This approach was found promising for mapping the cover of this species over large geographic regions. A leaf-off imaging period was best for discriminating red cedar from other land cover types. Our findings support the thesis that red cedar geographic distribution is expanding and the density of the trees is increasing at an alarming rate.

Keywords: red cedar, remote sensing, spectral mixing model, invasive plants

Marie D. Price, George Washington University. Email: mprice@gwu.edu; *Immigrant Gateways and Guest Workers: The Case of Dubai, UAE*

This paper documents the remarkable growth of Dubai as an immigrant destination and gateway in the Persian Gulf. In terms of large cities, over 80 percent of Dubai's population is foreign-born, making it the highest percent foreign-born city in the world. The metropolitan area now has over 1 million foreign-born migrants. Workers are predominantly from South Asia, but as the Dubai economy grows and diversifies so does its immigrant population. This is a highly regulated system, with most workers arriving on three year contracts that can easily be extended indefinitely as long as a worker has employment. Yet immigrants are also seen as 'guests' with no access to permanence or citizenship. The permanence of temporariness is a fact of life for the majority of residents in Dubai. This raises important questions about the relationship between globalization, immigration, urbanization and citizenship. After reviewing the features of the migration system in Dubai, the paper will focus on three key aspects of that system: 1) the maintenance of temporariness, 2) spatial and social segregation of native and foreign-born, and 3) the balance between openness and control.

Keywords: Immigration, Gateways, Middle East

Patricia L. Price, Florida International Univ.. Email: pricep@fiu.edu; *Identity in Balance: The Shifting Grounds of Self and Community in Three Latino Enclave Neighborhoods*

The relationship between place and identity is explored in three Latino enclave neighborhoods: East Little Havana, Miami; Garfield, Phoenix; and Pilsen, Chicago. An interdisciplinary research team conducted extensive and intensive survey, interview, and focus group research with neighborhood residents from 2004 - 2006. Preliminary data analysis reveals similarities and differences amongst Latino/a residents within and across place. The scope and depth of the data gathered allow strong claims to be made regarding the relational and contingent nature of Latino identities within the category 'Latino', a term typically treated as monolithic. The data also allow strong claims to be made about similarities, and differences, across place. Because all three of the study neighborhoods are currently undergoing rapid socio-spatial transformation, the findings of this study have implications for many other U.S. cities also undergoing rapid change due to gentrification, urban revitalization, and international migration. These neighborhoods also provide timely sites of inquiry into issues surrounding the so-called Latinization of U.S. cities. Thus this study touches on key contemporary issues at the national scale: 'race', immigration, and belonging.

Keywords: Latino, urban geography, neighborhood change, 'race', immigration

Narcisa Gabriela Pricope, University of Florida. Email: npricope@ufl.edu; *Assessing Spatial Patterns of Sediment Transport in the Pitman Creek Basin, KY*

Off-site soil erosion has tremendous impacts on the present state of most river systems throughout the United States, contributing sediments to channels mainly as non-point pollution resulting from land-use and agricultural practices. A model that would be able to assess soil erosion needs to start by identifying the sediment sources and delivery paths to channels and link these sediment supply processes to in-channel sediment transport and storage. This study focuses on the Pitman Creek Basin and is concerned with analyzing hillslope erosion rates using The Unit Stream Power Erosion and Deposition Model and thereby estimating patterns of sediment supply to rivers in order to predict which portions of channel networks are more likely to store large amounts of fine sediments. Results indicate that much of the eroded sediments are redistributed within the hillslope system, but also that a large proportion is delivered to the channel. These predictions have been tested by sampling the fine sediment content of the streambed at key locations along the channel network and comparing the observed patterns to those predicted by the soil erosion model. By linking topographic and soil characteristics with land cover data, it has been concluded that high intensity erosion tends to occur at contact between different vegetation covers, on croplands and 15-25% slopes poorly protected by vegetation. Erosion "hot spots" have been identified in the Pitman Creek HUC 05110001-90-130 and 05110001-90-050, both part of the Big Pitman Creek sub-basin, as well as in Mill and Falling Timber Creek basins but with lower intensity.

Keywords: erosion and deposition rates, sediment delivery, streambed sediment content

Martin Pries, . Email: pries@uni-lueneburg.de; Martin Pries, PD Dr.. Email: pries@uni-lueneburg.de; *Against decline: The growing City of Hamburg.*

In order to compete with other leading world regions, the city of Hamburg continues to grow and to develop. City planners implemented three main concepts for urban renewal and rebuilding: The HafenCity, the cities leap across the Elbe and the sustainable redevelopment of urban quarters. Hamburg tries to stop the decline of the city and change the demographic decrease of population into a growth strategy. The HafenCity is one of the most ambitious urban development programmes in Europe. The city of Hamburg will be extended towards the River Elbe by approximately 40 percent. A new mixture of working, living and edutainment components will change the devastated port area into a vibrant neighborhood. The leap across the Elbe develops the city to the south. Over centuries Hamburg has been growing northwards of the River Elbe. The entire region south of the Northern branch of the Elbe was characterized by declining harbor facilities and now offers space for new cityprojects for the growing population. Small projects of a sustainable development in the city itself bring new quality of living into the urban core. Both concepts aim at a high quality of living, working and recreation in the city core in order to attract new residents as well as international companies and tourists.

Keywords: Growth Decline Cities

Russell Prince, University of Bristol. Email: russell.prince@bristol.ac.uk; *Policy transfer and techno-politics in creative industries policy*

The creative industries are a set of industrial and cultural sectors that have only recently been described, circumscribed and measured as part of today's economy and yet they are now a ubiquitous feature of economic development and regeneration strategies at various administrative scales all over the world. Their initial articulation in the British Government's 1998 Creative Industries Mapping Document has become the standard imitated by these other creative industry development projects. This work of assessing their impact on revenue, employment and investment has become the path to placing them near the centre of local and national economic strategy. This paper explores the processes by which this type of creative industries policy has moved from one place to another in two interlinked ways. For one, it will consider the forms that the policy takes when it travels. This includes textual forms, such as the mapping document, and embodied forms, such as in the expertise of particular academics and policy entrepreneurs. But it will also consider the role of techno-politics in making the idea travel - what is it about the knowledge wrapped up in creative industries policy that was appealing to those particular political actors that brought it in? In other words, it will consider how and where knowledge and politics intersect over the creative industries. The goal is to reveal some of the machinations behind policy transfer in advanced liberal societies.

Keywords: creative industries, policy transfer, techno-politics, knowledge

Katherine F Pritchard, Virginia Tech. Email: kpritch@vt.edu; Lisa M Kennedy, Virginia Tech. Email: likennel@vt.edu; John D Boyer, Virginia Tech. Email: joboyer@vt.edu; *A New Map to Promote Tourism in Virginia's Wine Region*

The Virginia wine industry wants to increase tourism to the area and continue to promote the over 100 wineries in the state. Maps are often used to promote tourism in wine regions, and show the location of wineries, the surrounding areas, and directions to the wineries. We are interested in determining the effectiveness of the map in terms of its goal of promoting tourism in the state's wine region, and we question the usefulness of the current Virginia wine industry's map for a tourist. The original map has several cartographic elements that do not follow cartographic principles, and it appears to be overwhelming and difficult for the reader to focus in on the important information. We propose to develop a new map that improves map readability and usefulness. Here we present the results of a preliminary survey of tourists of the Virginia wine region to discover the specific elements of the current map that tourists find confusing and awkward, and which elements they find useful. We will use the results to produce a tourist map that will excite the user and bring increased tourism to the wine industry of Virginia by using symbols, color, text, and photos, along with improving the legibility of the map. The improvements of the new map will be compared to the problematic elements in the current map.

Keywords: wine, cartography, tourism

Jain Priyanka, PhD, University of Kentucky. Email: pjain2@uky.edu; *Embodied State in Central Vista: Public Space, Discipline and Corruption*

The literature on public space has constructed its ideal model as a political, democratic landscape, a sphere of critical discourse accessible to all, an arena in which power dynamics are minimal. I develop an integrative framework by connecting three major connotations of public space to study Central Vista, a monumental public space in New Delhi. These connotations are: public space as

physical property of the state; public space as a semiotic democratic landscape; public space as a sphere of rational critical discourse where the citizens of the country experience national solidarity. The ethnographic field work helps me trace three kinds of encounters with the state in Central Vista: state as abstract monolithic entity, state as embodied and state as a regulating body. In this work I highlight different ways in which the state governs at micro level and challenges publicness of public space. This particular case study goes beyond reflecting the problematic of presence in public space that has been constructed in segregational and exclusionary terms. I attempt to show that the misrecognition of socially embedded subjects as the absolute embodied state thereby creating spaces of economy of corruption.

Keywords: State, Public Space, Embodiment, corruption, Discipline, Law, India, Delhi, India Gate

Kim L Procter, University of Leeds. Email: kimprocter@yahoo.co.uk; *How where we live influences obesity: a geo-demographic classification of obesogenic environments using spatial microsimulation modelling*

Obesity has a complex, multi-factorial aetiology; therefore, to stem the epidemic, we need to consider which combinations of risk factors are most obesogenic. This paper explains how SimObesity, a dynamic spatial microsimulation model, was built and how it facilitates the identification of obesogenic environments. SimObesity combines the outputs of the UK 2001 census with the Health Survey for England 2003 data using deterministic algorithms. The resulting synthetic micro-population has lists of attributes from both information sources. These household attribute lists can be expanded to incorporate other variables of interest, e.g. television viewing time, using probabilistic algorithms. Validation methods are discussed. Finally various characteristics about each neighbourhood, e.g. green space access, are added to the lists. The resulting dataset enables identification of clusters of attributes that are particularly obesogenic. Increased understanding of obesogenic patterns facilitates effective policy formation to reduce obesity prevalence. These suggested policies can then be theoretically evaluated using a dynamic version of SimObesity. The upgrade uses estimates of the 2011 and 2021 census in place of the 2001 census outputs and changes any attributes affected by the policy (e.g. more green space in some neighbourhoods). The resulting synthetic population reflects the prevalence of obesity as impacted by both the future population structure as well as by the policy changes. This paper demonstrates a methodology to predict micro-level obesity prevalence and highlight the most obesogenic neighbourhoods, thereby improving policy formation. SimObesity also has implications for policy evaluation, assessing the likely future impact of policy change at the local level.

Keywords: dynamic spatial microsimulation, obesity, small area population forecasting, obesogenic environments, policy formation and evaluation, GIS

Jodicus Prosser, Texas A&M University. Email: wayneprosser@yahoo.com; *Bigger Eyes in a Wider Universe: The American Understanding of Earth in Outer Space, 1893-1941.*

Astronomers, who have access to large telescopes, strongly influence the way others imagine the structure of the universe and the location of Earth in the cosmos. Their theories, drawings, photos, and interpretations are privileged and have become the dominant force in shaping the accepted view of the universe. This paper traces the history of American astrography (attempts to draw and explain the structure of outer space) between 1893 and 1941. Cartographic representations of outer space, popular science and astronomy journal articles, annually published atlases, newspapers, and astronomy textbooks are analyzed to reveal the American understanding of outer space. During the study period, the accepted position of Earth's physical location in the cosmos changed from near the center of a modest stellar system to the edge of a large and remote galaxy in an endless sea of similar galaxies. Three alterations within the cultural landscape of the United States provided the catalysts for this change. First, the acquisition of funds by astronomers from wealthy individuals allowed the development of larger, more sophisticated telescopes. Second, the movement of the base of astronomical research from America's core region to California allowed for new concepts and invoked new imaginings. Third, the introduction of overarching scientific theories, such as Einstein's "relativity", fostered conformity within the community of astronomers. These socio-cultural changes led to a widely accepted and radically new understanding of the universe.

Keywords: astronomy, astrophysics, cosmology, telescopes

Jesse S. Proudfoot, Simon Fraser University. Email: jproudfoot@gmail.com; *Interviewing Enjoyment: The Limits of Discourse in Psychoanalytic Methods*

This paper addresses the issue of how psychoanalytic methods and concepts can be used for conducting and analyzing unstructured interviews with research subjects. Drawing on my work as a research assistant over the summer of 2006, I discuss the process of conducting over 50 interviews with soccer fans attending

televised broadcasts of World Cup soccer matches in café spaces in Vancouver, British Columbia. Using questions designed to examine people's feelings about nationalism, ethnic identity, and consumption habits related to the World Cup, the research aimed at understanding how the Lacanian conception of enjoyment can be used to work through these concepts. Reflecting on the interview process, this paper discusses the inherent difficulties in capturing enjoyment through interviews and argues that enjoyment is best understood as intrinsically extra-discursive in that the loop of enjoyment breaks down when articulated and represented through speech. I argue that psychoanalytic approaches and methods which attempt to grasp enjoyment must therefore be attentive not just to how subjects represent their enjoyment through discourse but also to the spaces of tears, ecstatic chanting, and celebration which characterize the performance and enactment of enjoyment itself.

Keywords: Enjoyment, Psychoanalysis, Research Methods, World Cup

Erik Prout, Texas A&M University. Email: prout@geog.tamu.edu;
Republicanism, Rurality, and Texanité: county courthouse squares of Texas

Rural courthouses and their surrounding squares or plazas are often the commercial and social centers for their counties, but the actual sites contain numerous historical monuments and markers that can be interpreted for their political meanings. The State of Texas has recently appropriated significant funds for the preservation of county courthouses. Primarily, the funds are dedicated to the buildings as historical landmarks. Nevertheless, this in turn is fueling a reassessment and engagement with the past through landscape changes. New monuments and landscaping schemes are appearing in the square or plaza, which alter the immediate spaces around the courthouse. Three elements stand out: the identification of Republican partisanship, of rural folksiness, and of Texas chauvinism. I document and interpret these changes in the context of iconography and visual inventories for these landscapes. Preservation of county courthouses in Texas is providing an opportunity for communities to represent themselves in terms of actual landscape artifacts as well as engage in symbiotic representation.

Keywords: iconography, courthouses, rural Texas

Scott Prudham, Associate Professor, University of Toronto. Email: scott.prudham@utoronto.ca; *Hybrid Neoliberalism or Small Scale Socialism: What is Community Forestry Exactly?*

In 1998, the provincial government of BC introduced a pilot program to experiment with community forestry tenures. These are small area and volume-based tenures awarded to community groups, some of them First Nations, based on submitted proposals. Initially, seven proposals were approved and awarded 5 year licenses. The program has since been renewed, and the length of tenures has been extended. However, even a cursory review of these proposals indicates considerable diversity regarding the approach to community forestry undertaken by community groups and approved by the Ministry. This only confirms what many have been saying about community forestry, and community natural resource management for some time; CBNRM programs are politically ambiguous, and "community" is a vague word. Much depends on the specific relationships between local, regional, and national level states and civic groups, but also how the word "community" is actually interpreted and put into practice in the realms of forest management practices, forest governance, and forest commodity production. In this paper, I examine proposals obtained via Freedom of Information requests to evaluate the diversity of ways that community groups are operationalizing community forestry in BC. I use this to comment on how we can appraise this and other programs like it.

Keywords: Community Forestry; British Columbia; political ecology

Michael Pryke, Open University, Senior Lecturer. Email: m.d.pryke@open.ac.uk; *'Total market vision': the application of visualisation software to financial markets*

The world of modern finance is awash with data. These data range from official figures published by the likes of the Federal Reserve and the IMF, real-time market data from market exchanges such as Chicago Board of Trade, to news and market reports supplied by 'secondary economy' suppliers such as Reuters and Bloomberg. The data relate to market fundamentals and variables that constantly worry 'the markets'. In effect the data flows reduce a host of spatialities and temporalities to supposedly easily digestible numbers that stream into financial organizations and which may then be acted upon by calculative agencies. Yet while the growing availability of market data has benefits it creates another problem: how to make sense of such continuous flows - how to see the 'market' and the future. The solution lies, supposedly, in the design and application of visualisation software. Based on recent interviews with those involved in developing and using the latest visualisation software, this paper adopts a cultural economy of finance perspective to examine the implications of this cutting edge innovation and suggests how visualisation techniques empower modern finance with fresh eyes designed to interpret and manipulate data and

thus to enable participants 'to see more and understand faster'. The visualisation of financial data not only raises issues about the visual in cultural economic debates about the preparation and workings of financial markets, it is, as the examples in this paper argue, central to understanding how finance gains its latest power to spatialise.

Keywords: visualisation, cultural economy, financial markets

Norbert P. Psuty, Rutgers University. Email: psuty@imcs.rutgers.edu;
Sara Stevens, National Park Service. Email: Sara_Stevens@nps.gov;
Dennis Skidds, National Park Service. Email: Dennis_Skidds@nps.gov;
Tania Silveira, Rutgers University. Email: tanyasilveira@hotmail.com;
Monitoring Shoreline Change in the Coastal National Parks, North Atlantic Region

The Inventory and Monitoring Program of the National Park Service is undertaking the development of standardized methods to record and analyze shoreline change in the four coastal parks in the North Atlantic Region. The scientific basis of coastal geomorphological change is driving methods of shoreline change data gathering. Standard Operating Procedures are being developed to direct the techniques of monitoring and organization of the data. One-, two-, and three-dimensional data sets are being collected. The end product is a data base that will have scientific as well as management applications.

Keywords: Coastal change, GIS, GPS, protocol development

Ruiliang Pu, PhD, University of South Florida. Email: rpu@cas.usf.edu;
Peng Gong, PhD, University of California at Berkeley. Email: gong@nature.berkeley.edu; Yong Tian, PhD, University of Massachusetts-Boston. Email: Yong.Tian@umb.edu; Xin Miao, PhD, Missouri State University. Email: XinMiao@missouristate.edu; Raymond I. Carruthers, PhD, USDA, Agricultural Research Service. Email: ric@pw.usda.gov; Gerald L. Anderson, PhD, USDA, Agricultural Research Service. Email: ganderson@sidney.ars.usda.gov; *Invasive Species Change Detection Using Artificial Neural Networks and CASI Hyperspectral Imagery*

Because of natural and anthropogenic processes, Earth's surface features frequently change their state at a range of spatial and temporal scales. Therefore, timely and accurate change detection of Earth's surface features provides us with the foundation of understanding relationships and interactions between human and natural phenomena to better manage and use resources. For monitoring and controlling the extent and intensity of an invasive species, in this paper, a direct multi-date image classification method was applied in invasive species (saltcedar) change detection in the study area of Lovelock, Nevada, with multitemporal Compact Airborne Spectrographic Imager (CASI) hyperspectral data sets. Two types of hyperspectral CASI input data and two classifiers have been examined and compared for mapping and monitoring the saltcedar change in the study area. The two types of input data are all two-date original CASI bands and 12 principal component images (PCs) derived from the two-date CASI images. The two classifiers are an artificial neural network (ANN) and linear discriminant analysis (LDA). The experimental results indicate that (1) the direct multitemporal image classification method applied in land cover change detection is feasible either with original CASI bands or PCs, but a better accuracy was obtained from the CASI PCA transformed data; (2) with the same inputs of 12 PCs, the ANN outperforms the LDA due to the ANN's non-linear property and ability of handling data without a prerequisite of a certain distribution of the analysis data.

Keywords: data, invasive species, saltcedar, change detection, ANN, LDA

Jasbir Puar, Rutgers University. Email: jpuar@yahoo.com; *Biopolitical Intimacy*

The 2003 Lawrence and Garner v. Texas ruling that decriminalized sodomy in the U.S. has been hailed by many queer theorists as a victory and an incitement to other kinds of policing and regulation of sexual subjects by other commentators. However the impact of Lawrence-Garner will be rendered most forcefully not only in terms of the sexual subjects it liberates, but also in terms of the spatial politics of race and racialization it imposes or reinforces (through explicit and implicit mobilization of homophobic-racist stereotypes). Thus this 'new regime of heightened regulation of homosexuality' (Nan Hunter) must be understood in conjunction with, not separate from, profiling, surveillance, and information technologies currently in use. Considering the contemporaneous consolidation of a new racial population, implicating Arabs, Muslims, and South Asians and those 'mistaken' for them (perhaps most aptly termed 'terrorist-look-alikes'), the impact of Lawrence must be examined in the context of this intensely-charged racial atmosphere which persists in redefining again and again the contours of racial markings not only in relation to a dominant white American formation, but also amongst people of color themselves. If we examine the re-spatialization due to government practices of indefinite detention, there is both a perverse homosexual othering at work in the construction of the terrorist detainee, as well as a vast widening of the gulf that

fissures heterosexuality and heteronormativity.

Keywords: sexuality, detention, sodomy

Janet Puhalla, Missouri State University. Email:

jpuhalla@missouristate.edu; Notes from the field: Combining Research and Service Learning in Tanzania

The purpose of the field course was for the students to experience first hand sustainable development and conservation issues in Northern Tanzania. The field study was an extension of a semester long course on Sustainable Development and Conservation in East Africa. Students spent two weeks in Tanzania learning about conservation and wildlife issues, and education, health, and livelihoods of the Maasai in Northern Tanzania. To make the trip more interactive with the local community, students participated in an organized one-day service learning project at an elementary school, conducted personal interviews of the staff working at an eco-tourist/community based retreat, and made visits to a local school and hospital. Students were required to complete research on a previously chosen topic and to submit a reflection journal of their experience at the end of the trip. The outcome of student learning as shown in their research projects and journals will be presented. Comments from student journals reveal that the service learning component and interaction with the local communities clearly made an impact on the students' perception of sustainable development and wildlife conservation issues.

Keywords: Africa, service learning, sustainable development

Nancy Hoalst Pullen, Kennesaw State University. Email:

npullen@kennesaw.edu; Robert F Stallard, PhD, USGS. Email: rstallard@colorado.edu; Correlating tropical soils to soil hydrology: A fine-scale approach

Many tropical soil hydrology studies use augured holes in identifying saturated hydraulic conductivity (Ksat) rates of soils, but few if any studies have examined the soils removed from these augured holes, or any potential relationships between the soils and Ksat. In determining the fine-scale patterns and correlations between soil properties and Ksat rates, three permanent Center for Tropical Forest Science (CTFS) Forest Dynamics Plots (FDPs) were used for this study. Within each plot, 20-40 soil samples were collected, with four samples per Ksat augured hole (0-40cm depth, 10cm increments). These soil samples were later analyzed for physical (grain size, color, etc.) and chemical (pH, K, P, etc.) properties. Correlations between soil properties and Ksat varied widely among sampling sites and forest plots. In the Ecuadorian plot, limited vertical movement of water was directly linked to an impermeable clay soil layer at approximately 15cm depth. In the Malaysian plot, soil properties were highly variable and occasionally contradictory when compared to the Ksat measurements. In the Panamanian plot, topographic position influenced both Ksat and soil properties, with steep gradients promoting physical rather than chemical weathering, and flat regions showing increased Ksat rates with depth. As suggested with concurrent studies in Panama and Ecuador, these fine-scale patterns and correlations between soils and soil hydrology are in part the antecedent conditions influencing numerous non-random spatial distributions patterns of tropical plant species.

Keywords: soil, soil hydrology, tropics, fine-scale

Lydia M. Pulsipher, University of Tennessee. Email: lpulsiph@utk.edu; Firewood, Flexibility and the Oil Crisis in a Slovene Village, Summer, 2006.

Slovene villages are no longer populated by farmers; they are full of bureaucrats and professional folk who arise early and roar off in fine cars for the 45 minute drive to the capital city. There they put in 8 hours or more and then drive home, where in summer they enjoy a bit of gardening, often some conversation, a drink or two, and maybe a light impromptu meal on a neighbor's patio. Typically they do not spend their summer evenings and weekends slicing up 30-foot tree trunks with chain saws, splitting logs, stacking the wood and trundling a cord or three into the basement. But in the summer of 2006, this is exactly how the people on Prešernova ulica, male and female, young and old, fit and decrepit, spent every spare moment for about three weeks. The catalyst was extra high heating oil prices. Were these people engaged in what theorists might term a classic case of household flexibility — a rapid, agile, defensive response to changing external circumstances? Or, in this affluent post-Communist society, was the fuel emergency perhaps a surreptitiously welcomed event that allowed parents to show children and each other how to survive in hard times, maybe even how to be flexible, as was essential in the old days? And what are the physical and social contexts that enabled ubiquitous access to so much wood? This paper will examine this set of circumstances through the lens of flexibility theory.

Keywords: Flexibility theory, cultural geography, Europe

Edward Pultar, University of Utah. Email: Edward@EdwardPultar.com; EDGIS: A Dynamic GIS Based on Space Time Points

This paper presents a new method for implementing a dynamic GIS built on a fundamental concept known as a Space Time Point (STP) or Geo-atom. STPs are defined by their location, attributes, and time. A geo-atom can be formalized as the tuple: where x is a vector that defines a point in space-time (e.g. a four-dimensional point with values), Z is an attribute or property, and $z(x)$ is the specific attribute value at that point in space-time for the attribute Z . Objectives of this research include: 1. Develop a dynamic GIS based on organizing STPs into objects with ascribed identity. 2. Design a novel and intuitive dynamic GIS interface that is easy to use. 3. Develop new data structures and algorithms to support rapid query and retrieval of STP-based dynamic geographic representations. This framework is implemented as a Java program called Extended Dynamic GIS (EDGIS). Sample dynamic GIS scenarios have been created and tested using this system. The user is able to perform spatiotemporal queries on real-world data given a location in (x, y) coordinates, attribute, or time. If a query matches data in the current scenario then appropriate results are returned. EDGIS provides a way to handle dynamic GIS scenarios such as those containing moving objects with dynamic shape and internal variation through use of dynamic attributes. EDGIS does not solve every dynamic GIS representation problem (e.g. vector), but it provides an implemented software solution for representing, querying, and visualizing dynamic geographic phenomena.

Keywords: dynamic gis, spatiotemporal gis, gis

Denise Pumain, University Paris I. Email: pumain@parisgeo.cnrs.fr;

Anne Bretagnolle, University Paris I. Email: anne.bretagnolle@parisgeo.cnrs.fr; Jean-Marc Favaro, University Paris I. Email: jmfavaro@parisgeo.cnrs.fr; A relevant ontology for comparing the evolution of systems of cities around the world

Different models of hierarchy of sizes and urban growth distribution in systems of cities have multiplied recently. A high quality of data sets is required for testing these models. We propose here a method for reconstructing consistent and comparable harmonised data bases on the long term evolution of urban systems. The political or administrative definitions of a city are not sufficient to follow the spatial expansion of urban entities. For delimitating them over historical times, we use successively the concepts of urban agglomeration then daily urban system, adjusting the criteria according to changes in transportation speed and suburbanisation. Applications are made on France, Europe and United States from 1800 to 2000 (population data at all census dates). Several models of city size distribution and urban growth are experimented on these data. Besides the well-known significant differences in the historical morphogenesis of the settlement systems, we find meaningful contrasts in the hierarchical and spatial patterns. Despite these different morphogenetic configurations, the systems exhibit very similar patterns in the distribution of urban growth, which can be adjusted by a three parameters adaptation of Gibrat's model. According to the results, we explore if a convergence in the evolution of the European and American urban systems towards less or more urban concentration can be expected.

Keywords: urban systems, modelling, Europe, USA

Bharat Khushal Punjabi, University of Western Ontario. Email: bpunjabi@uwo.ca; Agrarian change in the urban periphery: The politics of the commons and the dilemmas of class mobilization in the Mumbai countryside.

The growing critical literature in human geography on Indian cities tends to underemphasize the nexus of the politics and political economy of the urban and the agrarian questions. In the Mumbai context, such interconnections manifest in the growing mobilization of small and marginal farmers around livelihood issues in the northern and southern hinterlands of the Mumbai metropolitan region. As farmers in Raigad and Thane districts face intense difficulties with rampant land acquisition for industrialization, and irrigation water shortage - two lower caste communities, the Kunbis and the Agris, which are present in significant numbers in the region have now come together and are attempting to forge a common political platform on agrarian issues. These two caste groups which are now in alliance with the Communist Party of India (Marxist) - which in turn is a political force in the tribal areas have demanded access to irrigation water from reservoirs in both districts, redistribution of agricultural land, and access to industrial employment. These developments indicate some tentative moves towards "class unity" in the region against the nexus of state, agrarian capital, urban property developers and a predatory form of industrial capital. Largely based on field work in the summer of 2006 on the politics of water in Thane district, my presentation will also offer a critical evaluation of the farmers' movements and political economy literature of India.

Keywords: agrarian change, India, Mumbai, Asian cities

Mark H. Purcell, University of Washington. Email: mpurcell@u.washington.edu; *Neoliberal Governance and Democratic Resistance: Seattle's Duwamish River Cleanup*

This paper is set in the context of the ongoing neoliberalization of urban governance. However, the goal of the paper is not to analyze that process, but to explore ways we might resist it. I suggest that democratic social movements are one promising way to build such resistance. The paper offers a case study of one such movement in Seattle, one that is working to democratize the Superfund cleanup of the city's main river. An alliance of disparate interests called the Duwamish River Cleanup Coalition (DRCC) is struggling to articulate and realize a vision for the river basin that sees it not as property to be owned and exchanged, but as a complex environment that is inhabited by both humans and non-humans. Rather than neoliberal governance that tends toward a closed process dominated by elites and experts, the DRCC is inventing creative new ways to meaningfully involve a range of community groups in Superfund decision-making. The upshot of the case is that actually existing neoliberal governance in cities is complex and contextual. While neoliberal practices very clearly pose daunting impediments to democratic participation, they also always leave open (and sometimes create) opportunities for democratic resistance. Such resistance is best undertaken by broad and coalitional social movements that can articulate a clear alternative to neoliberal values, both in terms of how we make political decisions and how we value urban space.

Keywords: democracy, neoliberalism, urban

Tracy Purdum, California State University Northridge. Email: tracy74656@hotmail.com; *Classification of hyperspectral imagery for geologic mapping*

Cutting-edge technology and satellite remote sensing allow for a new approach to geologic mapping. Advanced classification algorithms enable the distinction of lithologic units within hyperspectral imagery. This study examines the performance of support vector machine (SVM) algorithms for classifying geologic formations based on spectral data in order to delineate various lithologic units within the Panamint Range, California. SVMs performed class assignment for all pixels throughout an image based on user-provided training examples. Imagery was subsequently produced in which the extent and pattern of the lithologic units bore a strong visual resemblance to the existing geologic map of the region. Statistical analyses support SVM capabilities, which allows the conclusion that SVMs are strong candidates for future geologic classification studies on Earth and Mars.

Keywords: remote sensing, mapping, classification

Scott Pusich, University of Kansas. Email: spusich@hotmail.com; *The Territorial Base: A Geography of Ground-Up State-Building*

The current fashion among geographers is to see territory as an intellectual trap as it applies to analysis of states. Critical geopolitical analysis in particular focuses on "unpacking embedded discourses of power" while postulating a cosmopolitan, anti-territorial (flat earth?) utopia in which borders have vanished or become irrelevant. The aim of this paper is to "trouble" these notions and to construct a more realistic (those for whom this is troubling would say essentialist) model of geographic analysis of the phenomenon of territory, especially as it applies to the process of state-building. Territory remains the sine qua non of internationally recognized statehood. It is also an essential part of the political and cultural identities which provide the impetus for forming a state from the ground up, and which also provide borders, if not frontiers. The paper will demonstrate the counterintuitive notion that, indeed, more borders are better than fewer borders. Truly effective state-building is done by those who see themselves as citizens of the state in question or emergence. Such state-building is often achieved using the "ground-up" fragmented territorial pieces of a failing or failed state. The case of the former Yugoslavia will be used in combination with concepts from the work of Leopold Kohr, James Scott, and Jeremy Rifkin to show how a political world with two thousand states is both more logical and more moral than the political world of two hundred states we inhabit now.

Keywords: political geography, territory, Yugoslavia

Heather R Putnam, University of Kansas. Email: hputnam@ku.edu; *Meaning and Progress in the Fair Trade Network*

The messages presented to consumers in places of consumption about fair trade coffee force us to consider what falls within the realm of fair and what does not, as large corporations enter into fair trade. Different actors in the fair trade network assume varying interpretations of fairness. This creates confusion among consumers who must make choices about their purchases and within the fair trade network, in effect creating a movement without clear moral basis, opening it to possibilities of perpetuating postcolonial understandings, social relations, and trade geographies through a simplistic understanding of "helping" others in the global south, which is the dominant message found in places of consumption. I explore how the fair trade network that exists was not inevitable,

and has developed because of the convergence of geohistorical processes at different moments, and has resulted in certain dominant actors being mediators of meaning. I then analyze what the impacts are when the dominant meaning of a consuming place is imposed on producers, and whether unmediated exchange between consumers and producers in a fair trade agrotourism program in Nicaragua allows actors to identify common morality and goals. Using an analysis of marketing propaganda, participant-observation experience, and surveys and interviews of actors within the Fair Trade coffee network, I find that when direct contact occurs between consumers and producers in Matagalpa, consumers preserve their understanding of fair trade, cooperative members experience changed perspectives and practices, and savvy cooperative leaders exploit that dominant meaning in positive ways to further their cooperative's development.

Keywords: Fair Trade, networks, Nicaragua, coffee, consumerism, meaning, progress, development

James Pytko, . Email: pytko1ja@cmich.edu; *Geographic Information System Habitat Modeling for the Northern Orchid *Calopogon tuberosus**

In Michigan, all fifty one native orchid species receive special protection by the Department of Natural Resources, unfortunately these populations are ephemeral by nature and difficult to locate when they are not in bloom making conservation planning necessary, but difficult. The grass pink orchid, *Calopogon tuberosus*, is relatively common and is typical of the northern bog and northern cedar swamp habitats. A successful geographic model of this species in northern Michigan will lead to models of rarer species that are in need of stewardship. Using the raster data model and a weight scoring system derived from previous research, data layers of land cover, slope, aspect, soil content and inclusion on the State Wetland Index were combined to yield a statistical probability grid for locating the target species. After calculation, the data was converted to vector, classified and spatially joined to the township/ranges of the study area using the averaging option, producing a probability score for each township/range. This model output was then correlated to historical data collected from herbarium records. The success or failure to correlate to the historic data was then used to determine the level of success and modify the mathematical operation and composite layers in order to produce better accuracy for use in further conservation planning of these uniquely northern habitats.

Keywords: data model, orchid, conservation

Feng Qi, UT-San Antonio. Email: feng.qi@utsa.edu; A-Xing Zhu, UW-Madison. Email: azhu@wisc.edu; *Geographic Knowledge Discovery Based on Prototype Theory*

Much effort has been taken in knowledge discovery for geographic classification and category extraction. Previous studies have been limited to extracting categories with definite boundaries and uniform memberships within class boundaries. This paper presents a framework for representing and extracting knowledge for categorizing geographic entities with fuzzy boundaries. The framework is based on prototype theory and consists of three components: (1) a knowledge representation scheme that capture the prototype effects of geographic categories, (2) a knowledge discovery procedure that enables the extraction of knowledge in such representation, and (3) an inference scheme that uses the extracted knowledge to classify geographic entities while maintaining the prototypical properties of the resulting categories. Three data mining approaches are implemented to populate the framework. A case study on knowledge discovery for fuzzy soil mapping shows that knowledge for classifying geographic entities with fuzzy boundaries is embedded in geographic data sources such as area-class maps and can be extracted under the framework. Such knowledge, represented in a way that is cognitively sound, captures not only the typical characteristics of the classes, but also within-class variations and transitions between classes.

Keywords: Geographic Knowledge Discovery, Data mining, cognitive theory

Shuhua Qi, University of Michigan. Email: qishuhua11@163.com; Luguang Jiang, The Institute of Geographical Sciences and Natural Resources Research, CAS. Email: jianglg@igsnrr.ac.cn; *An Analysis of the Interrelationship between Flooding, Soil Erosion and LUCC in Poyang Lake Basin*

Poyang Lake, located in Jiangxi province and connected to the Yangtze River, is the largest fresh water lake in China and has important impact on the mid-lower Yangtze River watershed. During the last 50 years, the ecological environment of Poyang Lake has been degenerated which caused natural disasters, frequent flooding, soil erosion, drought, and schistosomiasis. To better understand the environmental and ecologic changes of wetlands in the Poyang Lake region, we apply RS/GIS techniques and mathematical modeling in a study of the flooding, soil erosion and land use and land cover changes (especially the vegetation cover) with a discovery-driven approach aimed at understanding the interrelationships between flooding, land-cover and land-use change (LCLUC), ecology and human environment. The context of the project is the broader fields

of land-change science and sustainability science that seek to evaluate the complex interactions between environmental variability and human activity at multiple space and time scales.

Keywords: LCLUC, Wetland, Poyang Lake

Xiaojun Qin, Louisiana State University. Email: xqin2@lsu.edu; *Creating an Information Management System for Emergency Situation*

There are several industries located in the city area, and because of the high possibility of terrorism attack and other emergency situations. Evacuate the residents living surrounding the troubled industry in a short time period is necessary. The precondition to fulfill this task is to get the accurate information for the whole affected area. This project tries to create an information management system for the emergency situation. The provided information includes the affected residents, the major evacuation road available, the shelters available, the nearest fire stations. With these information, the governors can make the decision of how many police officers should be sent there and can allocate the residents to the nearest shelters available.

Keywords: GIS, information database, decision making

Fang Qiu, Dr., University of Texas - Dallas. Email: ffqiu@utdallas.edu; Shaofei Chen, University of Texas at Dallas. Email: shaofei.chen@utdallas.edu; *Multidimensional Spatial Interpolation: A Comparative study*

Spatial interpolation is the process of estimating the value of an attribute for a continuous surface at unsampled sites from a set of observed values within the same area. A number of spatial interpolation methods widely available in most GIS software, such as splines, Kriging, inverse distance weighted (IDW) and trend analysis only take the two-dimensional (i.e. longitude and latitude or easting and northing) horizontal locations of the sample points into consideration. However, climatic attributes, such as temperature and precipitation, for example, are often a function of the three or more dimensional effects (e.g. longitude, latitude, elevation). In this paper, we employed four different novel quantitative techniques, namely multidimensional IDW, artificial neural network, co-kriging, and geographical weighted regression (GWR), to incorporate three or more variables into the spatial interpolation process. These multidimensional interpolation techniques were used to estimate the Annual Temperature in the Northeast United States. Their interpolation accuracy is evaluated based on root mean square error obtained by both validation and cross validation methods. Estimation error variance and fractal dimension were also employed to assess the estimation uncertainty and stability. The results of the four new techniques are compared with each other and with those of two-dimensional interpolation approaches. It was shown that the incorporation of the dimensions beyond longitude and latitude improved the accuracy of traditional two-dimensional techniques. However, the improvements of the four new techniques are varied, suggesting that each method has its own advantages and there is no technique that is always better than others.

Keywords: Spatial Interpolation, Co-Kriging, GWR, Neural Network

Hong-Lie Qiu, California State University, Los Angeles. Email: hqiu@calstatela.edu; Baoguo Li, Prof., China Agricultural University. Email: libg@cau.edu.cn; Lichun Ma, China Agricultural University. Email: malichun969961@163.com; Pingan Jiang, Prof., Xinjiang Agricultural University. Email: ; *Former Shorelines of Lop Nur Lake in Xinjiang Uyghur Autonomus Region, China*

The ear-shaped surface feature in the eastern end of Tarim Basin was revealed by satellite remote sensing in early 1960s. This mysterious phenomenon has attracted many attentions from scientists and the general public. The concentric rings that make up the "Great Ear" are believed to be the former shorelines of Lop Nur, the terminal lake of a huge inland basin, and they represent a period of increasing dryness in the region. However, information on these former shorelines and their ages are sparse and incomplete, making it difficult to reconstruct the history of the Lop Nur Lake. This paper re-examines the features related to former shorelines based on all available satellite images, ground investigation data, and digital elevation models. The existence of baymouth sand bars, shoreline cliffs, river inlets, and extensive salt crust suggests that Lop Nur was once occupied by a huge lake (approximately 10,000 square kilometers). Digital terrain models derived from Shuttle Radar Topography Mission (SRTM) data were used to estimate the extend and volume of this large ancient water body. Although the exact timing and duration of this high water period are yet to be determined, it is clear that the Tarim Basin region experienced a period of wetter climate in the past.

Keywords: Lop Nur, Tarim Basin, Climatic Change, Inland Basin

Xiaomin Qiu, . Email: xq1001@txstate.edu; *Potential Habitat for the Endangered Houston Toad*

The Houston Toad is a small endangered amphibian in Texas. Habitat loss and alterations are the main reasons for the endangerment of this species. A spatial analysis was performed to identify potential areas composed of oak or pine savannah and clearings of less dense shorter grasses within one mile of shallow, slow moving water, and loose sandy soils.

Keywords: Houston Toad, spatial analysis

Youliang Qiu, University of Florida. Email: qiuy1@hotmail.com; *Integrating AJAX to Distributed GIS Visualization*

Geospatial data is naturally provided by different providers with different formats. To integrate and share of heterogeneity spatial data, some specifications such as Open Geospatial Consortium (OGC) standard and methods such as web service, have been introduced to solve the geo-spatial interoperability and common data format problems. However Geographical Information System (GIS) still has problems related to performance and interoperability, especially for web-based data mapping and visualization. As the Web platform continues to mature, AJAX (Asynchronous JavaScript and Xml) is an important web development model for web-based application that makes Geographic Information Systems (GIS) visualization applications to new levels of power and usability. In this paper, AJAX approach is integrated to a web-based vector GIS mapping service to visualize Thailand economic, social and environmental data in a generic and performance efficient framework. This architecture offers advanced reasoning on metadata, keeps the services and data up-to-date with dynamic information update service. The efficient user interface hides complexity of data from users with seamless integration of visualization and data with good performance and efficiency.

Keywords: WebGIS, AJAX, Visualization

Addie Louise Qualey, University of Maine Farmington. Email: addie.qualey@maine.edu; *A Spatial Study On The Distribution Of Registered Sex Offenders In The State Of Maine, Rural Versus Urban.*

National and state private organizations have plotted the domicile of sex offender registrants on maps for several states. Those maps have then been distributed either on the internet or in hard copy. Private organizations have mapped the registered sex offenders in the state of Maine, but none of those efforts or maps take into consideration the demographics of the region. This research examines the rate of registered sex offenders as a proportion of the population in the state of Maine, by town and township. It also inspects whether there is a higher rate of offenders in rural versus urban Maine, using a spatial distribution model. This model examines possible correlations between the location of offenders with respect to age and gender, displayed through maps created using GIS software.

Keywords: spatial distribution, sex offenders, Maine

Dale A. Quattrochi, Ph.D., NASA MSFC. Email: Dale.Quattrochi@nasa.gov; Mohammad Al-Hamdan, Ph.D., Universities Space Research Association, National Space Science & Technology Center. Email: mohammad.alhamdan@msfc.nasa.gov; Maurice Estes, Jr., MCP, Universities Space Research Association, National Space Science & Technology Center. Email: maury.estes@msfc.nasa.gov; William Crosson, Ph.D., Universities Space Research Association, National Space Science & Technology Center. Email: bill.crosson@msfc.nasa.gov; Ashutosh Limaye, Ph.D., Universities Space Research Association, National Space Science & Technology Center. Email: ashutosh.limaye@msfc.nasa.gov; Douglas Rickman, Ph.D., NASA MSFC. Email: doug.rickman@msfc.nasa.gov; Judith Qualters, Ph.D., National Center for Environmental Health, Centers for Disease Control and Prevention. Email: jxq1@cdc.gov; *Environmental Public Health Surveillance for Exposure to Respiratory Health Hazards: A Joint NASA/CDC Project to Use Remote Sensing Data for Estimating Airborne Particulate Matter Over the Atlanta, Georgia Metropolitan Area*

As part of the National Environmental Public Health Tracking Network (EPHTN) the National Center for Environmental Health (NCEH) at the Centers for Disease Control and Prevention (CDC) is leading a project called Health and Environment Linked for Information Exchange (HELIX-Atlanta). The goal of developing the National Environmental Public Health Tracking Network is to improve the health of communities. Currently, few systems exist at the state or national level to concurrently track many of the exposures and health effects that might be associated with environmental hazards. An additional challenge is estimating exposure to environmental hazards such as particulate matter whose aerodynamic diameter is less than or equal to 2.5 micrometers (PM_{2.5}). HELIX-Atlanta's goal is to examine the feasibility of building an integrated electronic health and environmental data network in five counties of Metropolitan Atlanta, GA. NASA Marshall Space Flight Center (NASA/MSFC) is collaborating with

CDC to combine NASA earth science satellite observations related to air quality and environmental monitoring data to model surface estimates of PM_{2.5} concentrations that can be linked with clinic visits for asthma. While use of the Air Quality System (AQS) PM_{2.5} data alone could meet HELIX-Atlanta specifications, there are only five AQS sites in the Atlanta area, thus the spatial coverage is not ideal. We are using NASA Moderate Resolution Imaging Spectroradiometer (MODIS) satellite Aerosol Optical Depth (AOD) data for estimating daily ground level PM_{2.5} at 10 km resolution over the metropolitan Atlanta area supplementing the AQS ground observations and filling their spatial and temporal gaps.

Keywords: Environmental Public Health Tracking, airborne particulate matter, MODIS, Atlanta

James W Quinn, M.A., Columbia University, Institute for Social and Economic Research and Policy. Email: jq2145@columbia.edu; Kathryn M Neckerman, Ph.D., Columbia University, Institute for Social and Economic Research and Policy. Email: kmn2@columbia.edu; Andrew G Rundle, Dr.P.H., Columbia University, Mailman School of Public Health. Email: agr3@columbia.edu; Christopher Weiss, Ph.D., Columbia University, Quantitative Methods in the Social Sciences. Email: cw2036@columbia.edu; Does Park Access and Park Quality Predict Adult Obesity in New York City?

Despite growing evidence that the built environment may influence body size, we know little about the role that park access and park quality plays on physical activity in large, densely settled cities, where parks are the primary means for public access to the outdoors. We examine the relationship between park access, park quality, and bodyweight for a sample of more than 13,000 healthy adult residents of New York City. A Geographical Information System model was built connecting subjects and individual covariates to data on neighborhood characteristics including built environment and sociodemographic measures. Park accessibility was defined by GIS-derived network distances to park access points. Park quality measures were based on data from the New York City Department of Parks and Recreation's Parks Inspection Program. This program rates parks for sixteen measures, grouped into three domains: cleanliness (litter, graffiti, broken glass, weeds), structural features (sidewalk quality, paved surface, benches, fencing, play equipment, safety surface in play areas) and landscape features (lawns, trees, horticultural areas, athletic field, water bodies, trails). The analysis uses multilevel modeling to test our hypotheses that aesthetically-pleasing characteristics and access to recreational facilities are associated with higher levels of physical activity and lower body size. Drawing on an extensive dataset with a high degree of spatial precision as well as unusually detailed and objective measures of park quality, the research informs the empirical literature relating the built environment and obesity as well as policy measures to improve park access.

Keywords: GIS, Urban Geography, Obesity, Park Access, Park Quality, New York City

Sarah-Louise S Quinnell, King's College London. Email: sarah-louise.quinnell@kcl.ac.uk; Politically & socially modified: A critique of the construction of the GM debate in Sub-Saharan Africa

Persistent poor agricultural production and rising food insecurity in Sub-Saharan Africa have brought into sharp focus the role of modern agricultural biotechnology in human development. Growing food insecurity in a number of countries including Ethiopia, Kenya, Malawi, Mozambique, Zambia and Zimbabwe have stimulated political, press and public attention on genetic engineering and its associated risks and benefits from around the world - particularly in relation to the 2002/3 food crisis in Southern Africa. Considerable space in the debate is often taken up by groups of non-governmental organisations (NGOs) opposed to GMOs and purporting to speak for the African rural poor and (conversely) groups of scientists who espouse the benefits of the new technology for the poor. It is unlikely that the two groups - anti and pro GMOs have the attention of millions of farmers in Africa. Research has illustrated that the general public and farmers in particular are not informed about the nature of this new technology, its benefits or risks, and rarely do they participate in deciding on what crops or problems biotechnology should be focused upon. Taking the 2002/3-food crisis in Southern Africa as a starting point this paper examines the framing and construction of the agricultural biotechnology debate in Sub-Saharan Africa. Drawing from both international and internal press coverage of the issue alongside interviews with relevant stakeholders this paper looks at the political, social and media framing of the GM debate in Sub-Saharan Africa and its impact upon the development of new technology and appropriate regulation.

Keywords: Genetically modified crops, Sub-Saharan Africa, media, politics, agriculture

Margarita Quinones, . Email: margaquinon@yahoo.com; Mapping the Sourcepoints of Homelessness in Los Angeles County

The latest estimative for the number of homeless in Los Angeles County has dramatically reached high quantities. The most recent report from Los Angeles Homeless Service Authority (LAHSA, 2006) estimated the number of homeless to be 82,291 at a given point in time during 2005. This high number has taken the attention of majors and policy makers leading to new strategies and policies to help this sector of society. These policies include the creation of new shelters and housing alternatives. According to the LAHSA report 78% of the homeless people in Los Angeles County had been living in the area at the time they became homeless. To this end, this research addresses the areas in Los Angeles County that generate homeless and recommends the best zones to locate new homeless services based on sourcepoints and current availability. The methodology for this paper consists first in establishing and comparing the homeless services and others public services spatial distribution and second identifying and mapping the sourcepoints of homelessness. These areas will be determined through a survey conducted in the two biggest concentrations of homeless in the county. Preliminary findings from this research established that the homeless services follow a strong cluster distribution being Skid Row Los Angeles and the city of Santa Monica the biggest concentration areas.

Keywords: Urban Geography, migration, GIS

Nicholas Quinton, University of Alabama. Email: kaquinton@yahoo.com; Gerald Webster, PhD, University of Alabama. Email: gwebster@bama.ua.edu; Differential Tax Levies and Retail Outlet Locations

A geographically elongated state, Tennessee can count eight other states as neighbors. Tennessee's tax structure relies almost solely on a general sales tax, creating significant contrasts in aggregate sales tax levies on goods purchased in retail outlets in close proximity to the border. Do businesses consider the sales tax implications associated with state borders in location decisions? Do consumers take variations in sales tax levies into consideration when deciding where to shop? Tennessee is a somewhat unique subject area for a study of the affect sales tax has as it relates to retail outlet locations. This paper examines the influences associated with the differential sales tax levies along this border as they relate to the location of retail sales outlets. Using the concepts of threshold and range, this paper examines the geographic distribution of furniture outlets, gas stations, food and beverage stores, building supply locations and general merchandise stores along both sides of the border. Preliminary analysis indicates differential sales tax rates do affect the decisions made in location of retail outlets.

Keywords: Tax, Retail Location, threshold analysis

Steven Quiring, Texas A&M University. Email: squiring@geog.tamu.edu; John Nielsen-Gammon, Texas A&M University. Email: n-g@tamu.edu; Monitoring Drought Conditions at the Local Level in the State of Texas

Drought (moisture) indices can be useful tools for providing information to decision-makers in business, government and to the public stakeholders. A large number of drought indices exist, each having a variety of data input requirements and each providing a somewhat different measure of drought. Some of the more commonly used schemes include the Palmer Drought Severity Index (PDSI) and Moisture Anomaly Index (Z-index), Standardized Precipitation Index (SPI), Rainfall Anomaly Index (RAI), Standardized Anomaly Index, Effective Drought Index (EDI), Surface Water Supply Index (SWSI), Percent Normal, Deciles, and the Normalized Difference Vegetation Index-based Vegetation Condition Index. The main objective of this research was to examine all the existing drought monitoring tools to determine which are the most appropriate for monitoring moisture conditions at the local level in the state of Texas. Results indicate that the most appropriate drought index depends on the intended application, specifically: the time-scale of interest, type of drought being monitored (e.g., meteorological, hydrological, or water supply), location, and spatial scale of the application. An objective methodology for developing meaningful drought thresholds was also developed.

Keywords: drought index, Texas, hydroclimate

Ellen Raabe, United States Geological Survey. Email: eraabe@usgs.gov; Lisa Robbins, U.S. Geological Survey. Email: ; Myra Schwarz, ETI Professionals. Email: ; Florida Shelf Habitat (FLaSH) Map Project Presents the World beneath the Waves

Spectacular views of earth from space have become commonplace on the Internet with new application tools, such as Google Earth. The Florida Shelf Habitat Mapping Project (FLaSH) website takes the concept of a bird's-eye view of the earth to the world beneath the waves. The FLaSH web pages invite exploration of the underwater world via Google Earth, bathymetric maps, underwater video, fly-through adventures, and resource tools. The viewer can visit the complex physical and biological world of the Florida Shelf and learn about the submerged terrain. Data for the Florida Shelf originates from many

sources, dates, and formats. A multi-agency effort is underway to coordinate and prioritize the compilation of suitable data sets for an integrated information system of Florida's coastal and ocean resources. Water quality, fishery sustainability, sea level and climate change impacts, and economic issues drive the need for enhanced public awareness of the environment that surrounds, supports, and shapes our coastal communities. The FLASH website places existing data in a user-friendly environment and within the larger context of the Florida Shelf. Accessible data, presented in a geographic context, offers citizens, managers, and scientists an opportunity to visualize coastal resources and to consider options in resource management.

Keywords: Florida Shelf, map, marine habitat, bathymetry, Google Earth, resource management

Mike Raco, King's College London. Email: mike.raco@kcl.ac.uk; *The Politics and Practices of Waterfront Development in a Global City: The Case of Paddington Basin*

This paper draws on a two-year, in-depth study of the politics and practices of urban regeneration in Paddington Basin, West London. Since the late 1980s the Basin has played an important symbolic role as a development that could not only help to regenerate some of the most deprived parts of the city but also play an important strategic role in helping London to attract high level national and international capital investors. The chapter argues that the area's connections to Heathrow Airport, its proximity to the West End of London, and its recent designation as one of the London Development Agency's strategically significant Opportunity Areas have helped to boost its promotional appeal, often at the expense, or at least the marginalisation of, existing local groups. As developers and development bodies have looked to take advantage of its commercial potential community involvement has become primarily defined in instrumental terms. As such, the development illustrates and exemplifies some of the challenges and potential opportunities inherent in waterfront development projects in cities such as London and the tensions associated with the prioritisation of development objectives; the identification and mobilisation of rapidly changing communities; the complexity of partnership-building processes; and competing and contrasting conceptualisations of place and local-global inter-relationships.

Keywords: waterfront regeneration, community, London

Adina E. Racoviteanu, Institute Of Arctic and Alpine Research, University of Colorado- Boulder. Email: racovite@colorado.edu; Yves Arnaud, IRD, Great Ice, LGGE, BP 96, 38402, St. Martin D'Hères, France. Email: yarnaud@lge.observatoire-jurassien.fr; Mark W Willaims, Institute of Arctic and Alpine Research, University of Colorado- Boulder. Email: markw@colorado.edu; *Glacier and climate changes in Cordillera Blanca, Peru derived from SPOT5 satellite imagery: a contribution to the GLIMS Geospatial Glacier Database*

Changes in glacial area and extent over time are often conducted by comparing historical aerial photography with recent remote sensing imagery. However, several problems are encountered: old inventories from aerial photography often lack metadata and quality control; processing methods used to derive glacier outlines from satellite images are not standardized, leading to inconsistencies in the various datasets; previous glacier datasets are not in public domain. This makes the comparison of glacier areas at different times a difficult process, posing a need for standardized processing methods. Here we present a case study for Cordillera Blanca in Peru (8°30 S, 77°W). Climate control on glacier mass balance in this region is largely unknown. An extensive glacier inventory for this region was conducted using 1962 and 1970 aerial photography. The goal of this paper is to examine connections between short-term climate variability and glacier changes in Cordillera Blanca derived from remote sensing analysis. For the present study, we produced a new set of glacier outlines using 2003 SPOT5 satellite imagery. The dataset was stored in the GLIMS Glacier Database, maintained at the National Snow and Ice Data Center (NSIDC), Boulder. We compared glaciers from 2003 with the ones from 1962-1970 at the basin level to derive detailed glacier statistics and changes in glacier elevation and area. The classification of SPOT5 satellite images yielded 532 glaciers with a total area of 557.82 km². This represents a loss of 16 % when compared to the 1962/1970 inventory.

Keywords: cryosphere, remote sensing, Andes

Sarah A Radcliffe, Cambridge University. Email: sar23@cam.ac.uk; *Marginal citizenship and group rights: the spatialised biographies of Ecuador's indigenous women leaders*

Indigenous women make rare and exceptional leaders by overcoming the disadvantages of domestic gender bias, poor educational provision in predominantly Indian areas, and nationalist discriminatory racial formations. Rather than elite 'lifepaths' (Anderson 1991; Daniels and Nash 2004), the paper examines subaltern ethnic women's engagement with a nationalist project. This paper

traces the spatial biographies of diverse ethnic women leaders in order to extend postcolonial theory's understandings of space and nation. As female indigenous leaders travel around Ecuador to take up education or work and to pursue political careers, they encounter diverse spaces within which their position as indigenous and female has variable meanings and consequences. Contributing to a personal process of politicization, these trajectories engage women in the contestation of ethnic agendas, feminist institutions, and household relations, while simultaneously contributing to the re-formation of multicultural nationhood and women's citizenship rights. In struggles over mobility and leadership, indigenous women enact and produce an embodied and spatialised performance of citizenship that speaks to the ambiguous and contradictory belongings offered by multiculturalism and gender rights. The paper draws on interviews with indigenous women from different ethnic groups and diverse political experiences, to explore how Ecuadorian nationhood is being reproduced through time and over space, in a highly differentiated territory and in the wake of the contradictory legacy of constitutional reform that established ethnic rights and gender rights separately.

Keywords: Ecuador, indigenous women, mobility, citizenship, multiculturalism

Nancy Rader, California Wind Energy Association. Email: ; *The Promise of California Wind in Addressing Climate Change*

The potential exists for wind energy to serve 20% of California's electricity needs by 2020 (up from 1.5% today). This presentation will discuss the wind resource potential, economics, grid integration and environmental impacts of wind energy, and the policy actions that are required for wind to achieve the 20% California target.

Keywords: wind power, wind energy potential, California

Steve Radil, University of Colorado at Colorado Springs. Email: sradil@uccs.edu; *Remaking the Enemy: Elastic Definitions of Terrorism and the Rhetoric of 'Ecoterrorism' in the US.*

In the post-9/11 'war on terror', the language and rhetoric of 'terrorism' have been expanded to include environmental groups engaged in sabotage?often called 'ecotage'?against property and objects thought to be representative of or complicit in environmental damage. In fact, groups engaging in this type of activity, such as the Earth Liberation Front (ELF), have been identified as the leading domestic terrorist threat in the US by the FBI despite the fact that no person has ever been killed or suffered physical injury by this type of politically-motivated resistance. A careful examination of the definition of terrorism reveals a significant difference between genuine terrorism, where actors purposely ignore moral limits against inflicting physical harm, and environmentally-motivated sabotage, where deliberate care is taken to avoid inflicting physical harm. Although any intentional destruction of property is certainly illegal, conflating environmentally-inspired sabotage with the peculiar moral evil of terrorism erodes differences between terrorism and all other kinds of politically-inspired resistance. The transformation of 'ecotage' into 'ecoterror' allows the rhetoric of terrorism to strip away potential public support for environmental issues and to diminish the possibility for environmentally-inspired social change.

Keywords: terrorism, ecoterrorism, ecotage, environment, political resistance

John Radke, GISC, University of California - Berkeley. Email: ratt@gisc.berkeley.edu; *Establishing Better Approximations of Boundary for Geographic Information Retrieval in Online Documents*

A web search to geographically retrieve information almost always involves the use of named places that may or may not have a well-defined boundary or for which boundary data is not available. Yet, in most instances, a boundary is what we seek. For example, Environmental Impact Reports are based on a geographic region and although they often contain maps bounding that region, for the most part, when they exist in digital form, the place names embedded in their text are the only searchable geographic reference. Since it is not practical to visually browse text or maps in each online document to determine if it contains relevant data that would satisfy one's search, we propose an automated data-mining tool that provides an effective means to bound and retrieve relevant data. The simplest, most conservative and most widely used structure to map the spatial extent of a set of place names is the minimum bounding box. Although an efficient retrieval metric, it is likely rare that the bounding box accurately delineates the spatial extent of place names in a document. Although the convex hull offers some improvement, delineating concavity in polygonal representations promises higher precision in spatial matching. We introduce and automate a spatial decomposition algorithm, a variant of an alpha shape, which automatically delineates concave geometric approximations and better bounds, spatial extent and shape in online documents with geographic references.

Keywords: Geographic data retrieval; spatial search; boundary; neighborhood; minimum bounding box; convex hull; spatial decomposition; alpha shape

Pauliina Raento, University of Helsinki. Email: pauliina.raento@helsinki.fi; *Materializing Europe*

The enlarging European Union faces the challenge of fostering a common sense of European identity among the increasingly diverse population living in its territory. In this task of promoting “European values” and an “imagined community” of Europe, the EU employs the methods of “banal nationalism,” as described by Michael Billig in his influential, similarly titled book. The emphasis in the “flagging” of a supranational “nation” is strongly on popular material culture and visualization. My presentation exemplifies how the European Union’s ideals of “Europe” are materialized as identity-promoting consumables in quotidian landscapes within the EU and especially in its capital city Brussels. Observations and artifacts collected from the field show how a political identity project meets consumerism, as citizenship education encourages voluntary consumption of identity-politically themed merchandise, entertainment, and free promotional material. Not only is the European Union built from the top down with official symbols (currency, flags, license plates, cartography), but also from the bottom up, as ordinary people willingly pay for the flagging of “Europe” (souvenirs, collectables, comic books, a theme park). In the spirit of individualistic post-modern consumer societies, straightforward propaganda takes the form of participatory persuasion and seeks to disguise an evident strategy and socio-economic class hierarchies.

Keywords: EU, banal nationalism, identity politics, material culture, visual culture

Parvati Raghuram, The Open University. Email: p.raghuram@open.ac.uk; *Beyond the ‘Brain Drain’ impasse: spatial ontologies and temporal configurations*

The migration of health professionals has been accompanied by politically and morally charged discussions on the effect of such migration on the health of those left behind. The critique of ‘brain drain’ migration has sparked a flurry of initiatives to limit the amount and the impact of such mobilities. In the UK, the National Health Service, which has long been dependent on overseas migrants, has responded to critics accusing them of ‘poaching’ health professionals with a range of measures to limit health worker mobility. These measures counterpose the right to mobility of health workers with the right to health of those they leave behind, posing academics working on brain drain with a quandary: how do we think of brain drain migration ethically? This paper aims to address this question by exploring the spatial and temporal ontologies that are being mobilised in current thinking around the brain drain, and how this shapes the arguments and policy initiatives, occluding other ways of thinking about health worker mobility. The paper argues that an institution that is emblematic of national identity is also necessarily and from the start embedded in international relationships shaped over longer periods of time. It then provides some steps towards unsettling these ontologies that privilege current national formations in order to think ethically about brain drain.

Keywords: brain drain, scale, spatiality, temporality, nation

Shakhlo Rahkimova, PhD, Center for Quarantine and Prophylaxis of Most Hazardous Infections, Uzbekistan. Email: jblack6@lsu.edu; Aminjon Nematov, PhD, Center for Quarantine and Prophylaxis for Most Hazardous Infections, Uzbekistan. Email: nematov@bcc.com.uz; Jason K. Blackburn, PhD, Louisiana State University. Email: jblack6@lsu.edu; *Distribution, Ecology and Spatial Analyses of Plague, *Yersinia pestis*, in Central Uzbekistan*

Plague, a vector-borne, bacterial disease of antiquity caused by *Yersinia pestis*, remains a public health threat throughout the Former Soviet Union nation of Uzbekistan. While vaccination and surveillance efforts are in place for combating the disease in-country, limited data are available on the spatial ecology and geographic distribution of the disease in Uzbekistan. The development of a new spatial data infrastructure provides an opportunity to study relationships between vector micro-habitats, wild reservoirs and hosts and their environments, and the potential for human risk. This paper will introduce the spatial distribution of the disease based on a 30-year archive of zoological collection data and provide spatial clustering analyses and predictive modeling approaches to evaluate the relationships between ecological parameters and the geography of the disease in-country. These analyses include efforts to model the disease agent and both local vector and host species. Similar analyses from other geographic regions have provided insight into the ecology of the disease. The results of this current study will be compared with these efforts other countries, including the United States, to examine relative similarities and differences in this disease and its evolution throughout its contemporary range.

Keywords: plague, GIS, disease analysis, central asia

Muhammad Tauhidur Rahman, University of Oklahoma. Email: mtr@ou.edu; *Integration of REA and Geo-Spatial Techniques in Post-Crisis Management*

Natural and human-induced hazards often have catastrophic effects on the environment and urban structures. Understanding these effects is not only important to predicting, preventing and mitigating the impact of disasters, but they are also crucial in rescue and relief operations and ultimately in saving lives. Although the environmental effects of disasters are typically of a rapid nature, investigations of these effects usually take place months after the disaster occurrence leaving many of causal factors of such effects and their overall impacts less understood. It is therefore very critical that assessment of the environment and urban structures takes place within hours and days after the disaster strikes. The assessment process needs to be detailed but simple to use so that it can be utilized by rescue and relief operations personnel with minimal training. Over the past few years, Rapid Environmental Impact Assessment (REA) methodologies have been proposed to fulfil both requirements. However, combining REA methods with geospatial techniques such as Geographic Information Systems (GIS) and Remote Sensing (RS) may be more beneficial not only in collecting, integrating, managing, and analyzing spatial data pertaining to the damaged areas, but also in supporting the rapid updates of changing datasets which can then be visible in detailed organized maps. The purpose of this paper is to explain how REA can be combined with RS and GIS to not only help in rescue and relief operations but also save life during disasters.

Keywords: Hazards, REA, GIS and RS Integration

Meredith Raimondo, Oberlin College. Email: meredith.raimondo@oberlin.edu; *The Queer Intimacy of Global Vision: Documentary Practice and the AIDS Pandemic*

Geographers made an important contribution to the interdisciplinary consideration of the HIV/AIDS pandemic by demonstrating the necessity of spatial analysis of its uneven distribution. This paper explores one outcome of this successful intervention; namely, documentary films that take the “global pandemic” as their subject. I explore the ways in which visual practices drawn from ethnographic film undermine the multicultural humanist goals of these representations through a practice of spatial Othering that relies on the intersection of sexuality, race, and poverty to protect the imagined viewer from implication in the social processes that make HIV infection a political rather than natural event. Given the centrality of the mass media to the production of spatial normativities, a queer feminist anti-racist practice must engage with such practices of popularization and consider the kinds of political subjectivities produced in critically lauded attempts to illuminate the global pandemic. I analyze Rory Kennedy’s *Pandemic* (2002) and Robert Bilheimer’s *A Closer Walk* (2002) as narratives articulating a scalar optic in order to connect but also place the geographically distant bodies of “viewers” and “subjects” through tropes such as sexual danger, suffering, and empathy. I ask how positioning viewers as global citizens who “see” the entire world works along side the production of stories about local experiences of AIDS in specific sites not to illuminate the importance of cultural context or the structural conditions shaping different experiences of HIV infection, but to produce a neo-colonial narrative which universalizes a discourse of normative sexuality while obscuring structural inequalities.

Keywords: Queer Studies, AIDS, media

David R. Rain, The George Washington University. Email: david.rain@gwu.edu; *Liber Geographicus Pro Bono Publico*

Peter Gould’s legacy of liber geographicus pro bono publico, or the public-spirited general audience geography book, continues to be a relevant one today for geographers interested in spreading their message farther than academic or scholastic circles. Attempts to achieve this quixotic mission to date, by authors such as Ed Soja, George Demko, Jared Diamond, and Mike Davis, have highlighted the difficulty of breaking through disciplinary stereotypes perpetuated by media and academics in more prominent fields. Geographers’ messianic impulse to open eyes to the way the world really works is in the presenter’s view a noble one, although the publishing terrain can be rather rocky. This paper will review potential for a project of how to ‘sell’ geography as a new, exciting, and immediate subject to a public that can only think of bees and capitals. After reviewing some efforts to capture and put forth various views of geography in mainstream society, it will present some key rhetorical concepts that are working metaphors for the geographic enterprise: operating instructions; the planetary nervous system; phronesis, or the idea of ‘mastery in place,’ which has led Bent Flyvbjerg into a wholesale critique of the social sciences; and the notion of geography as the ‘survival science.’ In a world of instant news, hype and spin, geography as the enduring study of the earth and its inhabitants still has relevance, but only if the story is told right.

Keywords: geographic thought, writing, mass media, journalism

Clionadh Raleigh, University of Colorado, Boulder and PRIO. Email: raleigh@colorado.edu; Henrik Urdal, PhD, International Peace Research Institute (PRIO). Email: henriku@prio.no; *Population Pressure, Resource Scarcity and Armed Conflict: A Disaggregated Study*

Climate change is expected to bring about major change in freshwater availability, the productive capacity of soils, and in patterns of human settlement. However, considerable uncertainties exist with regard to the extent and geographical distribution of these changes. Predicting scenarios for how climate related environmental change may influence human societies and political systems necessarily involves an even higher degree of uncertainty. The direst predictions about the impacts of global warming warn about greatly increased risks of violent conflict over increasingly scarce resources such as freshwater and arable land. We argue that our best guess about the future has to be based on our knowledge about the relationship between demography, environment and violent conflict in the past. Previous rigorous studies in the field have mostly focused on national level aggregates. This article represents a new approach to assess the impact of environment on internal armed conflict by using geo-referenced (GIS) data and small geographical, rather than political, units of analysis. It addresses some of the most important factors assumed to be strongly influenced by global warming: land degradation, freshwater availability, and population density and change. While population growth and density are associated with increased risks, the effects of land degradation and water scarcity are weak, negligible or insignificant. The results indicate that the effects of political and economic factors far outweigh the relationship between local level demographic/environmental factors and conflict.

Keywords: Conflict, Population, Environment

Kevin N. Raleigh, University of South Carolina. Email: raleigh@mailbox.sc.edu; *Is it Happy Hour Yet? Analyzing Alcohol Law Changes in Boyle County, Kentucky*

The recent change in county alcohol laws in Boyle County, Kentucky from traditional dry status to the present complexity of limited, winery and golf illustrates the interdependence between the cultural and the economic, and exemplifies Andrew Sayer's observation that viewing these geographic spheres as separate and mutually exclusive is limiting. Understanding that the cultural is inflected into the economic, and vice versa, permits a greater examination of processes that affect legalities across space. These complexities are illuminated in the study area of Boyle County, Kentucky, located at the edge of Kentucky's Bluegrass region, where the question of alcohol legality or illegality in itself may be surprising. Methodological considerations that have included historical and recent legal research, voting results on referenda, county revenue data, license issuances and interviews with invested parties either for or against alcohol law changes have all been combined to illustrate that cultural and economic forces across space are not disjoint. As is demonstrated through Boyle County, the traditional viewpoint of Kentucky's alcohol laws as a battleground between exclusive categorical notions of cultural / moral / religious forces versus economic ones is eroding in favor of an increasingly complex set of regulations that belies such simplistic dichotomization and instead exposes an array of movements that are invoked in processes of legal change.

Keywords: cultural economy, legal geography, alcohol, voting

David Ralph, . Email: davidralph81@gmail.com; David Ralph, University of Edinburgh, Scotland. Email: davidralph81@gmail.com; *Re-imagining of the Nation: Irish return migration from the USA, 1996-2006*

Rather than simply translating the unfettered 'space of flows' of postmodern cultural studies into the language of transnationalism, this project will examine a recrudescence of supposedly obsolete elements in transnational migration by focusing on a re-conceptualized 'transnationalism from below'. The purported obsolescence of nation-state, ethno-national identities and an apparent paradigm shift to 'post-nationalism' will be critically examined through a re-conceptualization of 'transnationalism from below' that seeks to address the following questions: 1) What role do transnational social fields play in the construction of 'home' as an arena ripe for political change and socio-economic transformation, and/or as a space of nostalgic continuity and tradition? 2) How and to what extent are these competing and/or complementary constructions mobilized by political entrepreneurs operating in transnational social fields? The empirical focus of this research will be the return flow of Irish migrants who emigrated in the 1980s to USA and returned between the years 1996-2006, with particular focus on the 30-45 years cohort. This empirical focus generates the following research questions: 1) Do the returnee cohort champion political change and socio-economic transformation in increasingly polarized 'Celtic Tiger' Ireland, or are they agents for conservation of the reigning consensus? 2) As members of transnational social fields, will returnees mobilize new political identities and counter-hegemonic discourses - such as those of Glór an Deorai (Irish Emigrants Voice), a lobbying group of Irish expatriates in the USA campaigning for voting rights for non-resident Irish citizens - or will loyalty to

dominant dynamics of the country of origin remain?

Keywords: transnationalism, return migration, Ireland

Bruce A. Ralston, University of Tennessee. Email: bralston@utk.edu; Gabrielle Hammond, Executive Director, Legal Services National Technology Assistance Program. Email: gabrielle@gabriellehammond.com; *Geography and Legal Aid Services*

One of the keys in providing legal services to the poor is knowing where the clients are and where the service centers located. The Legal Services National Technology Assistance Program seeks to fight injustice to the poor by helping nonprofit legal aid programs improve client services through the effective and innovative use of technology. This paper reports on our efforts to develop a web-based GIS system that integrates data from the Census Bureau with legal services' case management reports. This requires developing relevant databases, designing website for the non-GIS user, and pushing technology to support mapping within a secure environment.

Keywords: Legal Aid, Census 2000, GIS

Adam Ramadan, DPhil (PhD) student, University of Oxford. Email: adam.ramadan@ouce.ox.ac.uk; *The guests' guests: the hospitality of Palestinian refugees towards displaced Lebanese civilians in summer 2006*

In July 2006, the geopolitics of the Arab-Israeli conflict were re-manifested in planes, bombs and missiles. A cross-border raid by the Lebanese militant group Hezbollah, that resulted in the capture of two Israeli soldiers, led to massive retaliation by Israel, including prolonged aerial bombardment and a limited invasion by Israeli ground troops. Several thousand displaced Lebanese civilians sought refuge in Palestinian refugee camps in southern Lebanon, thereby becoming the guests of the guests of Lebanon. This paper will explore this reversal of guest/host roles as a moment where Palestinian refugees could show hospitality to citizens of Lebanon, a state that has offered them a very limited and conditional form of hospitality for the last six decades. Jacques Derrida argued that our relations with the 'Other' should be based on a hospitality we strive to make unconditional, so that we are open to the arrival of the visitor, the uninvited guest, at any time, without imposing conditions. What sort of hospitality did Palestinian refugees offer to displaced Lebanese civilians last summer? As displaced Lebanese civilians arrived at Palestinian refugee camps, what motivated Palestinian refugee responses to them, and on what conditions were they admitted into the Palestinian camps? The war saw the alignment of interests of the displaced and impoverished Lebanese Shi'a with those of the Palestinian refugees, who share their story of dispossession and marginalisation at the hands of Israel and the Lebanese elite. This paper will also reflect on how this episode may have affected evolving Palestinian-Lebanese relations.

Keywords: Palestinian refugees, refugees, Palestine, Israel, Lebanon, hospitality

Laxmi Ramasubramanian, Associate Professor, Hunter College. Email: laxmi@hunter.cuny.edu; *Whither Social Justice? Reflections from a Participatory Action Research Project with Youth in New York*

This paper reflects on a participatory action research with young people attending a public school in East Harlem, New York. Although young people were not involved in designing the initial curriculum outline, the instructors followed the tenets of good and ethical participatory planning practice and invited and created opportunities for students to take an active role in designing the curriculum content and shaping the final project outcomes. The goal of the experience was to engage students to think about relationships between people and place, exploring issues and themes central to current planning practice including the need for affordable housing, economic development, and environmentally sustainable land use development. The students discovered new ways of "seeing" their own neighborhood and the city they live in. They acquired a spatial and temporal understanding of how cities work. They learned practical methods and techniques that can help to solve urban problems. Although the instructors sought to imbue the values of "planning for the public interest", in the curriculum, we had only limited success in this regard. It is these challenges that the paper will seek to elaborate upon.

Keywords: participatory action research, youth, New York, planning, social justice

Maria-Teresa Ramirez-Herrera, Ph.D., University of California Berkeley. Email: mtramirez@berkeley.edu; Janet M. Sowers, WLA. Email: ; Christopher M. Richard, Oakland Museum of California. Email: ; *The Creek And Watershed Map Of San Francisco*

The Creek and Watershed Map of San Francisco, at 1:25,800 scale, offers an exceptional look at both the historical stream and watershed system and the modern sewage and runoff system. Maps from the 1800s and the San Francisco Estuary Institute's EcoAtlas were our primary sources for the exact locations of the streams, marshes, sloughs, lakes and shorelines which once defined the historical system. We compiled modern features from municipal public-works

maps, aerial photographs and field observations. Distinguishing the historical watershed system from the modern sewage and runoff system has been our goal, showing both the continuities and the changes. We believe that it is important to educate the public to some of the hazards produced by urbanization of the landscape. To add depth to our presentation, we have marked 21 'points of interest' on the map and keyed them to short narrative descriptions: for example, creeks preserved and marshes restored by community efforts, natural lakes that are now amenities in city parks, and a former bay filled with 1906 earthquake debris caused the collapse of buildings during the 1989 Loma Prieta earthquake. As San Francisco uniquely collects municipal sewage and storm runoff together in underground drains routed to wastewater treatment plants, we have charted this singular system in detail, on the map, and its function and operation are explained in narrative detail. Our intent in producing this map has been to inform public decision-making processes and to encourage in the general public wise stewardship of the San Francisco landscape.

Keywords: watershed, historical streams, urbanization, landscape changes, map, San Francisco

Aida Ramos Viera, The University of Kansas. Email: arv@ku.com; *PROCEDE and Indigenous Common use areas in La Huasteca Potosina, Mexico.*

This paper details results from the participatory research mapping (PRM) component of the First Bowman Expedition, México Indígena, from nine indigenous Teenek and Nahua community lands of the Huasteca study area of eastern San Luis Potosí state, Mexico. We are analyzing the changes in common use areas in five communities certificated by PROCEDE, the program that provides certification of agricultural lands for privatization of what is now legally social property in agrarian communities (legally as ejidos and agricultural communities). We are using official information of the National Agrarian Registry (RAN) and other cadastral records together with PRM to document 1) land use and 2) parcels tenancy changes 10 years after the PROCEDE land certification process. Putting these results together with orthophotos and GIS analysis allows us to visualize changes on the land tenancy and land use, as well as the impact on the common use areas and their forests in certificated indigenous communities.

Keywords: México indígena, Participatory mapping, Indigenous people, Common use areas, PROCEDE.

Ramsaran Ramoutar, Rowan University. Email: Ramout@comcast.net; *title: Analysis of Natural Disasters 2005*

abstract: The poster presentation summarizes the areas worldwide where natural disasters occur. The casualties, the costs and the frequency of occurrences for 2005 will be examined in light of the popular belief that natural disasters are on the rise.

Keywords: key Hazards

CindyAnn Marsha Rampersad, Ph.D Student, Penn State University. Email: cmr246@psu.edu; *Diversity in Question: Self-Segregation Among International Graduate Students in the United States*

A half-century after the Brown vs. Board of Education decision, segregation remains a prominent issue within the American education system. While segregation was imposed by law prior to the Brown decision in 1954, today self-segregation poses a challenge to the effectiveness of university diversification policies. Most studies of self-segregation have focused primarily on the African American experience within higher education institutions without taking into account the experiences of international college students. The majority of studies on international students' experiences on U.S. college and university campuses have centered primarily on international undergraduates as opposed to international graduate students. This study, in contrast, examines how and why international graduate students self-segregate while attending a large public university in the United States. Using a mid-Atlantic university as a case study, I explore this issue employing two main strategies. First, I investigate the sociological rationale behind self-segregation among international graduate students, and second, I conduct an in-depth analysis of the extent to which university policies for diversity reinforce self-segregation. Following a qualitative methodological approach, I employ two methods: open-ended interviews and focus groups. In doing so, the present study draws upon, yet challenges, existing theories of cultural and social capital by analyzing the precise linkages between processes of social interaction and the formation of cultural identity. The results of this study shall inform the making of public policy recommendations for higher education institutions regarding the creation and implementation of more effective diversity strategies that encourage "meaningful" social interaction among all students.

Keywords: self-segregation, international, diversity, cultural capital, social capital, cultural identity, social interaction, public policy

Nissa Ramsay, University of Sheffield. Email: N.ramsay@sheffield.ac.uk; *'fragmentary connections: the aura of a souvenir'*

This paper uses tourist souvenirs as a trajectory through recent debates surrounding the 'rematerialisation' of geography. Theoretically, it explores how the notion of an object's 'aura' might offer a way of imagining the materiality of matter. This is conceptualised as an objects' emergent affective capacities, entangled with an objects' form (colours, shapes, textures), other objects, subjects, the moment and its past (life, history). An 'aura' might therefore be recognised as an object materialises into 'presence', attracting our attention as it alters the rhythm of ongoing activity. It is therefore also fragmented and disruptive, drawing attention away from other objects and subjects, soon fading away into the background. An object's aura therefore acknowledges the consistencies of objects as well as their potential to always be thought of otherwise. As a concept this enables us to explore how materiality work through, but are not delimited by physicality or subjectivity. Yet the challenge is how and if such a theoretical imagination might become empirically recognisable. This paper therefore focuses upon ethnographic research carried out in Swaziland (Southern Africa) and the UK. This explores the daily sensual and practical interactions with souvenirs and paraphernalia acquired by tourists. It also pays attention to how, when and if objects become animated at particular moments and by emergent meanings. By exploring the ruptures between such theoretical and empirical imaginations this paper concludes with the possibilities and questions posed by paying attention to materiality.

Keywords: objects, materiality, aura, affect, souvenir

Robert Ramsay, University of Toronto. Email: ramsayr@geog.utoronto.ca; *The Role of the 'Philadelphia Model' in Municipal Wireless Projects in North America*

Following Philadelphia's announcement in December 2004 that it would construct and administer a public city-wide wireless zone, the 'Philadelphia model' quickly became the dominant paradigm for municipal wireless projects, sparking countless discussions at trade conferences, a book, and the dissemination of its methods across the continent. This paper examines the reasons for Philadelphia's prominence in the muniwireless discourse, and the role the city's plan has played in advancing municipal wireless in general and in shaping other projects. I suggest there has been a continuing fetishization of wireless technology that serves to obfuscate the contestations between public and private broadband provision. Through interviews with key players in the muniwireless movement and a discourse analysis of industry literature and media coverage from 2003 to 2006, I argue that the Philadelphia case offers a glimpse of a new approach to urban governance, and illuminates historical yet highly contingent and emergent techno-social urban geographies.

Keywords: broadband, municipal wireless, technology, Philadelphia, discourse, urban geography

Kevin Ramsey, University Of Washington. Email: kramsey@u.washington.edu; *A Call for Agonism: GIS and the Politics of Collaboration*

This paper examines the increasing use of geographic information systems (GIS) to support the project of "collaborative" planning. Specifically, I explore the ways in which the use of GIS in collaborative planning programs work to counteract and/or reproduce patterns of marginalization always present in local political struggles. I explore this question through an analysis of a case study in rural Idaho in which the water management agency responded to a local conflict over water shortages by facilitating the development of a GIS surface water model to be used in collaborative planning between agency staff and water users. I find that the GIS constructed was a reflection of a particular configuration of power relations that resulted from agency employees' situated position as arbiters of knowledge in water resource disputes. I argue that a significant reason for the failure of this and other PGIS endeavors to destabilize existing inequalities in collaborations is a contradiction at the heart of collaborative planning theory: the idea that participants are able to temporarily set aside power relations in their efforts to collectively construct shared understandings on which to base decisions. In my presentation I will give particular attention to the challenges of conducting this kind of critical qualitative GIS research. These include: negotiating my multiple roles as technical collaborator with the agency, advocate for water users, and researcher; and, identifying the ways in which power relations are reflected in the GIS and collaborative process despite agency staff members' stated efforts towards neutrality and objectivity.

Keywords: GIS, collaborative planning, critical GIS, PPGIS, collaboration, agonism, political theory, planning

Matthew E. Ramspott, Ph.D., Frostburg State University. Email: meramspott@frostburg.edu; Kevin P. Price, Ph.D., Dept. of Geography, University of Kansas. Email: price@ku.edu; *Effects of Grassland Management Practices on the Estimation of Photosynthetic Capacity from the Normalized Difference Vegetation Index*

Land use practices in managed grasslands are known to impact soil and vegetation characteristics of these systems. Primary productivity and seasonal variations in photosynthetic capacity are important ecological measures that can be estimated using remotely sensed vegetation indices (VI). The relationship between photosynthetic capacity and VI is more complex in managed grasslands than in croplands and other vegetation types because of 1) seasonal changes that affect the spectral/optical properties of the grassland canopy, and 2) effects of grassland management practices on the composition of the plant community. The authors examined the seasonal and inter-annual stability of the relationship between VI and photosynthetic capacity in managed grasslands of Northeast Kansas, identifying management activities that resulted in deviations of the VI response from the normally expected linear relationship. Findings suggested that conservation management, in which the grass was not harvested by haying or grazing, resulted in a large proportion of senescent material in the canopy and unexpected decreases in VI response. Additionally, heavy grazing resulted in low levels of photosynthetic capacity coupled with increased abundance of planophile forb species, a combination that led to unexpected increases in VI response. After removing sites strongly affected by these two factors from the analysis, the relationship between VI and photosynthetic capacity was found to be stable within and between growing seasons. Analysis of seasonally time-integrated VI revealed that this measure (a surrogate for net primary productivity) was related moderately strongly to live standing crop biomass at the time of peak greenness in these grasslands.

Keywords: grasslands, NDVI, remote sensing, Kansas

Maano Ramutsindela, University of Cape Town. Email: maano.ramutsindela@uct.ac.za; *The reproduction of the apartheid spatial legacy in South Africa*

This paper focuses on the spatial impact of land reform and the redrawing of internal boundaries on South Africa's former bantustans. It argues that, in contrast to the democratic government's intention to use land reform and boundary demarcation to effectively change the spatial legacy of apartheid, these processes tend to cement the geography of the former bantustans. Though earlier research correctly projected that post-apartheid policies could result in the enlargement of the areas of the former bantustans, the ways in which this could happen were still unclear. This paper draws on experiences of land reform and boundary demarcation to demonstrate how and why the areas of the former bantustans have been enlarged over the 12 years of democracy in South Africa.

Keywords: bantustans, boundaries, land, South Africa

Sanjay Rana, University College London. Email: s.rana@ucl.ac.uk; *Application of Morphological Representation to Enhance the Visualization of Dynamic Weather Maps*

Animated visualizations of dynamic weather parameters e.g., temperature, pressure etc., is a common exercise to understand the structure and evolution of large scale weather phenomenon. Traditionally, such dynamic visualizations involve animation, perspective and immersive volumetric displays, and an overlay of relevant movement related symbolizations (e.g. contours, arrows, flow lines, weather fronts). The most critical information about a surface is contained within the morphological structure of these datasets. The paper proposes that the animation type visualization of the dynamic weather parameters can be enhanced significantly by explicitly representing the so-called fundamental local structural or morphological features, namely minima, maxima, ridges, ravines, and saddle. The motivation behind the research presented here is based on empirical studies related to 2D dynamic maps of geographic surfaces (terrain and socio-economic surfaces), which proposed that an overlay of morphological features during animation leads to the suppression of information overload and a more focused insight into the changes in the structure of the geographic surfaces. In terms of cartographic principles, the morphological representation performs the role of abstraction by selecting, simplifying, and exaggerating the underlying geographic information. The paper demonstrates enhancements achieved in the visualization of the time series of 2D meteorological maps, with an overlay of morphological features. It is suggested that the proposed morphological representation could be used as a simpler technique to understand and monitor the dynamic behavior of the weather for the purposes of forecasting models, which is otherwise carried out with sophisticated numerical modeling.

Keywords: Dynamic Maps, Weather, Animation

Samuel Randalls, University of Oxford. Email: samrandalls@tesco.net; *The Grass is Greener on the Other: Environmentalism, colonialism and the carbon economy*

Critical climate change literatures often draw out two forms of colonial critique which raise questions about ethics and justice in relation to contemporary policymaking around environmental issues. The first is the 'ecocolonialist' critique whereby the environmental externalities of the North become the environmental dangers of the South. Climate change furthers the divide between rich and poor by its inequitable impacts. The second colonialism is arguably encouraged by the policies emanating from international communities whereby the costs of moving away from carbon are disproportionately distributed with the North perceived as using market mechanisms to avoid taking its due share of the burden. This is particularly the case where countries in the South are rapidly developing through carbon based economies (the question of how to deal with them?). Various mechanisms including the emissions trading scheme, clean development mechanism and/or carbon offsets, for various writers, may reinforce power relations and colonial tendencies. These overlapping modes of colonial critique form the backdrop for this paper and set the scene for a broader discussion of colonialism and environmentalism within the climate change field. The paper will focus on a hoarier problem too, one that is frequently sidelined for fear of political disablement. This is namely that the North and Science are the ones redefining the whole world (again). What justifies political decisions and who is empowered to make these decisions become important questions?

Keywords: environmentalism, colonialism, climate change

Brett A. Randle, University of Missouri, Columbia. Email: bar54e@missouri.edu; Michael A Urban, Dr., University of Missouri, Columbia. Email: urbanm@missouri.edu; *Associating Smallmouth Bass young of the year with physical habitat-conditions in three Missouri streams*

Fisheries managers in the State of Missouri have expressed concern that populations of sportfish, specifically Smallmouth Bass (*Micropterus dolomieu*), are declining due to stream degradation stemming from changing land-use patterns and associated shifts in hydrology and entrained sediment. Specifically, young of the year survival is crucial to ensure future viability of local populations. This study examines the role that soil, surficial geology, and watershed scale changes in land use/land cover have on physical habitat conditions known to be important to Smallmouth Bass young of the year. Nine kilometers of stream channel in three streams located in central and northern Missouri were surveyed for such variables as substrate, embeddedness, channel width, thalweg depth, woody debris, canopy cover, and pool/glide/riffle/run complexes. This paper represents one aspect of a larger project intended to associate the presence of healthy smallmouth bass populations with environmental conditions and morphological structure affecting habitat at both landscape and reach scales. A broader understanding of the linkages between smallmouth bass habitat and the physical configuration of area streams will contribute to more effective decision-making and prioritization for stream enhancement or restoration activities within Missouri.

Keywords: fluvial geomorphology, aquatic ecology, habitat, Smallmouth Bass, Missouri

Rainer Randolph, Universidade Federal do Rio de Janeiro. Email: rainerrandolph@yahoo.com; *Gated communities in metropolitan and peri-metropolitan areas: a comparison of the social segregation of space among condominiums inside and outside of the metropolitan area of Rio de Janeiro*

Nowadays, the phenomenon of closed urbanization is present in a lot of cities in the whole world. As describes well the term in Castilian of "urbanización cerrada", those condominiums are not just fortified areas with a set of residential buildings but they count, largely, with an entire infrastructure and internal services of safety and surveillance. These forms of "urbanization" are not only contributing for the metropolitanization of the contemporary societies; they transcend the administrative limits of cities and expand the urban fabric, in a differentiated way, to areas called peri-metropolitan. That whole successive expansion is characterized by the generation of new centers and peripheries and different forms of occupation of space by different social segments. The main task of our work is to discuss if the new forms of socio-spatial segregation in peri-metropolitan areas represent a mere extrapolation of those forms already present in the heart of the metropolis. Our research in the Barra de Tijuca neighborhood of Rio de Janeiro point out gated communities as dominant form of occupation. The characteristics of those communities will be compared with the recent occupation of peri-metropolitan areas in Petrópolis. It's our aim to identify similarities and differences between these processes.

Keywords: Gated community, Rio de Janeiro, Peri-metropolitan Area

Haripriya Rangan, Monash University. Email: haripriya.rangan@arts.monash.edu.au; *Lumpen business and nous: An antipodean critique of uneven capitalist development*

This paper examines how the 'lumpen' masses have been conceptualised in Marxian and postcolonial theory. It critically explores contemporary theorising of global capitalism and its production of geographically uneven development. It offers an antipodean perspective on the marketplaces, geographical transactions, practical intelligence, and pathways of accumulation that form the business of everyday life for the indeterminate masses that are routinely represented as victims of global capitalism. The paper will argue that, contrary to the extravagant and tragic claims made by metropolitan radicals, contemporary capitalist processes do not produce geographically uneven development, but rather rely on geographically differentiated modes of lumpen business and nous to evolve along different pathways and configurations of capitalism and political power.

Keywords: marketplace economies, antipodean critique, capitalist development

Katharine N. Rankin, University of Toronto. Email: k.rankin@utoronto.ca; *The Gender Politics of Development: Neoliberal Alliances, State Projects, Cultural Articulations*

How do neoliberal development technologies articulate distinct national cultural-political and institutional milieu? How has gender been implicated in distinctly national neoliberalization processes, both as a political rationale of governance and as ideologies and practices contouring everyday life in rural communities? These are the key questions that animate this paper examining microfinance as a market-led, women-focused development strategy in Nepal and Vietnam. The objective is to understand how this iconic instrument of 'roll-out' neoliberalization articulates Nepalese and Vietnamese milieu at three spatial scales: national macro-regulatory frameworks for rural finance, organizations implementing development projects, and the beneficiary groups 'on the ground' through which organizations distribute their services. The comparative approach is intended to emphasize the temporal and geographical contingency of such articulations. The multi-scalar approach is intended to highlight how transnational neoliberal projects form the necessary, often uneasy, alliances with distinctive state governing projects, and in so doing also generate spaces for critique and alternative imaginaries as their contradictions become increasingly apparent.

Keywords: Development, governmentality, neoliberalization, microfinance, articulation

Kieran Rankin, University College Dublin. Email: kieran.rankin@ucd.ie; *Rationales and Legacies of M.W. Heslinga's 'The Irish Border As A Cultural Divide'*

Historians and political scientists have chiefly furnished the literature devoted to the partition of Ireland but the pioneering and most enduring contribution to the geographical canon on the subject has been M.W. Heslinga's 1962 work, 'The Irish Border as a Cultural Divide'. As a constant source of controversy, analysis of the Irish Border is unsurprisingly beset by political suspicions. This may account for why the unfulfilled necessity for a full geographical treatment was eventually discharged by a Dutch, and not an Irish or British, geographer. The book heralded a fresh approach in utilising a comprehensive range of sources and placing emphasis on Ireland's links with Britain, and thus conceiving the Irish Border as marking an integral element in an archipelago-wide divide. Despite the book's substantial historical coverage, the sheer volume of the pre-Act of Union sections detract from a curiously inadequate description and analysis of how and why the Border came to be delimited and confirmed in position during the politically turbulent 1911-1926 period. While the book remains an important landmark, it has elicited little by way of a comprehensive critical response. This is quite remarkable considering the book's failure to elaborate upon concepts underpinning any partition's most inescapable and pervasive manifestation - the boundary line itself - as well as the book's classification in certain quarters as a pro-unionist treatise. This paper examines the aims, methodology, and key conclusions of the book as well as to survey its contemporaneous reception in the academic community and subsequent legacy.

Keywords: Ireland, partition, boundaries, Heslinga

Norma M. Rantisi, Concordia University. Email: nrantisi@alcor.concordia.ca; **Deborah A Leslie, University Of Toronto. Email:** deborah.leslie@utoronto.ca; *Viral spaces of creative production in the design sector of Montreal*

In recent studies on the economic significance of creativity, much attention has been accorded to the important role that quality of life attributes of neighbourhoods play in attracting talent to cities, with the assumption that quality of life is most valuable when defined in terms of consumption. In this paper, we reconsider the role that quality of life has on the productive dimension of creativity. More specifically, we examine how low-cost rents and loft-style

dwelling in Montreal's off-beat neighbourhoods alter the risks of producing original styles by affording independent designers the social and material resources to experiment and explore novel concepts. The study draws on interviews with designers in the fields of fashion, graphic and industrial design, and examines their social and spatial production requirements. It suggests that a consideration of the productive dimension of quality of life draws attention to the need for more substantial investments in the development of social and cultural resources which not only benefit designers in an economic sense, but can also shape the social character and physical space of the neighbourhoods in which they are embedded.

Keywords: creative economy, design, urban economic development

Vyjayanthi Rao, The New School. Email: raov@newschool.edu; *Slum as Theory: Density and Development in Global Urbanism*

Urban density is often taken to be self-evident and treated as an indicator or attribute of urban space upon which urban planning and individual planning decisions are made. This paper makes the case for thinking about density as a relational and social quality produced by identifiable associations, practices and systems of human interactions, specifically with infrastructural technologies. Based on ethnographic research in Mumbai, the paper will consider several different 'sites' at which density operationalizes an incessant sense of temporariness and anticipation within the frame of social relations. As geographies of density, these geographies of density yield surprising circumventions of functionality and planning but they also make possible transformation within existing frames of relations. Much of the recent urbanist literature focuses mainly on the slum not only as an empirical but also an analytic geography. Based on the ethnographic work on Mumbai, the paper makes the case for shifting the frame from the slum as the chief site for theorizations of the multitude to including and juxtaposing the slum with other geographies of density. Doing so might yield new insights into the relationship between built form and urban design as well as yield accounts of the city that are not trapped either by normative and prescriptive models of the city or by the need to turn to a redemptive reading of chaos and misery.

Keywords: slum, mumbai, density, globalization

Marilyn N Raphael, Professor, University of California. Email: raphael@geog.ucla.edu; *The Changing Variability in the Southern Hemisphere Annular Mode Associated with Extreme Antarctic Sea Ice Distribution*

The response of the leading mode of atmospheric variability in the extratropical Southern Hemisphere, the Southern Annular Mode (SAM), to extremes of Antarctic sea ice concentration is investigated using a fully-coupled climate model - the NCAR Community Climate System Model-version 3 forced by satellite observed sea ice concentration. Average, maximum, and minimum sea ice concentration climatologies were extracted from satellite-observed sea ice concentrations and used to force the model for three 150-year simulations. Using principal components analysis the SAM was calculated from the 500hPa geopotential height field for each scenario and the results for the southern summer are compared. The model produces reasonable simulations of the SAM. Spectral analysis of the timeseries of the SAM for the different sea ice concentration scenarios indicates that under average sea ice distribution the dominant period is eight years while under the minimum and maximum distributions it is four years and ten years respectively. Physical reasons explaining these changes in variability are discussed.

Keywords: Antarctic sea ice, Southern Hemisphere Annular Mode, Climate Modelling

Melanie Ann Rapino, University of Connecticut. Email: melanie.rapino@uconn.edu; *Gender Roles and Spatial Entrapment*

Many factors contribute to women's secondary labor market status including their overlapping roles within the household and society. The spatial entrapment hypothesis emphasizes that women's job search range is restricted due to multiple factors (i.e. gender roles, lack of transportation accessibility, care of the elderly, etc.). The home responsibilities associated with married women's traditional gender role may limit their ability (i.e. time and money) to travel longer distances to work and thus restrict the jobs from which they have to choose. The restricted job search range may explain why women are disproportionately represented in low-wage occupations. This research utilizes commuting times to test how gender roles influence the job search range of women and their secondary status within waged labor. Using data from the 1990 and 2000 Public Use Microdata Sample of the U. S. Census, this research compares commuting times for heterosexual partners and same-sex partners. Same-sex partners (i.e. lesbian women and gay men) are used as a control group within this research because traditional gender roles are not associated with their commuting behaviors or occupation which previous research has lacked. The hypothesis for this research is that gender roles do play a significant role in explaining women's lower status in the labor market. Provided the results show that lesbian women

have statistically similar commuting times as married men, and that married women have significantly shorter commuting times than both groups, then the hypothesis is supported and gender roles are a significant factor of spatial entrapment for women.

Keywords: spatial entrapment, gender, commuting

Tarek Rashed, University of Oklahoma. Email: rashed@ou.edu; *The Model of Models: An Integrative Conceptual Model for the Spectral Analysis of Urban Imagery*

Remote sensing of the built environments is an important source of information for the intelligence and civilian communities with respect to mapping and monitoring urban environments. Since the 1970s, several models have been proposed to guide the spectral-based classification and analysis of urban remote sensing data including: Anderson's hierarchical classification schema (1976), the Remote Sensing model of Strahler et al (1986), the VIS model of Ridd (1995), and HLV model of Small (2001). These models have however been proposed in isolation and are usually viewed as competing alternatives. This paper argues that they are rather complementary and can be integrated together to guide the spectral analysis of urban imagers. The paper first discusses the context in which the above models were proposed, how they differ, and the implications of this difference on the spectral analysis of urban imagery. An integrated model is then proposed, in which the above models are viewed in a continuum. The application of the proposed model is presented through a case study that utilized multiple urban RS images of various spectral and spatial resolutions for the analysis of urban attributes in Greater Cairo, Egypt. The results of the case study are found to provide more insights into the spectral nature of urban attributes when considered through the conceptual constructs of the proposed model. Reflections made as to how the proposed model can help further our understanding of the potentials and limitations of the various spectral based methods proposed for the analysis of urban remotely sensed data.

Keywords: Spectral Analysis, Conceptual Model, Urban, Cairo

Harun Rashid, Professor and Chair, Geography and Earth Science, University of Wisconsin-La Crosse. Email: rasid.haru@uwlax.edu; *Structural and Non-Structural Flood Alleviation in La Crosse, WI: Newspaper Discourse vs. Floodplain Residents' Preferences*

This study compares The La Crosse Tribune discourse on structural and non-structural flood alleviation measures in La Crosse, WI with survey data on urban floodplain residents' preferences for these measures. Based on content analysis of at least 1000 archived reports on the Mississippi floods in La Crosse between 1931 and 2005, the study found that although three-quarters of its flood reports were on routine events, nearly one-half of the Tribune column space for flood news was on flood alleviation, emphasizing significantly more on non-structural than on structural measures. In contrast, the survey respondents from the 100-year flood zone (N = 90) preferred upgrading flood control levees (mean Likert scale score: 4.06), compared to flood-proofing personal property (mean score: 1.94), partial flood-proofing (2.85/2.15) or relocation (2.26). The respondents disapproved several provisions of the NFIP, two-thirds stating that they had to purchase flood insurance as a requirement for their home mortgage, another one-half complaining that the premium was too high, at least one-third asserting that flood insurance was unnecessary for their property because it had never flooded, and only two respondents had purchased this insurance voluntarily. These responses seemed to imply that the floodplain residents of La Crosse had major reservations about the NFIP principles of flood risk mapping and zoning, despite numerous contextual articles in the Tribune on the NFIP. A more deliberate effort by the NFIP to explain these principles through media discourse and public meetings may be helpful in convincing the residents about the usefulness of this program.

Keywords: Mississippi Floods, Flood Alleviation, Flood Insurance, Newspaper Discourse

Robert Raskin, Jet Propulsion Lab. Email: raskin@seastar.jpl.nasa.gov; *Geoscientific Knowledge Management Using the SWEET Ontologies*

Transformation of data into knowledge is a cliché often invoked to describe the work of a geoscientist. While cyberinfrastructure for "data" is well known, the analogous tools for "knowledge" are less familiar and less available. A geoscientific knowledge cyberinfrastructure clarifies semantics, disambiguates terminology, and provides a reservoir for organizing and classifying scientific concepts. An ontology is central to knowledge representation, as it provides shared understanding of terms, phrases, and concepts, in both machine and human readable forms. The ontologies of the Semantic Web for Earth and Environmental Terminology (SWEET) provide this geocyberinfrastructure. We demonstrate how datasets, features, and resources can be associated with SWEET ontology elements, and retrieved using intelligent access methods that take advantage of geospatial common sense. Applications include: i) geospatial semantic enhancements to search engines, SOAP Web Services, and workflow; ii)

descriptions of spatial data mining targets; iii) and capture of "corporate memory" of geospatial-related organizations and features.

Keywords: cyberinfrastructure, ontologies

Samuel J. Ratick, Clark University. Email: sratick@clarku.edu; Yuko Aoyama, Clark University. Email: yaoyama@clarku.edu; William Kang, Clark University. Email: weliam_kc@yahoo.com.cn; *Development of an Agent Based Model to Assess Changes in the Contemporary Logistics Industry*

In this paper we report on the development of an agent based model (ABM), informed by interviews and a survey of logistics firms in the United States. The model is designed to illuminate the underlying causes and responses that may constitute dramatic organizational changes that have been observed in the logistics industry in the past decade. Two types of agents have been incorporated in the ABM; logistics providers and logistics users. Logistic providers are distinguished by the type and qualities of their attributes that include: location, size, type of services offered (for example: land, air and sea transport, warehousing, and freight consolidation) geographic reach (service territories), and level of information and communication technology (ICT) functionality, among others. Logistics user agents create part of the market environment in which the logistics provider agents function through the issuing of requests for service(s), through the manner in which bids are evaluated (for example cost and trust) and through the selection of agents chosen to provide the service(s). In reaction to their success in this bid/response environment, provider agents can invest in labor and information technology to improve their attributes and enhance their chances of winning bids. Model scenarios are developed by changing investment patterns and by altering the degree to which cost and trust play a role in the selection of winning bids; scenario results are analyzed and evaluated with respect to their implications for the changes that are occurring in the contemporary logistics industry.

Keywords: Logistics Industry, Agent Based Model, Organizational Changes

Ilkka Ratinen, . Email: iratine@edu.jyu.fi; Ilkka Ratinen, University of Jyväskylä. Email: iratine@edu.jyu.fi; *Development of a SFA modeling by fuzzy logic.*

Eutrophication, which is largely generated by increased nutrient inputs from many sources, has been regarded as one of the major threats to the coastal marine ecosystem in the Archipelago Sea in the Southwest Finland. To increase the knowledge of nutrient inputs and outputs in the open marine system and their influences in the specific sea area, GIS modeling methods and fuzzy logic are needed to understand the complex marine system. This study gives a holistic picture of the nutrients flows in the municipality of Kustavi, Southwest Finland. Nutrient flows from fish farming, agriculture, forestry, cottages, scattered settlement, wastewater treatment, fish processing plants, natural leaching airborne deposition and background loading has been calculated by SFA (Substance Flow Analysis). The background loading has also been modelled by GIS and fuzzy logic to map the spatial variation of nutrients in open seawater system. The study reveals that nutrification is a complex phenomenon and nutrients can drift widely in the open seawater. However, when the distribution of a nutrient is known accurately it is then possible to delineate by GIS a set of artificial borders for the open system. Because phenomena in the seawater are vague but mathematical models may interpret them as inexactness it is needed fuzzy logic approach in the determination of borders in seawater. Doing systems analysis by fuzzy logic and semi-quantitative, the inputs of system can adjust in the specific area by neuro-fuzzy method.

Keywords: fuzzy logic, Substance Flow Analysis, GIS, seawater

Jamie Ratliff, San Jose State University. Email: jlratt97@yahoo.com; *Building a GIS for Habitat for Humanity - Guatemala: A Work in Progress*

The use of geographic information systems for cataloging and observing cultural and natural events is something that is not equally accessible. With the goal of creating a workable geographic information system for Habitat for Humanity in Guatemala to use for plotting houses they have built, the processes needed to accomplish this are many. From the collection of data by Habitat for Humanity in Guatemala to the sending of that data to California for entry into the geographic information system to the location of any extra information needed to enhance the use of the geographic information system, the work needed is extensive. The future completion of the geographic information system, including georeferenced topographic maps and a relational database for easy entry of new data, may span far beyond the current plans for the system, including practical uses by other organizations for disaster planning and other analyses.

Keywords: Guatemala, Habitat for Humanity, GIS

Jaime E Ratner, Binghamton University. Email: jratner1@binghamton.edu; *Evaluating Place Vulnerability: An All-Hazards Assessment Methodology Applied to FEMA Region IX*

The study of hazard vulnerability involves assessing the potential loss of property or life within a given spatial domain. Information from such assessments can help policymakers develop effective hazard mitigation strategies. With limited resources, a comprehensive and reliable assessment tool must exist. Such a tool has the capacity to quantify place vulnerability, based upon the interaction of the physical factors and social context that define a geographic domain, rather than misconceptions based on size, economic standing, or political influence. This research addresses the need for such a fair assessment tool. Readily available socio-economic and geophysical data, compiled by various government agencies, will be aggregated in an appropriate and meaningful methodology utilizing a GIS and geostatistical techniques. This methodology will allow for significant comparisons between geographic entities with the flexibility to provide reliable output at all spatial scales. Focusing on the states defining FEMA Region IX (Arizona, California, Hawaii, and Nevada) place vulnerability assessments will be performed at two distinct spatial scales: (1) an aggregated county-level scale and (2) a disaggregated census-tract scale. These assessments will elucidate spatial variations in vulnerability across distinct geographic domains as a function of socially vulnerable populations and physically vulnerable places embedded within the fabric of geographic space. An evaluation of disaster declaration data will follow the place vulnerability analysis. Geostatistical techniques will reveal spatial patterns between the number of disaster declarations per county across FEMA Region IX from 1981 to 2006 and the associated place vulnerability established during the assessment process.

Keywords: vulnerability, hazards, disasters, gis, FEMA

Keith A. Ratner, Salem State College. Email: keith.ratner@salemstate.edu; *Tracking Land Use Change From New Rapid Transit Development in the Denver Region*

In November, 2004, the residents of the Denver, Colorado metropolitan area passed the FasTracks initiative, a \$4.9 billion expansion of the regions rapid transit system. This expansion will add 137 miles of rapid transit service to Denver's existing 25 miles. It will extend service in three existing corridors, and build new service into six additional corridors. As plans are being developed, there is a significant interest in the impact of the new service on land use, land prices, and land development throughout the Denver region. This paper will present the initial stages of a project that is going to track the land use impact of the new service. The paper will begin with a review of the literature on measuring the regional impact of new transit development. This review will include the identification and ease of obtaining potential measures, the frequency at which different measures should be calculated, and the different regional scales at which measures are found. The paper will conclude with a presentation of how the tracking process in Denver is proceeding at this time.

Keywords: Transportation, Land Use, Urban Development

Kumi Rattenbury, University of Alaska Fairbanks. Email: kumi.rattenbury@uaf.edu; Knut Kielland, University of Alaska Fairbanks. Email: ffk@uaf.edu; Greg Finstad, University of Alaska Fairbanks. Email: ffglf@uaf.edu; William Schneider, University of Alaska Fairbanks. Email: ffws@uaf.edu; *Reindeer Herding, Weather, and Environmental Change on the Seward Peninsula, Alaska*

Central to the climate change discussion is the role of daily and seasonal weather within land and natural resource based livelihoods. Reindeer herders on the Seward Peninsula, Alaska rely on specific weather conditions, particularly since the Western Arctic Caribou Herd began wintering in the region in the late 1980s. Over 17,000 reindeer (affecting 13 of 15 herds) have been lost due to mixing and outmigration with the caribou. Interdisciplinary research involving a case study with one herder, weather monitoring, and interviews with other herders yielded insights about the role of weather and climate change within the social-ecological system of herding. Inclement weather limits herd access and can seriously disrupt the balancing act between increasing herd monitoring under caribou presence and finding the economic means to do so with smaller herds, diminished antler markets, and rising fuel costs. Access-limiting weather conditions are usually less measured or measurable by climate change science (e.g., reduced visibility versus low temperatures), or they involve combinations of weather and environmental factors that are also difficult to quantify (e.g., fall freeze-up or spring break-up). Delayed freeze-up (as in 1996, 2002, and 2004), frequent storms (as in fall 2004) and early break-up (as in April 2004) decrease herder mobility and have been implicated in instances of herd loss to caribou or predators. If such events occur more frequently, as is expected by numerous local knowledge holders and climate change models, herders will have to expand their caribou mitigation strategies to include adaptations for shorter and warmer winters.

Keywords: Alaska, reindeer, herding, adaptation, weather, climate change

Martin M Raubal, University of California at Santa Barbara. Email: raubal@uni-muenster.de; *Representing Geographic Concepts In Time*

People make use of concepts in all aspects of their lives. Concepts are mental entities, which structure our experiences and support reasoning in the world. Often, concepts are regarded as static although there is ample evidence that they can and do change over time with respect to structure, content, and relation to real-world objects and processes. Recent research considers concepts as dynamical systems, emphasizing this potential for changes. In order to analyse the alteration of concepts in time, a formal representation of this process is necessary. This paper proposes a formal model for representing dynamic concepts, which utilizes two theories from geography and cognitive science, i.e., time geography and conceptual spaces. Such representation allows for investigating the development of a conceptual structure along space-time paths and serves as a foundation for querying the structure of concepts at a specific point in time or for a time interval. Geographic concepts serve as examples to demonstrate the formal framework.

Keywords: geographic concepts, time geography, conceptual spaces

Julia Rauchfuss, University of Minnesota. Email: rauch024@umn.edu; Susy S. Ziegler, University of Minnesota. Email: ziegler@umn.edu; *Regeneration Patterns at the Lost 40 in the Chippewa National Forest, Minnesota*

Regeneration patterns and disturbance history were determined in an old-growth red and white pine (*Pinus resinosa* and *Pinus strobus*) forest (the Lost 40) in the Chippewa National Forest in Minnesota. The Lost 40 was not logged in the late 1800s due to a surveying error. It is one of the few old growth stands left in Minnesota. We collected data from three plots within the protected forest. We tallied and measured every tree larger than 2 cm diameter at breast height (DBH), noted the crown class, and extracted two increment cores at a height of 100 cm from each tree that was larger than 10 cm DBH. The oldest pine reached coring height in 1769; however, most pines were rotten inside and pith dates could not be obtained in most cases. Basal area data show that the pines are still the dominant trees in the plots. However, white and red pines are only canopy trees and no saplings grow in the understory. Species in the understory include birch (*Betula* spp.), maple (*Acer* spp.), and balsam fir (*Abies balsamea*). Fire scars and charcoal were absent in the plots. Because white and red pines often establish after fire, this could mean that fire has been absent long enough for evidence of fire to disappear. The exclusion of fire and lack of widespread disturbance by wind or logging would also explain the absence of regeneration of white and red pine.

Keywords: white pine, red pine, old growth, regeneration, disturbance history, dendrochronology

Christian G Raumann, United States Geological Survey. Email: craumann@usgs.gov; *Historical land use/cover for watershed model parameterization at Lake Tahoe, California and Nevada*

Changes in land use/cover over the past 150 years of human activity in the Lake Tahoe basin, especially since the onset of urbanization in the 1950s, have contributed to degradation of water quality and lake clarity due to increased sediment and nutrient availability and inputs. In response, a Total Maximum Daily Load (TMDL) analysis of the basin is currently underway to aid in minimizing, stopping, or reversing the trend of decreasing water quality and clarity. Our goal was to produce accurate measurements of historical land-use/cover conditions for selected years (1940, 1969, 1987) that could be used to parameterize a watershed model to determine baseline conditions for water quality and landscape. We refined multitemporal manually interpreted land-use/cover data by incorporating roads and erosion potential data and then aggregated the data to classes coinciding with relative nutrient- and sediment-loading ratios. Contemporary model applications relied on parcel-based land-use data that differed from the manual interpretation-based data used for historical applications. We found that the disparities in year 2002 totals between the two data layers resulted from parcel overestimation of the actual footprint of development, misregistration of roads and ski runs, and variations in the thematic and spatial scales of source data. The potential effect of these disparities on model results likely depends on the resulting variations in modeled nutrient and sediment loads, as well as model sensitivity. Our results highlight the importance of application-appropriate land-use/cover representation and the benefits of considering and emphasizing multiple uses of the data when planning new data-production efforts.

Keywords: Land use, land cover, water quality, modeling, mapping, GIS, Lake Tahoe

Mika Raunio, Sente/University of Tampere. Email: mika.m.raunio@uta.fi; Markku Sotara, Sente/University of Tampere. Email: markku.sotara@uta.fi; Kristina Vaarst Andersen, Imagine/Copenhagen Business School. Email: ; *Attractive city-regions: Varieties of quality of place*

In a recent debate about the creative class and creative cities such concepts as attractiveness and quality of place have emerged as central. It has been claimed that certain qualities of place - throbbing night life, authenticity, high-quality services, diversity, etc. - are important attractors for creative class. In this paper, the fuzzy concepts of attractiveness and quality of place are critically assessed, redefined and placed into the context of a diverse set of city-regions. In addition, the role of quality of place in relation to job opportunities and social relations, more traditional factors for inter-regional migration, is scrutinized. The key questions in this paper are: (a) what does quality of place mean in different city-regions, and (b) what are its actual meanings as an attractive factor for different groups of people. A simplified taxonomy between different types of city-regions is presented and tested with quantitative and qualitative data from eight European countries. This paper draws on the "Technology, Talent, and Tolerance in European Cities" project carried out by eight European research teams. It aims to provide the vivid debate on creative class and creative city with both conceptual and empirical insights.

Keywords: creative city, quality of place, attractiveness

Evelyn D. Ravuri, Saginaw Valley State University. Email: eravuri@svsu.edu; *Hispanic Population Growth and Urban Succession in Detroit, 1990-2000*

Although Detroit, Michigan has had a Hispanic enclave since the 1930s, rapid growth in Hispanic population in the city during the 1990s led to a major transformation of the enclave from predominantly non-Hispanic white to Hispanic, as well as an expansion of the Hispanic Enclave. This paper examines the process of urban succession in Detroit from 1990 to 2000 by creating a typology of succession to examine changes in Hispanic settlement patterns in 63 census tracts in Southwestern Detroit and the adjoining suburb of Dearborn. The five typologies created were Black Stable, Established Hispanic- White Succession, Emerging Hispanic-White Succession, Arab, and White Stable. Maps of owner-occupied housing and median housing values by tract were used to compare with that of the five typologies. In general, housing values and percentage owner-occupied housing increased with distance from Black Stable Tracts. The exodus of non-Hispanic whites from the Established Hispanic and Emerging Hispanic tracts undoubtedly left a surplus of quality housing for bargain prices and probably dissuaded Hispanics from settling in black tracts. Interestingly, more Hispanic growth occurred in the White Stable tracts of Dearborn, tracts with highest median housing values and owner occupied-housing, than in the Arab tracts contiguous to the Hispanic Enclave suggesting that cultural rather than economic constraints were more important in Hispanic settlement patterns. Given the spatial arrangement of the tract typologies in Southwestern Detroit, it would appear that the Hispanic population provides a buffer between non-Hispanic whites and non-Hispanic blacks.

Keywords: Hispanics, Urban Succession, Detroit

Rajiv Rawat, PhD Candidate, York University. Email: rajiv@yorku.ca; *Mountain Shepherds Inaugural Women's Trek: Evaluation of a community initiated and operated tourism project in the Uttarakhand Himalayas*

In the fall of 2006, a unique ecotourism event was staged to mark the launch of the Mountain Shepherds Initiative of the Nanda Devi Campaign, an environmental justice movement fighting for cultural survival and sustainable livelihoods in the Uttarakhand Himalayas. The new commercially oriented yet community owned and operated ecotourism venture attempted to employ the Inaugural Women's Trek as a way to gain exposure to international clientele, as well as to learn from more experienced trekkers ways to improve and give shape to their nascent operation. This presentation will thus trace the experiences of both the young guides and women trekkers as they attempted to navigate the nuances of their mission, as well evaluate the overall effort in terms of feedback received from various parties, including organizers, trainers, and community members who shared in hosting the trek participants.

Keywords: mountains, himalayas, ecotourism, sustainable livelihoods

Lesli M. Rawlings, University of Nebraska. Email: l.r@juno.com; *The Impact of Public Schools on Home Values in Lincoln, Nebraska*

Few studies have quantitatively examined the impact of assigned public schools at the elementary, middle, and high school level on home sale prices. Interviews with school district officials indicated that residential developers readily negotiate land transactions for new elementary school sites as opposed to high schools. Supposedly, homeowners have a "Not In My Backyard" (NIMBY) attitude toward high schools because of traffic congestion and noise generated by student drivers. The objective of this research determines how public school

character (e.g. school level) impact 2005 home sale prices in Lincoln, Nebraska.

Keywords: home value, schools, NIMBY

Emma Rawlins, University of Leeds. Email: geolr@leeds.ac.uk; *Citizenship, Health Education and the UK Obesity 'Crisis'*

This paper considers how conceptions of citizenship in Britain are linked to the notion of being a healthy citizen. In light of the current childhood obesity 'crisis' the delivery of health education messages is seen to be extremely important. In particular the implicit theme of these messages is that being a 'Good' citizen means making the 'right' choices when it comes to lifestyle decisions such as eating and physical activity practices. This study focuses on how these messages are delivered in school and crucially how these messages are interpreted and followed (or not) by students. The research involved work in a Secondary School in a Northern City in the UK, in addition to in depth research carried out with eight families. The findings suggest that the influences on children's lifestyle choices vary across the key spaces of childhood; the home, the school and the peer/community spaces (Holloway and Valentine, 2000). The paper concludes by highlighting the weaknesses of current health education messages that are aimed at the individual. These messages do not consider the interspatial nature of eating and physical activity practices and will not be as effective as those aimed at the family, school and wider community.

Keywords: Citizenship, Health Education, UK, Obesity, Intergenerational

John W. Raymond, Salem State College. Email: john.w.raymond@verizon.net; *Using LIDAR to measure roof areas in hurricane prone regions*

A major concern of the Federal Emergency Management Agency is to minimize the damage of surviving structures and dwellings after a hurricane event. FEMA has instituted a program for post hurricane relief called "Operation Blue Roof". It consists of the placement of plastic blue tarps over the damaged roofs of buildings. This is to minimize further water damage. A major problem is determining the area of the roof's to be covered prior to or just after a hurricane event. Having forehand knowledge of the square footage to be covered will be of great logistical importance. This project will examine the feasibility of using LIADR images or LIDAR in conjunction with other remote sensing data to measure the square foot area of individual structures in a given area. The area of study will be along the south coast of Louisiana.

Keywords: Remote sensing, natural hazards, LIDAR

John W. Raymond, Salem State College. Email: jwraymond60@hotmail.com; *Developing a fall foliage observation route through New England during peak season*

During the fall season many tourists travel to and throughout New England to observe the fall foliage. Normally peak season for fall foliage is between the beginning to the middle of October, when the nights get cold enough and daylight is shortened so that the chlorophyll in the leaves begins to break down letting the other pigments begin to show. This project will attempt to determine the route for fall foliage viewing based on satellite imagery. The data for this project will be Landsat 7 ETM+ satellite imagery from the Global Land Cover Facility website. Not only will I be looking at different land cover types (deciduous and coniferous trees), but elevation data will also help determine the "best viewing areas" in New England by taking elevation, slope and aspect into account.

Keywords: Remote Sensing, New England, tourism

Jane M. Read, Syracuse University. Email: jaread@maxwell.syr.edu; *Teaching Introductory GIS through Public Scholarship*

Action learning through public scholarship provides an opportunity for incorporating real-world (relevant) problems into college courses, which has been shown to increase student learning. Teaching Introductory Geographic Information Systems (GIS) entails linking concepts and principles of GIS with the technical skills required to run GIS software and implement projects, which can be challenging in standard lecture and laboratory-format courses. This paper reports on an upper-level Introductory GIS course for undergraduates that incorporated action learning and public scholarship through a community-driven mapping and analysis project examining food security issues in the City of Syracuse, NY. Throughout the project, students used and developed their GIS skills to compile and analyze datasets, and present results of their analyses to members of the public. They also practiced consultation skills through working with representatives of community organizations, and learned about elements of research design and project implementation. Analysis of student journal reports and student course evaluations indicate that incorporating a community-based project into the course was effective in aiding student-perceived learning of GIS, while also giving them insight into an important social issue within their community. Drawbacks in this exercise included uncertainties in outcomes and the amount of teacher preparation time required to set up and guide the work. Additional benefits, however, included improved and ongoing community-university

linkages, provision of useful data for the community organizations to use, and increased awareness of GIS and geography both on campus at student and administrative levels, as well as in the community.

Keywords: Public scholarship; GIS; Teaching

Steven Reader, University Of South Florida. Email: sreader@cas.usf.edu; Elizabeth Barnett, University of South Florida. Email: ebarnett@health.usf.edu; Beverly G Ward, University of South Florida. Email: bward@cas.usf.edu; Michele L Casper, Centers for Disease Control and Prevention. Email: myc5@cdc.gov; *Premature, Out-of-Hospital Cardiac Death: Geographic Perspectives at the National and Metropolitan Statistical Area Scales.*

Premature cardiac death can be defined as a death from "diseases of the heart", under 65 years of age. Approximately 70% of premature cardiac deaths occur in "Out-of-Hospital" locations, such as the residence of the decedent, the community-at-large, in-transit (dead-on-arrival) or in emergency rooms. This paper is concerned with investigating the spatial variation in the relative proportions of premature cardiac deaths which occur In-Hospital and Out-of-Hospital at two different spatial scales. At the national scale, the percentages of premature cardiac deaths occurring Out-of-Hospital by county are compared to county level measures of emergency room accessibility. The measure of accessibility is sophisticated, and is based on aggregating accessibility measures at the census tract level, taking into account relative age distributions and road network distances. At the Metropolitan Statistical Area scale, and based upon the Tampa MSA, a dataset of approximately 50000 cardiac deaths over a 5 year time period (1998-2002) is geo-coded to residential address. The spatial variability in the 'place-of-death' for these decedents is investigated using innovative spatial point pattern methods that take into account both individual-level and community level explanatory variables. The paper makes extensive use of GIS methods and is instructive as to the roles played by different levels of explanatory variables at different spatial scales.

Keywords: Cardiac, Health, GIS, Mapping, Point Patterns

Douglas Reardon, Ph.D, Coppin State University. Email: dreardon@coppin.edu; *The Middle Passage Project: Using African American Heritage to Promote Geographic Education*

The Middle Passage Project employs an historic theme- the slave trade across the middle Atlantic- to promote interest in Geography and the applications of geospatial technologies and to prompt research questions that resonate among those with an interest in African-American heritage. The project at Coppin State University entails several studies that will take undergraduates on fieldwork in West Africa and the Caribbean and is supported by a grant from NASA. The project is a cornerstone of a campaign to revive and expand Geography at this historically black university in Baltimore.

Keywords: education, applied geography, African American

Stacy Rebich Hespanha, UC Santa Barbara. Email: stacy@geog.ucsb.edu; *Interactions between Emotion and Cognition in Public Response to Information about Global Climate Change*

While recent studies show that a majority of Americans and Europeans believe that climate change is happening and that human activities are at least partially responsible, individuals, private institutions, and governments have been slow to adopt behaviors that could mitigate or help prepare for the predicted changes. Scientists, environmental organizations, and concerned citizens and policy makers have waged public information campaigns in an effort to remedy the public's erroneous ideas or lack of knowledge about the nature, mechanisms, and predicted consequences of climate change. However, some behavioral researchers posit that a more complete and accurate public understanding of the climate system may not be enough to motivate the behavioral changes necessary. I will summarize findings from the fields of psychology, cognitive science, risk analysis, and communication suggesting that behavior in response to predicted risk, danger, or loss emerges from the interaction between affective and cognitive processes. In addition, I will examine some models of the influence of emotion on cognitive processes and discuss how these ideas could be used to empirically investigate the emotional impacts of the rhetorical and visual images that are being used to communicate with the public about climate change.

Keywords: cognition, emotion, affect, climate change, public understanding, imagery

Carlos Reboratti, . Email: creborat@arnet.com.ar; " *The Actors of Trans-National Environmental Conflicts: The case of paper manufacturing on the Uruguay-Argentina border*

Environmental conflicts around the installation of paper pulp manufacturing are not new around the world. But since 2004 a new conflict is developing in South America which adds two new dimensions: an international perspective and a strong spontaneous local environmental movement. In this paper we analyze

the origins and development of a still not solved conflict, which act as a mirror for the political, social and environmental situation of both Argentina and Uruguay. This last country had developed, since the '80s an active forestation policy, which end in the project for building two large paper pulp mills over the international Uruguay River. But in Gualaquachu, on the Argentinean margin, a spontaneous popular movement opposed to this project began to grow, based in the potential contamination effects on the river and its impact of the tourist activity. The industries promised to generate a large labor demand and use the best available technology to avoid contamination, and their plans were accepted by Uruguay, but not by Gualaquachu. The environmental movement produced several large manifestations and cut the roads between both countries in many occasions. The Argentine government, lacking an official environmental policy, took the position of the Gualaquachu environmentalists, and the subject was taken to The Hague International court. Social environmental movements, the tension between production and contamination and the existence a political boundary showed as an explosive combination, very difficult to control and with an unpredictable end.

Keywords: environment, paper mills, Latin America

Maharaj Vijay Reddy, University of Kent, UK. Email: m.v.reddy@kent.ac.uk; *Reviving Tourism in the Andaman and Nicobar Islands of India: a Challenge for the Crisis and Disaster Management Planners*

The 2004 Asian tsunami caused serious impacts on the ecosystem, and tourism industry of the Andaman and Nicobar Islands (ANI). The legacy left by the tsunami has meant that hotels and other tourism firms have only received around 5% of their usual business in 2005. Whilst there has been a slow increase in tourist arrivals in 2006, a study funded by UNESCO in 2005 identified that there was an urgent need to engage the local community and tourism stakeholders in post-tsunami crisis management discussions to promote and foster the reinforcement and reconstruction of the tourism industry. Nevertheless, the recent tourism development measures undertaken by the ANI administration have received strong criticism from the environmentalists and NGOs who have indicated that these plans are neither sustainable for the community well-being nor the resource base. Planners and policy makers face a distinct challenge in this part of the world especially considering the Indian government restrictions imposed on developing research with international collaboration. The aim of this paper is to discuss the medium-term challenges facing the reconstruction and reassessment of the ANI tourism industry through a semi-structured interview process. This paper also aims to address the strategic and holistic approaches of tourism disaster management adopted in other destinations. Such models are important for long-term recovery of the tourism industry from disasters and chaos, and could well provide a potential model to aid tourism revival in the ANI.

Keywords: Tsunami, Andaman and Nicobar Islands, tourism reconstruction, challenges

Sumanth G. Reddy, Kansas State University. Email: sreddy@ksu.edu; *Image, Advertising and Medical Tourism in India*

Just like the IT boom of the mid-1990s, India has been experiencing a medical tourism boom since the early 2000s. Medical tourism is defined as the travel of patients from one country to another to get some form of medical or wellness care/treatment. In most instances patients from Western countries go to developing countries for medical treatment because of the relatively cheap prices. This research examines the extent to which hospitals are using the internet and the different methods that are being implemented to catch the attention of medical tourists. To attract medical tourists, hospitals in India are using print and broadcast media. However, due to the relative ease and universal accessibility of the internet, the web has become the primary source of advertising. With the medical tourism industry in India expected to generate over \$2 billion by the year 2012, it will be crucial and essential that advertising, especially thru the internet will be the key to increased success of the industry.

Keywords: medical geography, medical tourism, india, advertising, internet, media

Danny Redo, PhD student, Texas A&M University. Email: dredo81@yahoo.com; *Resource Usage and Park Performance in the Bolivian Chaco and Chiquitano Forests*

In 1995, Kaa-Iya del Gran Chaco National Park (KINP) was established in the vast Chaco of Bolivia as the largest park in the country and home to the largest remaining intact dry forest in South America. It also holds the highest diversity of large mammals on the continent and claims to be the only co-managed park in the Americas. But in the same light, human development threatens this novel approach to protected area implementation as colonists drive the agricultural frontier ever closer, commercial hunters search for pelts and skins, the Bolivia government undertakes highway construction, and trans-national hydrocarbon industries seek natural gas deposits in and around the park's core. Reconnaissance work in the summer of 2006 and visual examination of

satellite imagery shows this trend, but the degree of forest loss and livelihood effects to the park and people are undocumented. The performance of KINP in conserving, but economically developing one of the keystones of the Chaco forest for economic prosperity, has yet to be assessed. In addition, a variety of ethnic groups living on the park's periphery use the land and the park quite differently and little of this is known. Thus, many questions remain unanswered. Has KINP been successful? What effect is the park having on the livelihoods of local peoples and vice versa? How are local people using natural resources? Is there conflict over resources? This paper seeks to answer some of these questions from a human-environment perspective using sensed analyses and formal and informal interviews.

Keywords: Bolivia, natural resource use, protected areas, land use and land cover change, remote sensing, social science

Bradley Reed, United States Geological Survey. Email: reed@usgs.gov; Jo-Ann Isbrecht, United States Geological Survey. Email: jisbrecht@usgs.gov; Remote Sensing of Desert Annuals Phenology

The phenology of desert vegetation is difficult to characterize with conventional remote-sensing approaches, as there are often two temporal vegetation signals during a calendar year: one from perennial plants (for example, creosote bush and sparse perennial grasses) and a second from the flush of annual plant growth that responds opportunistically to available moisture. In addition to the mixed vegetation signal, difficulties are compounded by sparse vegetation cover and variation in the soil background, which often dominates the vegetation signal. Conventional phenological characterization techniques that are dependent on a well-defined cyclic vegetation index signal do not apply well in desert environments. A new approach is required that identifies the flush of annuals and meaningfully characterizes it by providing appropriate descriptions (that is, the timing, duration, and magnitude of plant growth and the length of time since the last occurrence). An approach to identify the occurrence of annual vegetation has been developed using the red and near-infrared (NIR) wavelengths, coupled with vegetation index data - all derived from MODIS 250-m resolution satellite data over the southwestern United States. The growth of annuals is defined as occurring when the red reflectance is less than the median reflectance and NIR reflectance and vegetation index values are higher than their medians. There is strong agreement between results derived with this method and those obtained from higher resolution satellite imagery. The research has potential applications for identifying fine fire fuels, areas of potential dust stabilization and subsequent dust source, and carbon flux over dryland environments.

Keywords: phenology, drylands, remote sensing

Denise J. Reed, University Of New Orleans. Email: djreed@uno.edu; Tidal Marsh Sustainability in the Mississippi and Sacramento - San Joaquin Deltas: the role of storms and floods

Tidal marsh substrates, even those considered peat, provide a record of depositional processes revealing the role of episodic events in sedimentation. In the Mississippi Delta Plain, sediment deposition measurements during tropical storm and hurricane events in the last 15 years have allowed the specific identification of storm sediment inputs. Some workers have estimated that hurricanes Katrina and Rita contributed approximately 130 million tones of sediment to Louisiana coastal marshes. These sediments are crucial to the long-term sustainability of marshes threatened by high rates of relative sea-level rise and massive hydrologic alteration. Sediment mobilization by storms is a process which has influenced these marshes for millennia, possibly with some cyclic variation, and which is expected to continue. In contrast, flood events on rivers providing sediment to the tidal marshes of the Sacramento - San Joaquin have been massively altered in the 20th century. Cores from substrates in these fresh marshes also show periodic inputs of mineral sediment, albeit at a frequency diminished by upstream dams, which provide substantial contributions to vertical building. While the genesis of the marshes and the role of sediment input vary between the two systems, the Mississippi Delta marshes were built during regression while the Sacramento-San Joaquin Delta is transgressive, the role of storm and flood sediment inputs in their future is similar. The flood events in both systems which bring about such huge damage to property, may be critical for the sustainability of tidal marshes in both California and Louisiana.

Keywords: tidal marsh, sediment, storm, flood

Maureen G. Reed, Dr., University of Saskatchewan. Email: m.reed@usask.ca; Uneven Environmental Management: A Canadian Comparative Political Ecology

Contemporary researchers of environmental management argue for community-based approaches that respect local circumstances, skills, and concerns. However, relying on local capacity opens up the possibility of establishing highly uneven management practices. The purpose of this paper is to explore the roots and effects of uneven environmental management. I develop a conceptual framework that identifies key elements of regional environmental

management regimes and then use it to compare experiences in two Canadian biospheres designated in 2000: Clayoquot Sound, BC and Redberry Lake, SK. Analysis reveals that differences in property instruments and civic sectors affect the institutional capacity of each locality, opening the door for private forms of environmental governance in Redberry Lake. To explain how property instruments and civic actors operate, I illustrate how processes associated with property exchange, re-territorialization, valuation, and planning work together to produce a relatively robust and public regime at Clayoquot Sound and a more private form of stewardship at Redberry Lake. In consequence, uneven environmental management practices may take root and reinforce social inequalities across the two regions.

Keywords: environmental management, political ecology, rural communities, environmental non-governmental organizations, conservation, regional geographies, neoliberalism

Sarah E Reed, University of California, Berkeley. Email: sreed@nature.berkeley.edu; Spatial Patterns of Carnivore Species Co-occurrence in Grand Canyon National Park

Successful conservation and management of ecosystems require an understanding of spatial relationships among species, and identifying factors driving community assembly patterns is a fundamental question in biogeography. Laboratory and field experiments have demonstrated the local importance of predation and competition, but predictive distribution models rarely incorporate data on co-occurring species. In this study, I paired non-invasive surveys with null model analyses of community structure to assess the importance of species co-occurrence in determining mammalian carnivore distributions. I conducted my research in Grand Canyon National Park, in ponderosa pine and pinyon-juniper forest ecosystems that support at least ten species of native carnivores. Between 2003 and 2005, I surveyed 78 randomly-selected sites using a suite of passive wildlife monitoring techniques to maximize the likelihood of detecting all target species. In addition, I collected and derived common habitat variables for all monitoring sites. A null model analysis of species detections did not show evidence of community structure, but several pairs of species had limited co-occurrence, and coyotes and bobcats co-occurred significantly less frequently than expected by chance. I used regression analyses to test the relative importance of habitat variables and species co-occurrence for predicting the presence of each carnivore, comparing model predictions with and without the inclusion of co-occurring species as dependent variables. The results of my research indicate that the distribution of an individual species can be an important determinant of community composition, and excluding co-occurring species from predictive models could result in misestimation of population size or probability of occurrence.

Keywords: biogeography, species co-occurrence, community assembly, distribution models

Catherine Mary Rees, BA MA, University of Wales, Aberystwyth. Email: cmr04@aber.ac.uk; "I'm an Irish Man" (Marie Jones, A Night in November, 1994): The Performance of National Identity in Contemporary Irish Theatre

Modern Irish studies frequently describes the nation as experiencing moments of revolution; of crises of identity surrounding the deconstruction of national distinctiveness. Ireland and 'Irishness' are thus rendered unstable concepts; descriptions of geographies in states of flux, anxiety and crisis. This paper explores the fragmentation of previously considered national certainties through the study of Irish theatre and dramatic performance. It seeks to describe national identity as narratives; representations which are ascribed, adopted, performed or constructed. The paper suggests ways in which contemporary Irish theatre is involved with a performance of national identity, often through direct interaction with the audience, subverting or problematising traditional spatial boundaries. Thus national identity narratives are literally performed and asserted, but also crucially undermined and rendered unstable, as ambivalence towards the narratives accepted by previous generations is performed. Communities are thus forced to re-address the means of their own national reproduction and take charge of the processes by which they define their existences. The paper concludes by arguing that this is a far from simple process, and often involves postmodern deconstructions of previous narratives and ironic new applications.

Keywords: Narrative, Crisis, Nationalism, Theatre, Ireland, Performance, Identity

Peter W. Rees, University of Delaware. Email: rees@udel.edu; Upstate-downstate: the origin and delineation of vernacular divisions within states

No state, however small, is sufficiently homogeneous that the people in one area do not hold distinctive and often perjorative views about other parts. These spatial distinctions are often bimodal and their borders are usually ill-defined, rarely following the boundaries of formal political sub-regions. Yet to be unaware of such vernacular subdivisions is to not fully understand the culture and social dynamics of a state. A case study of Delaware provides a means of exploring the

origin and delineation of such perceptual divisions. Lying east of the Mason-Dixon line, Delaware straddles a major cultural divide between the south-east Pennsylvania and Tidewater cultural hearths. As a border state, it sent troops to serve in both the Federal and Confederate armies in the Civil War. Mapping the home location of these soldiers, together with other cultural manifestations, may help to explain how the Chesapeake and Delaware canal that had crossed the state from 1829 became the dividing line between upstate and downstate and colors the views each group of citizens holds about the other to the present day.

Keywords: states, vernacular, divisions

Carl A. Reese, Ph.D., University of Southern Mississippi. Email: Carl.Reese@usm.edu; *Geologic evidence of Hurricane Katrina recovered from the Pearl River Marsh, Mississippi*

Hurricane Katrina made landfall on the morning of August 29th, 2005, as a category 3 storm at the mouth of the Pearl River on the Mississippi/Louisiana border. Between October and December of 2005, 16 cores were recovered along two transects in the Pearl River Marsh; one across the width of the Pearl's mouth, and the second running south to north from the mouth of the delta to Honey Island Swamp, Louisiana. Loss-on-ignition analysis clearly identifies the sediments deposited by the storm and the resulting 19.5 foot storm surge. This overwash layer is marked by high clay content and lower percentages of water and organic materials. The layer is unevenly distributed throughout the study area, and is thicker and more pronounced towards the center of the marsh. Coupled with additional research, the results of this study may benefit the science of paleotempestology by helping to establish a modern analog for hurricane strength/storm surge height that sharpens all future paleohurricane reconstructions in marsh environments.

Keywords: paleotempestology, hurricane, Pearl River Marsh, Louisiana, Mississippi

Jane Reeves, Dr, University of Greenwich, UK. Email: gouldreeves@handbag.com; *Social and demographic factors of young fatherhood in the UK and USA.*

Research on disadvantaged young fathers has been minimally addressed in the literature, particularly in the UK. In both countries teenage pregnancy rates are high and costly in terms of social policy and community provision. This paper explores 2 studies involving 24 young men with an average age of 17 on the transition to young fatherhood; one study was conducted in the UK with white young men and the other in the USA with black young men. The findings from both studies indicated common themes from their stories, particularly with regard to the high levels of disadvantage and social exclusion they had been exposed to in their demographic environments and the anti-social behaviour they described engaging in, prior to the birth of their child/ren. Specifically, a significant proportion of the young men described how they had been immersed in drug and gun crimes and how this shaped their lives and neighbourhoods. Becoming fathers is presented by both sets of young men as rescuing them from this criminal lifestyle.

Keywords: Social, Demographic, Culture, Fatherhood, Young

Joel Regehr, York University. Email: joel.regehr@gmail.com; *Rethinking Politics and Place: Red Power Activism in San Francisco and Vancouver*

Since the early 1950s, Aboriginal communities have become increasingly urban. This shift has tended to be viewed as a way of successfully assimilating Aboriginal people into non-Native, capitalist democracies. It reflects a still common colonial interpretation of Native and non-Native space in North America that relegates 'authentic' Aboriginal space and culture to reservations, thereby defining Aboriginal people in cities as 'out of place.' This paper will explore attempts by Aboriginal people in Vancouver and San Francisco in the 1960s and 1970s to reassert a claim to Aboriginal place in the city. In San Francisco, the occupation of Alcatraz Island in 1969 marked the emergence of the Red Power movement to a much wider audience, yet was part of a local movement that had been making claims to the city for at least a decade. Vancouver did not produce a similar activist event, yet activists were involved in the growth of a number of locally-controlled social, political and economic initiatives, including Native-controlled housing and craft cooperatives. Red Power activism in cities included not only a vocal and often public demand for the right of political and economic self-determination, but also through local, place-specific indigenous political, cultural and economic practices, an affirmation of Aboriginal place in the city. This affirmation of local economic and political difference offered a powerful critique of the widespread view that the Aboriginal 'problem' was a problem of lack of access and integration into non-Aboriginal capitalist economic and political practices, rather than one of western capitalism and colonization.

Keywords: place; indigenous; migration; urban; activism

Michael Reibel, California State University, Pomona. Email: mreibel@csupomona.edu; Aditya Agrawal, University of Redlands, Redlands Institute. Email: Aditya_Agrawal@institute.redlands.edu; *Areal Interpolation of Population Counts Using the National Land Cover Dataset*

The authors empirically test a relatively straightforward and accurate areal interpolation approach using the National Land Cover Dataset (NLCD), produced by the US Geological Survey. The NLCD data, which is free and downloadable, provide pre-classified information on land cover category types at 30 meter resolution for the entire United States. We interpolate 2000 census tract population counts in eastern Los Angeles County to the 1990 census tract geography. This technique uses the NLCD data to derive a set of weights for very small area (nearly spatially continuous) population densities associated with those urban land cover types via regression. The weighted estimates for the small areas, 30 square meter grid sections in the case of the NLCD data, can then be aggregated to the non-conforming set of regions, making it possible to combine data aggregated to incompatible zone systems. Normally, inferring urban land cover from remotely sensed images requires digital image processing to classify the land cover types from the reflectance values of the image. The NLCD data are ideal for demographers who are not GIS specialists but who seek practical and accurate solutions to spatially mismatched data problems because they are already classified, making digital image processing unnecessary. Weighted interpolations using the NLCD data can thus be performed in a GIS without the need for specialized digital image processing skills.

Keywords: areal interpolation, dasymetric mapping, classified land cover data

Joanna I.E. Reid, MSc, UBC. Email: joannareid@fastmail.fm; *Grassland Ecology and Livelihoods in the Fraser Canyon, BC*

My purpose is to examine the consequences of the imposition of national and international ecological ideas on a local landscape. Specifically, I am concerned with how a changing corpus of scientific work about grassland ecology affects the practices of ranchers and First Nations living in the Fraser Canyon in British Columbia. The Fraser Canyon is the ancestral home to First Nations who recently have sought to reclaim their land and resources. In addition, the Canyon grasslands have been ranched for over one hundred years, and ranchers continue to hold strong economic and social ties to the landscape. Over the last fifteen years, a number of environmental interest groups took an interest in the grasslands of the Canyon. Consequently, parks and protected areas were created, regulations were changed, and new attention was placed on ranch management. These environmental interests, and the science that lies behind their proposals, are transforming the institutions that govern grasslands in BC. As they do so, they are influencing ecology and the people who live there, especially First Nations and ranchers, and often in unintended ways. In my paper, I will discuss the creation of the Churn Creek Protected Area, which has actually caused more grassland degradation than it has prevented. As well, the protected area designation has complicated the just resolution of Aboriginal title and increased the regulatory burden on ranchers, many of whom are, at best, only marginally profitable. In these ways, applying science to a local landscape has many unintended consequences.

Keywords: Conservation, livelihoods, the West

Neil Reid, University of Toledo. Email: neil.reid@utoledo.edu; Bruce Smith, Bowling Green State University. Email: bsmith4@bgsu.edu; Michael C. Carroll, Bowling Green State University. Email: mcarrol@bgsu.edu; *The Impact of Canadian Floriculture Imports on the U.S. Floriculture Industry*

Historically, geographers have had a strong interest in the agricultural sector of the economy. In recent decades, however, this interest has waned as the manufacturing sector and, more recently, the service sector have increasingly attracted the attention of geographers. This paper represents an attempt to redress this imbalance. The focus of this paper is the U.S. floriculture industry. Specifically, the paper examines changing trade flows in floriculture between the U.S. and Canada. During the last ten years there has been a widening trade imbalance in floriculture products between the United States and Canada. U.S. floriculture exports to Canada have remained flat, while Canadian floriculture imports to the United States have increased significantly. The increasing penetration of Canadian floriculture products into the United States has the potential to negatively impact the floriculture industry of particular regions of the United States. This paper attempts to identify which regions are most under threat from Canadian floriculture imports. This analysis provides context for a greenhouse cluster-based economic development project focusing on northwestern Ohio, known as Maumee Valley Growers. The project has been developing since 2003 to assist greenhouse growers in northwestern Ohio cope with increasing Canadian imports and other competitive challenges.

Keywords: floriculture, trade, Canada

Liam M Reidy, University of California, Berkeley. Email: lreidy@berkeley.edu; Roger A Byrne, University of California, Berkeley. Email: arbyrne@berkeley.edu; *Stratigraphic Evidence for Holocene Seismicity along the San Andreas Fault at Bolinas Lagoon, Marin County, California*

The San Andreas Fault is well known as the most active fault in North America. In California, it extends from the delta of the Colorado river to Point Arena, a distance of 1200km. Here we present the history of large magnitude ($M=7.0$) earthquake events preserved in sub-tidal sediments at Bolinas Lagoon, California. Bolinas Lagoon is located on the southeastern end of the Point Reyes Peninsula where the San Andreas fault crosses the Marin County coastline. The earthquake "signal" was discovered during the course of an earlier study on changing sedimentation rates in the lagoon, indicated by changes in grain size and sediment chemistry. Also, buried marsh sediments, such as have been widely reported in the Pacific Northwest are occasionally encountered. The longest core we have recovered is 7.25 m long and covers approximately the last 1600 years. The stratigraphy of this core suggests that there were at least 5 major earthquakes during this time period.

Keywords: Earthquakes, Holocene, San Andreas Fault, Pollen,

Ben W Reilly, Graduate Student, Central Washington University. Email: Gallipoli@gmail.com; Robert Hickey, PhD. Geography, Central Washington University. Email: Bob.Hickey@cwu.edu; *Predictive GIS Landuse Modeling: Sustainable Community Development in Sub Arctic Ports*

Fueled by climate change projections indicating a longer ice-free season in the arctic, formerly marginal economic resources in sub arctic regions are experiencing renewed interest. This interest is demonstrated by increased efforts to map the continental shelf in the arctic (which determines sovereignty according to the United Nations Convention on the Law of the Sea) and Canada plans to produce armed icebreakers; each of which will operate out of arctic and sub arctic ports. A longer ice free season in Hudson Bay has resulted in a longer shipping season for the grain trade from the Plains region of Canada, Churchill has been the site of substantial port expansion and is projected to usurp Thunder Bay in eastward shipping of Canadian grain if current warming trends continue. A predictive landuse model for Churchill has been developed to determine the best management practices to implement which conserve the natural environment and properly allocate investment funding in an effort to best utilize these community's resources. This model endeavors to (1) determine the unique variables of sub arctic communities, (2) produce landuse maps for distinct time periods using trend analysis GIS techniques and economic analysis, and (3) effectively predict future landuse/community viability in the absence or presence of given regulatory guidelines.

Keywords: Landuse, GIS, Predictive Modeling

Matthew J. Reilly, University of North Carolina - Chapel Hill. Email: mjreilly@email.unc.edu; *Re-conceptualizing Havana: the Role of Public Space in Urban Transformation*

After decades of benign neglect, a consequence of the Revolutionary government's anti-urban development policies, the urban landscape of Havana is being transformed as the government, in cooperation with foreign corporations, and newly formed quasi-private entrepreneurial companies, NGOs, and local participatory planning groups, are re-investing (materially and symbolically) in the built environment and public spaces of the city. This represents a rapid and systematic shift in the location and quantity of capital being invested in the built environment and public spaces of Havana, and is part of a broader cultural shift as the state markets and (re)develops the city's cultural and tourists sectors. Cuba's efforts at aggressively marketing the cultural economy of Havana, through urban redevelopment, heritage preservation, and tourism development, can be seen as an attempt to marshal space and place as a means of capital generation in line with neo-liberal strategies being employed throughout the West. Havana is undergoing a period of instability and transition as it occupies a contested hybrid space between capitalism and socialism; and therefore understanding how public space has been/is produced can provide tremendous insight into the future of Havana's urban landscape and the processes of change that the global and the local co-create. The argument of this research is that the crisis of the 1990s, and the ensuing politico-economic restructuring, have altered the 'spatio-temporal structuration' of social life in the city (Soja 1985), and this research intends to use the public spaces of Havana as the vehicle through which to examine these transformations.

Keywords: public space, heritage preservation, neoliberalism, Cuba

Michael Kaston Reilly, Stanford University. Email: mkreilly@mac.com; *Modeling the Influence of Agglomerative Effects on Business Location Choices in California*

A variety of geographic approaches over the last decade have stressed the importance of agglomerative effects in influencing the spatial trajectory of economic activity. For example, the "new economic geography" employed endogenous models of agglomeration to understand international trade. Fujita and Krugman (1994) have theoretically extended this framework to models of endogenous urban subcenter formation and growth but little empirical work has followed. The research here applies this approach to an empirical examination of the spatial dynamics of business establishments in California's largest metropolitan areas between 1996 and 2004. All business establishments are categorized according to their expected sensitivity to within-industry agglomerative effects: business & law, media, research & development, high-tech manufacturing, other manufacturing, and population-serving (e.g. retail). The increase in the number of establishments of a particular type at an employment location is modeled as a function of access to other employees in the same category, local congestion, and a variety of site-specific controls. A reduced-form Poisson regression approach allows for the relative assessment of the important of agglomerative effect by industry. As expected, the agglomerative variables are generally strongest for employment categories emphasizing face-to-face contact and weakest for population-serving businesses. These relationships vary between metropolitan regions partly as a result of specific local policy regimes.

Keywords: economic geography, California, agglomerative effects

Mark E Reisinger, Binghamton University SUNY. Email: mareisin@binghamton.edu; John W Frazier, Binghamton University, SUNY. Email: frazier@binghamton.edu; Eugene L Tettey-Fio, Binghamton University, SUNY. Email: fio@binghamton.edu; *Latinos of Allentown: Place Perceptions and Experiences*

Latinos increasingly have been drawn to Allentown, Pennsylvania over the past twenty-five years. Reports in the literature suggest that the initial migrant stream, largely New York City Puerto Ricans, were "pushed" out of the New York barrio by negative stressors. They were drawn to Allentown because of its perceived "tranquility," the availability of relatively inexpensive housing, and other factors. In this research we investigate Latino migrants' place perceptions of Allentown prior to moving, and then after living in the community for various time periods. This research, based on surveys and three focus group discussions held in 2004, examines the experiences of Latino migrants in Allentown in terms of neighborhood reception, job market experiences, and local service provision. These findings clarify current perceptions of Allentown based on direct experience in that community.

Keywords: Allentown, Latinos, place perceptions

Wesley J. Reisser, George Washington University. Email: reisser@gwu.edu; *The American Plan for Transylvania at the Paris Peace Conference*

In the lead up to the World War I peace conference, the United States convened The Inquiry, a leading group of scholars to propose just settlement terms, including new borders, for the final peace settlements. Many areas throughout Europe proved difficult to propose a settlement that fully accounted for Woodrow Wilson's principle of self-determination, among them Transylvania. This region of Hungary had a population with many nationalities, some very hostile towards Romania, the state that eventually acquired the entire region. I will analyze how the American plan differed from that finally adopted and analyze whether or not the Inquiry plan for Transylvania followed the principles laid out by President Wilson in his famous 14 Points which provided the basis for American participation in the war.

Keywords: Transylvania, Hungary, Romania, Political Geography, Peace, Self-determination, Historic Geography, Borders, Minorities

Josephine V. Rekers, University of Toronto. Email: josephine.rekers@utoronto.ca; *Communities and knowledge circulation in the innovation process - A relational approach*

Although relationships, face-to-face contact and the social and institutional embeddedness of economic activity are important themes in research on the innovation process, the 'relational turn' has a broader potential to inform this field in terms of research approach. 'Turning' further would add considerable insights to debates surrounding knowledge-intensive production, which attempt to tease out which processes are necessarily local and which are potentially global. Bodies of literature that put networks and communities at the center of research, including social network analysis and the sociology of science, see knowledge as practice, rather than as possession. This perspective takes the innovative and creative processes and relationships as the 'subject' - rather than the region - and explores their geographical sensitivities and characteristics. This approach raises a different set of interesting geographical questions regarding the circulation of

knowledge and ideas, and the ways in which institutional and cultural processes facilitate or hinder this diffusion. How does geography affect the actors' role in a network, the relationships between actors, and the network as a whole? What forms of 'proximity' are important between actors, but also within the network, and at which stage of the innovation process? In this paper, I review theoretical and empirical work on networks, communities of practice and epistemic cultures, as well as present preliminary findings of my doctoral research which compares two communities and their mechanisms of circulating knowledge.

Keywords: innovation process, community of practice

Fang Ren, The Ohio State University. Email: ren.21@osu.edu; Mei-Po Kwan, The Ohio State University. Email: kwan.8@osu.edu; *Exploring the Impact of the Internet on People's Activity-Travel Patterns*

Recent studies have examined the interactions between people's Internet use and their activity-travel patterns from different focuses. One such focus is on generalizing the impact of the Internet use on people's activity-travel patterns. Although empirical studies have made great progress, the results are still inconclusive due to the lack of needed data and the complexity of people's activity-travel behaviors. This study aims to explore what changes in activity-travel patterns will occur as a response to Internet use. An activity-Internet diary data set collected in Columbus (Ohio, U.S.A.) will be applied. The data set provides information about the respondents' activities and trips in the physical world as well as their Internet activities. Analysis will be performed using structural equation modeling technique in order to reveal hidden patterns embedded in the data. The research results are expected to help us gain more insights into the interrelationship between the use of the Internet and people's participation in physical activities and travel.

Keywords: Activity-Travel Patterns, Travel Diary Data, Structural Equation Modeling

Jianhua Ren, Department of Geography, National University of Singapore. Email: RenJianhua@nus.edu.sg; *Mainland Chinese Transnational Corporations in Asia: Spatial Embeddedness and Knowledge Transfer across Borders*

This paper examines the organizational convergence and/or divergence of practices between the parent and foreign subsidiaries in transnational corporations. While existing literature recognizes the importance of embeddedness of firms in institutional environment, the precise mechanism and process remain unclear. This paper develops a comprehensive theoretical framework that synthesizes the embeddedness theory with the concept of spatial knowledge transfer from a relational network perspective. To establish a foreign subsidiary is a process of de-embedding some practices from the home country and re-embedding in the host country simultaneously. This process is accomplished through spatial knowledge transfer of transnational corporations with involved actors. This paper illustrates these conceptual arguments through empirical investigations on transnationalization of transnational corporations from mainland China. I have interviewed more than 80 executives both from headquarters in China and subsidiaries in Hong Kong, Singapore and Malaysia from about 60 biggest firms in China. The study compares strategy, finance, human resource management of headquarters and foreign subsidiaries and analyzes how and why differences come about from regulatory and institutional level, organizational level and individual level. In conclusion, I argue that regulation is direct and influential force that leads to parent-subsidiary divergence. The relationship between parent and subsidiaries and key decision makers in transnational corporations also play a role.

Keywords: transnational corporations, convergence and divergence, relational perspective, embeddedness, knowledge transfer, China

Francis Kevin Rengers, M.S., Engineering and Hydrosystems, Inc.. Email: francis.rengers@enghydro.com; Jennifer M Patterson, M.S., P.H., Engineering and Hydrosystems, Inc.. Email: Jennifer.Patterson@enghydro.com; *A Method for Quantifying Geomorphic Change in Fluvial Systems*

Hydrologic changes wrought by infrastructure development in a watershed, alter the sedimentation and erosional regimes of fluvial systems in the watershed from their pre-development functionality. Rohrer and Rosner (2005) have developed a method for quantifying flow frequencies and shear stress in order to show changes in erosive capacity at multiple recurrence intervals when hydrology has been altered. We have expanded on this method and suggest that it can be used effectively for quantifying fluvial geomorphic change based on recurrence interval. Beginning with hydrology, existing flows at many recurrence intervals can be plotted along with predicted flow alternatives. The difference between the area under each curve is calculated to determine the overall percent change between the existing flows and predicted flows. Subsequent parameters such as sediment transport capacity and stream power can be plotted versus recurrence interval for existing and proposed conditions, and percent change can be

determined similarly to flow. Percent change results for many alternatives can then be displayed graphically so that parameters indicating either erosion or sedimentation can be evaluated. With this technique a single graph can be constructed with multiple erosion/sedimentation parameters showing changes between alternative hydrologic regimes over many recurrence intervals. Roesner, L.A. and C.A. Rohrer. 2005. Runoff Control Design for Hydrologic and Geomorphic Sustainability in Urbanizing Streams. Colorado Association of Floodplain and Stormwater Managers Conference. Steamboat Springs, Colorado. Rohrer, C.A. and L.A. Roesner. 2005. Matching the Critical Portion of the Flow Duration Curve to Minimize Changes in Modeled Excess Shear. 10th International Conference in Urban Drainage, Copenhagen/Denmark.

Keywords: Fluvial Geomorphology, Hydrology, Land-use,

Alvin Rentsch, President, University of Louisville Geography Club, Department of Geography and Geosciences, University of Louisville. Email: arrentsch@hotmail.com; *Spatial variation of precipitation surrounding Louisville, Kentucky: Heat island effect?*

Storms originating from the west display a pattern of diverging to the north and south when approaching Louisville. Louisville is the major urban area in the region located in Jefferson County, Kentucky and has a demonstrated heat island. An analysis of variance of monthly precipitation records was performed for 32 meteorological stations in West Central Kentucky and Indiana region. The dataset used consists of records of monthly precipitation for the 36 year period from 1970 to 2005 and were retrieved from the NCDC website. Stations were chosen to be spatially representative of the region surrounding Louisville. Analysis of variance was performed on the annual and seasonal precipitation for each station. Variation detected by the different analyses were compared and clustered in groups according to their patterns. They fell into geographic clusters of northern, southern and central regions. Linear regression was used to determine the magnitude of the relationships between the stations. Once identified as significant the Tukey test was executed to identify the level of significance found between the stations. Several patterns were found to be of importance during various months of the year. One such pattern indicates regions to the south and west of Jefferson County as having higher rates of precipitation than the areas immediately surrounding Louisville Kentucky

Keywords: precipitation, heat island, lower Ohio river basin

William H. Renwick, Miami University. Email: renwicwh@muohio.edu; *Regional Analyses of Spatial and Temporal Trends in Reservoir Sedimentation*

Reservoir sediment surveys provide one of the most reliable and readily available long-term records of sediment export from the landscape. Despite clear evidence of changing upland erosion, overall trends in reservoir sedimentation remain uncertain. In addition, the proliferation of small upstream impoundments is likely to reduce sediment inputs to streams and thus downstream reservoir sedimentation. In some areas of the U.S., sufficiently large numbers of recent resurveys are now available to begin to address questions of long-term trends in reservoir sedimentation in the context of land use change and related erosion patterns at the decade- to century-time scale. Recent sedimentation data for Ohio, Texas, Kansas, and other areas suggest that on average sedimentation rates are not declining. In some areas there is evidence that sediment sources are shifting from upland to channel sources. The combination of growing numbers of reservoirs and sedimentation rates that are not declining implies that subaqueous reservoir sedimentation is increasingly the dominant sink for terrestrial sediments in the U.S.

Keywords: Reservoir sedimentation, erosion, sediment

Inbal Reshef, Department of Geography, University of Maryland. Email: irshesh@hermes.geog.umd.edu; Chris Justice, University of Maryland. Email: ; Compton Tucker, NASA/GSFC. Email: ; Matt Hansen, South Dakota State University. Email: ; Brad Doorn, USDA/FAS. Email: ; *Global Agriculture Monitoring: Current State and the Requirements for Enhanced Agricultural Observations*

Agriculture is an essential component of societal well-being. Improved monitoring of agriculture could lower barriers to obtaining comprehensive information on agricultural production and markets, enhance the ability to manage food insecurity risk, and reduce malnutrition. Assessing the needs for enhanced agricultural observations is an activity of the Integrated Global Observations of Land (IGOL) initiative and developing a 10 year strategy to obtain these observations and generate and distribute the necessary information is a task of the Global Earth Observing System of Systems (GEOSS) program. GLAM - The Global Agriculture Monitoring Project is one of the most advanced initiatives for an agricultural monitoring system. It is a collaborative project between USDA Foreign Agricultural Service (FAS), NASA, and UMD that aims to enhance the agricultural monitoring and the crop production estimation capabilities of the FAS using the new generation of NASA satellite observations. To this end, GLAM developed customized web-based information-analysis and

data-delivery system to monitor crop conditions and to locate and track the factors impairing agricultural productivity. This system provides crop analysts with a suite of MODIS temporal composites of vegetation index data, false color imagery, and a dynamic crop mask. Complementing these data products is a range of web-based analysis tools that allow analysts to interrogate these data and to drill down to the pixel level of detail. Using these data and tools analysts track the evolution of the growing season, make inter-annual comparisons of season dynamics and inform decision makers of agricultural conditions and impediments to worldwide food-security.

Keywords: agriculture monitoring

Lynn M Resler, Ph.D., Virginia Polytechnic Institute & State University. Email: resler@vt.edu; Diana F. Tomback, Ph.D., University of Colorado at Denver and Health Sciences Center. Email: ; *Blister Rust Prevalence in Whitebark Pine and Implications for Treeline Dynamics*

Whitebark Pine (*Pinus albicaulis*) is considered a keystone species in high elevation ecosystems and is a dominant treeline species in northern Montana. Extensive surveys indicate that the introduced fungal pathogen *Cronartium ribicola*, which causes white pine blister rust, has resulted in severe declines in whitebark pine throughout the northern Rockies during the last decade. However, the prevalence of blister rust in whitebark pine at the alpine treeline and its impact remain to be determined. We gathered data on blister rust infection incidence in the treeline ecotone at two continental treeline locations in the northern Rocky Mountains. Our specific objectives were: 1) to determine if blister rust is present at alpine treeline, 2) to characterize the incidence and intensity of blister rust in krummholz tree islands, and 3) to examine the potential importance of whitebark pine in tree island formation. Our method included detailed field surveys of tree islands, individual whitebark pine, and blister rust cankers using five belt transects to delineate sampling areas at each study site. We found that 35% of all sampled whitebark pine were infected with blister rust cankers. Statistical tests also indicated that whitebark pines are initial colonizers in tree island formation significantly more often than other tree species, suggesting that whitebark pine plays an important role in generating pattern at alpine treeline. In the context of ecological hierarchy theory, these results have important implications for alpine treeline dynamics on a landscape scale.

Keywords: Alpine Treeline, Whitebark Pine, Blister Rust, Biogeography

Carlos E Restrepo, PhD, New York University. Email: cer202@nyu.edu; Zvia S. Naphtali, PhD, New York University. Email: zvia.naphtali@nyu.edu; Rae Zimmerman, PhD, New York University. Email: rae.zimmerman@nyu.edu; *Using GIS to Examine the Proximity of Major Highways to Public Schools in Urban Areas*

According to the literature on traffic and health effects, people within 150 meters of major highways or high traffic density roads are exposed to air pollution concentrations that are higher than the ambient background concentrations. Hence, highways and truck routes may pose significant environmental risks to sensitive populations like asthmatic children in dense urban areas that attend facilities such as public schools for significant amounts of time. This paper uses GIS to examine the number of public schools and the percentage of children that attend schools located within 150 meters of major highways in New York City, Chicago and Los Angeles. The results indicate that the proximity of public schools to major highways varies significantly among neighborhoods in an urban area. In the South Bronx, an area of New York City that has among the highest asthma hospitalization rates in the United States, about 20% of pre-Kindergarten to 8th grade students attend schools within 150 meters (or two city blocks) of a major highway. The figure for New York City as a whole is less than 10%. Using GIS to visualize this kind of information is an important tool for land use planning and can be used to prioritize resources for school programs such as the use of air filters to improve indoor air quality and protect asthmatic children in urban areas.

Keywords: GIS, Traffic, Asthma

Craig S. Revels, Central Washington University. Email: revelsc@cwu.edu; *Not so Far from Home: Ethnicity and the Transformation of Place in the Pacific Northwest*

The idea of the cultural landscape remains one of the most enduring and useful concepts in the geographer's toolkit, providing a foundation for analysis and understanding of the relationships and processes that shape the world in which we live. In the agricultural towns of central and eastern Washington State, recent focus has been on the emergence of new ethnic landscapes, particularly those associated with the influx of Hispanic immigrants into the region. One of the ongoing questions surrounding recent arrivals to the region concerns the permanence of their presence. Simply, where lies home, in the place where transitory economic opportunity exists, or in the distant place where one has extended family, friends, and strong ties to place? This poster explores the idea

of permanence as it is reflected in the creation of place. Two of the notable and oft-commented upon components of these new landscapes in the Pacific Northwest, transportation and remittance networks, provide evidence of continuing attachment to distant homes. Yet the well-known restaurants, groceries, and churches that are the most visible representation of the new cultural landscapes indicate a deeper sense of place, and are complemented by other, sometimes subtle, ways that further claim these spaces in a way that can only be thought of as permanent. The ongoing transformation of the material landscape is thus not temporary, but a process in which the idea of home is being established.

Keywords: cultural landscape, ethnicity, place, Pacific Northwest

George Revill, The Open University. Email: g.revill@open.ac.uk; *From Folk Revival to World Music: Alan Lomax, Science and Cantometrics*

This paper focuses on Alan Lomax's work developing the theory of cantometrics in the 1960s. Adapting ideas from anthropology, linguistics and behavioural science, Cantometrics formed a pioneering methodology for the quantitative study of culture, and the mapping of culture areas. In spite of the powerful critique of quantitative approaches to culture and behaviour within geography, Lomax's pioneering and sophisticated work has passed by the attention of geographers without notice. Here we critically explore the significance and implications of Lomax's theory for the comparative study of world musics.

Keywords: music, culture, sixties, social science, Alan Lomax

Serge Rey, San Diego State University. Email: sjsrey@gmail.com; Xinyue Ye, San Diego State University/UC-Santa Barbara. Email: xinyue.ye@gmail.com; *Exploratory Comparative Spatial Dynamics: Integrating Computational Geometry with ESTDA*

This paper introduces a class of new graphical methods for the exploratory comparative analysis of geographical patterns and spatial dynamics. It draws on computational geometry to develop graph-based indicators of space-time association. Directional segments, bounding box, rank convex hulls and voronoi/delaunay diagrams are illustrated as new approaches towards detection of complexities of space-time patterns and trends for lattice data. Measures derived from these spatial objects provide useful complements to existing global and local measures of spatial association, and space-time cluster detection as well as multivariate spatial analysis. These measures are implemented as part of an effort to integrate computational geometry and exploratory space-time data analysis in the open source package STARS: Space Time Analysis of Regional System.

Keywords: Computational Geometry, ESTDA, Lattice Data

Flavia Rey De Castro, IFDC, An International Center for Soil Fertility and Agricultural Development. Email: freydecastro@ifdc.org; Paul Wilkens, IFDC. Email: pwilkens@ifdc.org; Upendra Singh, IFDC. Email: usingh@ifdc.org; Mustapha Naimi, IFDC. Email: mnaimi@ifdc.org; *Geographic Information System Modeling: Improving Agricultural Efficiency*

IFDC is conducting a project in Morocco to improve the agricultural efficiency in the NENA (Near East and North Africa) region. This effort will help stakeholders to improve production of cereals by reducing risks. Purposes of the project are to increase income and food availability and improve agricultural planning and decision-making. The project outputs include fertilizer recommendations that consider agro-ecological and socioeconomic factors that influence the farmer to use the best management practices. Key system components are: (1) databases for soils, weather, crops, and prices of inputs (fertilizers, pesticides, and seeds) and products (food crops and cash crops), (2) expert systems, and (3) geographic information systems (GIS). Geo-referenced soil and weather data are used as inputs to the crop models to estimate N response for rainfed wheat and barley crops. This is in combination with management information (cultivar, planting date, planting density, etc.) and nitrogen (N) fertilizer management (rates, timing, and method of application). The optimum N rates using mean Gini coefficients are determined from production costs and income from the crops. Maps showing the best management recommendations for planting date, cultivars, and N fertilizers are presented for bread wheat, durum wheat, and barley. Recommendations from the model are based on climate (rainfall, solar radiation and temperature), soils, and prices of cereals production in Morocco.

Keywords: Agriculture, Morocco, cereals, decision support systems, expert systems

Andrew Reynolds, US Department of State. Email: reynoldsAW@state.gov; *EARTHMAP: A Vision for S&T in the 21st Century*

Bill Wood was a visionary. His EARTHMAP initiative in 1993-1994 assembled stakeholders from government, industry, and academe in a public-private partnership to map the globe with greater geospatial precision than had previously been attempted. He understood the power and importance of science,

technology, and engineering in the process of globalization and foreign policy long before many of his contemporaries. This paper briefly recounts EARTHMAP and related projects and initiatives and why they were prescient in laying a foundation for the following decade by engaging the Science and Technology (S&T) communities to address holistically such pressing 21st century issues as population growth and urbanization, natural resource development and exploitation, environmental protection and sustainable development, health care, and man-made and natural disaster management. Building on Bill Wood's vision, since 2000 the Office of the S&T Adviser to the Secretary of State has led efforts to address these global issues by recruiting more scientists and engineers to work at the State Department, strengthening alliances with S&T communities and foundations, and fostering international dialogues to anticipate directions — positive and negative — of key S&T research areas. Most recently the Department has led an interagency effort - Project Horizon - to outline global challenges in the year 2025 and to identify government capabilities, including a strategic S&T framework, needed to address these challenges and ensure that U.S. vital interests and national security are preserved. Bill Wood's EARTHMAP vision continues to unfold, and the State Department is moving ahead to help make it a reality

Keywords: GIS, GSDI, science, technology, foreign policy

David Reynolds, University of Calgary. Email: dmreynol@ucalgary.ca; Dianne Draper, University Of Calgary. Email: draper@ucalgary.ca; A Vulnerability Assessment of Skiing-Dependent Businesses to the Long-Term Effects of Climate Change in Banff and Jasper National Parks, Canada

This vulnerability assessment examined potential socioeconomic impacts on skiing dependent businesses in Banff and Jasper National Parks, Canada, from the long-term effects climate change may have on snow and temperature conditions in 2020 and 2050. Climate model results from 30 years of local weather data were interpreted and incorporated in face-to-face interviews with government officials and skiing-dependent businesses, including ski hills, tourist accommodations, ski shops, car rental agencies and ski shuttle buses. The climate model suggests there will be 8% less snow accumulation in the valleys at the 1,400 metre level and 3% less snowfall at the 2,600 metre level on the ski hills for 2020. Twenty percent less snowfall is expected in the valleys at 1,400 metres and 11% less at the 2,600 metre level by 2050. This data suggests sufficient snowpack will exist in the upper levels to support skiing in the future. However, the socioeconomic viability of skiing-dependent businesses relies on ski hills continuing to operate. Three of the area ski hills are above the rising snowline and should, with supplementary snowmaking, continue to operate. The larger skiing dependent businesses interviewed have demonstrated diversification and are less dependent on skiers while other businesses have the adaptive capacity to diversify by reinventing themselves during the summer months as clothing and equipment stores. The skiing dependent businesses most vulnerable and less adaptable to the socioeconomic effects caused by a changing climate appear to be small accommodation businesses.

Keywords: vulnerability assessment, skiing-dependent businesses, climate change, Banff National Park, Jasper National Park, Canada

Jinyoung Rhee, University of South Carolina. Email: rheej@mailbox.sc.edu; Greg Carbone, Ph.D., University of South Carolina. Email: greg.carbone@sc.edu; Jim Hussey, Ph.D., University of South Carolina. Email: jhussey@gwm.sc.edu; Effect of Spatial and Temporal Resolutions on Drought Monitoring in the Carolinas

Drought conditions have been historically monitored using monthly indices for climate divisions. However, drought monitoring at this scale ignores spatial variability within climate divisions. Monthly temporal resolution often fails to provide timely drought information. Higher spatial and temporal drought information should be provided to improve drought preparedness and to enable efficient drought management. The objective of this study is to provide methods to obtain drought index values in detailed spatial and temporal resolutions and to examine the effect of the spatial and temporal resolutions for North and South Carolina. A method to obtain drought index values in various spatial resolutions using interpolation and spatial aggregation was introduced and used to calculate drought index values for counties and various scales of watershed basins. For temporal resolutions, a method to calculate weekly Palmer Drought Index was introduced. The empirical cumulative distribution functions and discrete frequency distributions for drought severity categories were compared for different spatial and temporal resolutions.

Keywords: drought, drought monitoring, spatial resolution, temporal resolution

Nari Rhee, UC Berkeley. Email: nari@socrates.berkeley.edu; Albert Carlson, SEIU Local 715. Email: albert_carlson@yahoo.com; Social Unionism Redux: SEIU Local 715 and Human Service Organizing in Silicon Valley

Unions operating in non-mobile sectors of the economy—especially public and service sector unions—have played an important role in building contemporary progressive urban coalitions in U.S. cities. However, fiscal crisis, devolution and privatization have continually threatened public sector unionism during the past two decades. This paper presents a case study of SEIU Local 715, the largest union in Silicon Valley, which has pioneered a model of public/nonprofit sector organizing currently being replicated throughout California. Founded as a county workers union, the local dramatically re-tooled itself in 1995 in order to organize privatized jobs in health and human services. Since then, the union has grown from 11,000 to 28,000 members and has raised labor standards in the regional nonprofit health and human service sector. The process entailed the forging of crucial linkages between organizing, community coalition building, local policy development, and electoral work in order to build political support for public social expenditures and workers' rights. The paper examines the successes and challenges met by Local 715 in forging such linkages; the union's role in the emergence of organized labor as the driver of a new progressive urban coalition in the Valley; and the potential for replicating the model successfully in other locales.

Keywords: labor geography, unions, Silicon Valley

Hosahng Rhew, Department of Geography, Seoul National University, Seoul, Korea, 151-746. Email: rhew0503@hanmail.net; Robin G.D. Davidson-Arnott, Department of Geography, University of Guelph, Guelph, ON, Canada N1G 1P9. Email: rdarnott@uoguelph.ca; A Stochastic Approach to Modeling the Dynamic Effect of Moisture upon Aeolian Sand Transport on a Beach

The dynamic effect of surface moisture is one of the urgent issues in understanding aeolian sand transport on a beach. A number of laboratory and field observations indicate that spatial and temporal variability in the drying or wetting process and in deflation together produce spatially and temporally varying conditions of the sand surface and thus influence the spatial and temporal pattern of sediment entrainment. These all combine to induce intermittent saltation. Based upon the assumption that the above three processes cause the temporal and spatial variability of the threshold velocity on a moist surface, we constructed a simplified stochastic model, and explore how well the model reproduces the magnitude and frequency of aeolian sand transport patterns on a beach by comparing the model output with the measured data. According to the results, the model reproduces the stochastic properties of the measure data on the foreshore area. The model, however, has the tendency to underestimate the frequency of saltation events in the middle and upper beach. The reason may be that our model does not consider the effect of impact by transported sand grains on the saltation event. Another disadvantage is that there is much arbitrariness in the parameterization of the surface drying processes. The further research is directed to explore the possibility of integrating a standard evaporation model into this model, and to find the proper strategies to include the influence of grain impacts on particle entrainment from a damp surface so that the model can cover the whole beach

Keywords: surface moisture, aeolian sand transport, spatially-uneven drying, stochastic approach, intermittent saltation

Kevon C Rhiney, PhD. Candidate, Department of Geography and Geology, University of the West Indies, Mona Campus. Email: kevon89@hotmail.com; Forging New Linkages in a Changing Global Economy? The Case of Cooperatives and their Link with the Negril Tourism Industry, Jamaica.

For centuries the Caribbean has relied heavily on traditional forms of export agriculture limited to only a few export crops or their by-products. Consequently, domestic cropping systems have largely been neglected and therefore lack the sectoral capacity to meet existing and future market demands. Within the context of a changing global economy and increasing environmental vulnerability, most Caribbean states are becoming evermore cognizant about the need to reform their respective agricultural sectors. Part of this reform includes an emphasis on non-traditional crops as well as non-traditional markets such as tourism. If destination countries, particularly those in the Caribbean, are to maximize benefits from tourism development, ways must be found to increase backward economic linkages, including utilizing local food products in the tourism industry. This paper is part of an ongoing study that explores the complex and multifaceted relationship existing between tourism and local agriculture in Negril, Jamaica. The research is informed by data collected through a series of surveys, focus groups and in-depth interviews between key players in Negril's local food chains. This paper will explore cooperatives as an alternative to traditional farming systems in forging a viable link with the tourism industry. Evidence will

be drawn from detailed case studies of two farmers' cooperatives; one has been able to successfully supply the Negril tourism industry, and the other has failed to do so. The paper contends that despite many existing and impending challenges, these changing forms of social organization provide a practical means of forging stronger linkages between both sectors.

Keywords: agro-tourism, rural sustainable development, globalization

Erica L. Rhoades, University of Delaware. Email: erhoades@udel.edu;
James E. Pizzuto, University of Delaware. Email: pizzuto@udel.edu;
Michael A. O'Neal, University of Delaware. Email: michael@udel.edu;
Estimating Bank Erosion Along a Mercury-contaminated Reach of the South River

Comparison of digitized stream channel boundaries, based on visual interpretations of georeferenced aerial imagery from 1937 and 2005, were used to calculate a minimum estimate of the total volume of bank sediment eroded between Waynesboro and Port Republic, Virginia. Because of historical industrial contamination, bank sediments store mercury (5 to 90 ppm, mostly in the upper 50 cm), which becomes a source of mercury input into the river system and is of environmental concern. Because the processes involved with eroding banks are so slow, the river has remained fairly stable over the 68-year study period. The interpretation of the resulting datasets suggests that bank erosion occurs in small areas along the channel that are difficult to classify or explain (i.e., along bends in the river, through the development of islands, and where deposition of cobbles on confluence bars pushes the main flow into the opposite bank). Nominal annual rates of bank retreat (averaged over the 68-yr period) for several example locales along the study reach are very low, ranging from 3 to 15 cm per year. A minimum estimate of the total volume eroded for the study reach is approximately 107,000 m³. This analysis shows that floodplain erosion can be an important source of sediments loading into rivers and needs to be analyzed when developing hydrological models for river systems.

Keywords: bank erosion, aerial photographs, South River, mercury

Jennifer L. Rice, University of Arizona. Email: jlrice@email.arizona.edu;
From Nations to Networks: A Political Geography of Climate Change in the US

During the 2005 United States Conference of Mayors Meeting, the US Mayors Climate Protection Agreement (MCPA) was unanimously endorsed. The Agreement states that individual cities "will strive to meet or exceed Kyoto Protocol targets for reducing global warming pollution by taking actions in [their] own operations and communities." The MCPA represents a fundamental shift in climate governance, whereby global environmental change is addressed not through the actions of the federal state, but through a network of more than 300 participating US cities. Recent work in social and political theory on flat ontologies, social networks, and political assemblages suggests that an understanding of this (re)configuration of climate governance as a "devolving" politics of climate change is far from sufficient. Instead, the MCPA might better be understood as predicated upon an extensive collaboration of people and objects, both human and non-human, operating within and across multiple sites. This paper will examine the MCPA to illuminate the relationship between state actors, other social agents and the non-human in political practices and spaces of authority. Central to this formulation is how the actors involved in the agreement understand climate and climate change, the ways in which climate itself is political, and the technological and environmental systems of expertise developed in response to climate change. One of the objectives of this project is to understand the relationship between social natures and political theory given the complex associations of human and non-humans that constitute political practice.

Keywords: Political Geography, Climate Change, Network

Matt Rice, University of California - Santa Barbara. Email: rice@geog.ucsb.edu;
SRTM DTED accuracy in the Pacific Northwest

The Shuttle Radar Topography Mission gathered terrain elevation data for more than 80% of the Earth's land surface. The accuracy of the resulting terrain elevation data has been shown to be better than the original design goals of 16-20 meters in vertical and horizontal resolution. This research looks at the accuracy of this elevation data in the Pacific Northwest US through comparison with a high-resolution LIDAR elevation dataset collected during the same time period. Of particular interest is correlation between accuracy and landcover, which has been explored by authors recently such as Shortridge (2006). An analysis of an auxiliary accuracy dataset, the Terrain Height Elevation Data (THED), shows general agreement with other error estimates.

Keywords: SRTM DTED, accuracy

Murray Rice, University of North Texas. Email: rice@unt.edu;
Milford B Green, University of Western Ontario. Email: mbgreen@uwo.ca;
Sean O'Hagan, Nipissing University. Email: seano@nipissingu.ca;
Spatial Interlocking Directorates: The Geography of Corporate Board Membership in North America

This study examines the location and spatial linkages associated with corporate board members in North America. Interlocking board memberships form an interurban network that facilitates the transfer of both information and influence. This paper examines the use of interlocking directorates by corporations in North America. Our findings demonstrate the spatial structure of the interlocking directorate network, focusing on two key types of inter-city director linkages: outward flows (where directors travel out from a city to serve on a board based in another city) and inward flows (where corporations bring in directors from other cities). Contrary to expectation, some of the most dominant corporate centers on the continent, including New York, send out more directors in the North American interlocking network than they bring in from other centers. Our conclusion interprets these results and outlines an agenda for further research into the geography of corporate boards.

Keywords: boards of directors, interlocking directorates, urban geography, corporate geography, Canada, United States

Penny L. Richards, UCLA Center for the Study of Women. Email: turley2@adelphia.net;
"Her Attention Wandered Back to the Map": Mary Hunter Austin's Cartographic Adventures

Mary Hunter Austin (1868-1934) is best known as a regional writer, author of "The Land of Little Rain" (1903) and other environmental meditations on Western landscapes. In her life and in her work, maps and mapmaking appeared in various ways: for example, she wrote adventure stories featuring maps and cartographers among the miners, prospectors, and homesteaders of turn-of-the-century California; later, she made maps herself, hired by sociologist Robert Park to trace the ethnic communities and cultural features of Taos, New Mexico. Austin was a member of the Society of Women Geographers, priding herself on local knowledge of the West more intimate than simply "thinking of it as a place on a map." In this paper, the cartographic adventures Mary Austin wrote, and those she plotted for herself, are considered in light of recent scholarship on gender and map use.

Keywords: map use, cartographic culture, women, popular literature

David L Richardson, University of Virginia. Email: dlr2n@virginia.edu;
Robert Swap, University of Virginia. Email: rjs8g@virginia.edu;
David Knight, University of Virginia. Email: dk7k@virginia.edu;
Deborah Stein-Zweers, University of Virginia. Email: dcs5v@virginia.edu;
Long-Term Aerosol Transport Patterns in the Southern Hemisphere as Observed by TOMS

A majority of biomass burning can be attributed directly or indirectly to human activities and their effects on landscape-scale processes. For this reason, emissions from biomass burning and the impacts of these emissions on radiative and biogeochemical processes of ecosystems within and downwind of regions of burning have been topics of intense research. Today it is possible with better sensors and, now, longer time records to look for patterns and trends in aerosol distributions over regions of biomass burning. Focusing on the three southern hemisphere continents where the majority of this biomass burning occurs, twenty-four years of TOMS-AI data over South America, southern Africa, and Australia are analyzed using GIS-derived spatial characteristics of aerosol distributions coupled with mixed discriminant analysis / decision rule routines. Observed daily aerosol observations are classified and the dominance of various prevalent aerosol distribution patterns determined during the July to October dry seasons. Systematic changes in the distributions of these patterns over a given region as they vary with shifts in the El Nino-Southern Oscillation (ENSO) are found for each sub-continental region. Consistent trends in the frequency of occurrence over time of these patterns were also found that are consistent with others' observations of global dimming and brightening over continental areas. Our findings suggest a hemispherical response in aerosol distributions that varies according to the phase of the ENSO and therefore may have implications for regional scale radiation and biogeochemical balances.

Keywords: remote-sensing, gis, aerosol, climatology

Diane Richardson, Prof, Newcastle University, UK. Email: Diane.Richardson@newcastle.ac.uk;
Locating Sexualities: Sexual Politics and Social Change?

Sexual politics and identities have fragmented as new patterns of social interaction and 'lifestyles' have emerged. Since the 1990s, the dominant political discourse of social movements concerned with 'sexual politics' has been that of seeking access into mainstream culture through demanding equal rights of citizenship. Equality is interpreted through notions of similitude with heterosexuals and it is through claims to normalcy that social integration is justified. This is

a significant shift. Earlier women's and gay liberation movements were not seeking to be normalised, but were highly critical of mainstream society and contested many of its core institutions and practices, in particular what we would now refer to as heteronormative assumptions about family and gender. Processes of detraditionalization and pluralism have enabled lesbians and gay men to make their case for equal rights, through the inculcation of norms of respect for social diversity as part of good citizenship. Paradoxically, by drawing on respect for diversity lesbian and gay movements may further their efforts in seeking social conformity as 'normal lesbian/gays', who espouse the norms and values of the 'ordinary' (heterosexual) citizen. This paper considers how the new story of the 'normal lesbian/gay' has the potential to lead to both social cohesion and to 'cause trouble' through its impact on hetero/homonormative ideologies and practices.

Keywords: Sexuality, Citizenship, Sexual Politics

Kathrine E. Richardson, Ph.D., University of British Columbia. Email: kathrine@interchange.ubc.ca; NAFTA, North American Labour Mobility, and Dispute Resolution - Post 9/11

This paper examines the dispute settlement mechanisms of Chapter 16 of the North American Free Trade Agreement (NAFTA), which is dedicated to the liberated transborder movements of 65 North American professions, treaty traders, investors, and intra company transferees. Many would argue that Chapter 16 of NAFTA is a success since it has allowed over 75,000 Canadian professionals to seek entry into the U.S. for purposes of work, and it has also allowed freer movements of U.S. and Mexican professionals throughout North America. However, NAFTA has proven imperfect for some professions, especially in the high technology and biotechnology fields, for a range of reasons, which shall be explored in this paper. However, to this date, all disputes, whether rules or norms based, have been resolved informally through a variety of avenues. Surprisingly, no dispute, so far, has actually gone through NAFTA's well developed formal "Dispute Settlement" mechanism found in Chapter 20 of NAFTA. Thus, the primary focus of the paper will explore why such a contentious issue such as international labour mobility has been dealt with in a very intricate and complex conciliatory fashion within the NAFTA. The research methodology is based on in-depth interview with key Canada and U.S. policy advisors that oversee Chapter 16 of NAFTA, Canada Border Service Agency and U.S. Department of Homeland Security port of entry directors and supervisors between Vancouver and Seattle, and various high tech and biotech firms based in either Seattle or Vancouver.

Keywords: NAFTA, International Professional Labour Mobility, and Post 9/11 Canada-U.S. Border Security

Amy K Richmond, PHD, USMA. Email: amy.richmond@usma.edu; James Chastain, USMA. Email: ; Chris Oxendine, USMA. Email: ; Natural resource dependency and United States' national security interests

Fifty per cent of total oil consumption in the United States comes from foreign sources. This is expected to increase to 65% in 2020 based on current trends in economic growth. This research assesses the challenges the United States faces from energy dependencies in the 21st century. We analyze the relationship between global distribution of United States military assets and the location of global oil resources. Specifically, we investigate if there is a relationship between the widening of the gap linking domestic production and consumption with increased utilization of military assets in oil rich areas. To investigate this relationship we create a series of maps that display temporally the relationship between military spending and oil imports.

Keywords: Oil Resources United States Military

Marina Richter, University of Fribourg (Switzerland). Email: marina.richter@unifr.ch; National Immigration Policies Between Economic Interests and Protection of National Cohesion: Impacts on Migrants' Identities

In Switzerland and other European countries, the connection between immigration policies and policies of the national labour market was exemplified by the term "guest worker". But state policies have always been a double edged sword regarding immigration policies. On the one hand they have to address the demand of labour power. On the other hand they need to protect national interests regarding the needs for security and identity of the citizens. At the moment, Swiss immigration politics represent a difficult combination: The borders have been opened up for EU-citizens and work and residence is free of constraints for them. For citizens of any other country the restrictions have recently augmented. In September 2006 a new more restrictive law passed a public vote with 67.9% of the Swiss people voting in favour. Immigration policies put a legal frame to migrants' access to a country, to the labour market, to social benefits and finally to citizenship. But they also influence the social role migrants identify with. Migrants who arrived at different moments of the public discourse on immigration have encountered different models or images of "the migrant" and these images have become social roles to identify with, social roles

that constitute their position and possibilities in society.

Keywords: migration, policy, identity, labour market, national cohesion

Timothy J. Rickard, Central Connecticut State University. Email: rickard@ccsu.edu; Alternative Agriculture in the Rural-Urban Fringe

The theoretical binary opposition between conventional agriculture and alternative agriculture is far from distinct in the rural-urban fringe. Conventional producers can exploit the diverse urban and suburban niche markets that define alternative agriculture. Alternative agriculture is itself increasingly heterogeneous in rural-urban fringes such as Connecticut's. The "Connecticut grown" state campaign implements the basic forms of alternative agriculture. Direct marketing via farm stands, pick-your-own and 65 farmers markets have brought together the producers and consumers of fresh local food. Organic farming is usually alternative but becomes conventional when sales are to supermarket chains. Dairy farmers can receive contracts from local supermarkets or sell ice cream to tourists to diversify. Agritourism allows farmers to stretch the definition of agriculture. Connecticut wineries are allowed to purchase up to 75% of their grapes out-of-state and diversification includes hay rides, corn mazes, wedding facilities and golf courses. Alternative agriculture also includes horiculture and direct retailing of greenhouse and nursery products although the latter generates more than half the state's income largely through wholesaling. The heterogeneity of farm enterprises is matched by the mosaic nature of Connecticut's remaining farmland which, if saved, will enhance lifestyle rather than produce commodities.

Keywords: alternative agriculture, Connecticut, rural-urban fringe

Jillian M. Rickly, Indiana University. Email: jrickly@indiana.edu; Spring Mill Pioneer Village as Symbolic Landscape

Spring Mill Pioneer Village, located within the Spring Mill State Park of south-central Indiana, functions as a historic representation of the original Spring Mill Village. In what follows I will examine the history of the Spring Mill Pioneer Village, how the village is represented today, and the effectiveness of the landscape at portraying its symbolic meaning to the visitor. As an ordinary landscape Spring Mill Pioneer Village is mixture of 19th century restorations and replicas, however, as a symbolic landscape it conveys a message of the "pioneer lifestyle" of early American history. Participating in this complex landscape raises the question; how important is accurate historical representation to conveying the "pioneer lifestyle" message to the tourist? It is argued that tourists visit heritage sites because of the message they symbolize and not necessarily their authenticity.

Keywords: symbolic landscape, heritage tourism, authenticity

Joerg Rieckermann, San Diego State University, Geography Department. Email: jriecker@mail.sdsu.edu; George Christakos, San Diego State University, Geography Department. Email: ; Can In-Sewer Quality Measurements Improve Our Understanding of Local Drug Use Patterns?

Current estimates of the prevalence of illicit drugs use in the general population are mostly obtained from self-reported surveys, although scepticism regarding the accuracy of self-reports of drug users is widespread. To overcome this dilemma, the idea of non-intrusive drug monitoring at sewage treatment facilities has been proposed to determine collective drug usage parameters at the community level. This procedure has been implemented in several European countries, where cocaine loads measured at wastewater treatment plants (WWTP) and rivers surpassed current figures up to an order of magnitude. Unfortunately, it is currently not possible to relate drug use to neighbourhood characteristics. Also, no rigorous uncertainty analysis on the results of these studies has been presented so far. In the present study, we are investigating two innovations: First, we suggest measurements in sewers instead in WWTPs and rivers to relate observed substance loads to neighbourhood characteristics. Second, we will investigate how the observations can be linked to predictions using general and specific knowledge bases such diverse as sewer transport and processes, mobility of the agents and pharmacokinetic processes. We apply Bayesian Parameter Estimation Techniques to integrate information from different sources and quality levels and investigate the associated uncertainty. The results from an ongoing case study in the catchment of San Diego, CA, will allow for i) a comprehensive error assessment (e.g., Does the major uncertainty come from the sewer transport, the drug metabolism or the mobility of the people?) and ii) to evaluate whether the proposed methodology useful to support prevention science.

Keywords: drugs, sewer, Temporal GIS, water quality, bayesian, data analysis, integrated modelling

David L. Rigby, UCLA. Email: rigby@geog.ucla.edu; John Baldwin, Statistics Canada. Email: john.baldwin@statcan.ca; Desmond Beckstead, Statistics Canada. Email: desmond.beckstead@statcan.ca; W. Mark Brown, Statistics Canada. Email: mark.brown@statcan.ca; Agglomeration and the Geography of Localization Economies in Canada

In this paper we map the spatial variation in productivity levels across Canadian cities and we model the underlying determinants of that variation. We have two main goals. First, to confirm the existence, the nature and the size of agglomeration economies, gains in efficiency related to the spatial clustering of economic activity. We focus attention, after Marshall (1920), on the impacts of buyer-supplier networks, labor pooling and knowledge spillovers. Second, we identify the geographical extent of knowledge spillovers using information on the location of individual manufacturing plants. Plant-level data developed by the Micro-Economics Analysis Division of Statistics Canada underpin the analysis. After controlling for a series of plant and firm characteristics, the analysis reveals that the productivity performance of plants is positively influenced by access to buyer-supplier networks, labor market pooling and knowledge spillovers. The analysis also shows that the effect of knowledge spillover on productivity is spatially circumscribed, extending at most only ten kilometers beyond individual plants. The reliance of firms on place-based economies varies across sectors defined by the factors that influence the process of competition: access to natural resources, labor costs, scale economies, product differentiation, and the application of scientific knowledge.

Keywords: agglomeration, knowledge spillovers, economic geography

Lesley Rigg, Northern Illinois University. Email: lrigg@niu.edu; Projected population transitions for sugar maple under different climate change scenarios

In this study we used life table data and transition matrix modeling to estimate projected sugar maple population dynamics in Lake Superior Provincial Park, Ontario, Canada. We established five life-stage categories from seeds and seedlings through to three categories of adult tree, based on age. Using annual height growth remeasurement data for seedlings and saplings permanently tagged in 2000 (n=7750), seedling establishment surveys, and tree growth rates from 2000 sugar maple in Lake Superior Provincial Park, we calculated demographic summary tables (life tables) and transition matrices to examine the future stability (projected change through to 2110) and rate of increase of the tree populations. Information obtained from the transition matrix analysis included stable stage distribution, the finite rate of natural increase (λ), and relative importance of different input parameters (i.e. fecundity, growth from one life stage to another, and persistence within a life stage) on λ based on sensitivity and elasticity. Our model designs will include stochastic matrices incorporating the masting cycle of the species based upon available fecundity data, the rate of population increase (λ) for sugar maple based upon two different climate change scenarios. The comparison of both the rate of population increase and the modeled stand structures under the various transition scenarios will be presented. Using elasticity analysis, the relative importance of the modeled life stages in the survival of sugar maple under the manipulated climate change scenarios is examined for management and conservation purposes.

Keywords: climate change, Acer saccharum, transition matrix analysis

Mari Ludmila Riipinen, University of Oulu. Email: mari.riipinen@oulu.fi; Scales of justification. Competing land use discourses in the village of Nellim in Finnish Lapland.

Land use or the rights to natural resources are often perceived as global issues. What is best for our globe is resolved in the international meetings. These global decisions have their effect on the national legislation and also on the land use possibilities in local communities. Indeed, in many peripheral areas land use has received an important role in the survival of local communities. Natural environment has also specific and situated symbolic meanings for the local people. There are often conflicting political, cultural and economical aims on the land use between global, national and local interest groups. Yet, there is seldom a unanimous perspective on the environment within any of these levels. There are simultaneously competing land use discourses within and between different levels. This study focuses on the land use questions in the village of Nellim in Finnish Lapland. The main land users in the area (reindeer herding, forestry, nature conservation and tourism) bring livelihoods to the village, but they are also increasingly conflicting with each other. Local competing land use discourses are constructed and categorised with the help of empirical data (questionnaires and interviews). The study will discuss the constitution (ideologies, structures and actors) of these discourses as well as the scales of land use justification within them. The argument of the study is that the means of justification which emerge in local land use discourses manifest the relationship between global processes and local perspectives.

Keywords: land use, justification, discourse, scale

Christopher Riley, Ohio State University - Geography. Email: riley.212@osu.edu; Scaling Multicultural Discourses and Frictions of Difference in High School: A Case Study from Columbus, Ohio

Despite institutional enforcement of numerous multicultural discourses, racist attitudes persist in a school in which white, African-American, Latin American, and Somali students are enrolled. To explore this persistence of racism, I employ open-ended interviews with the high school students and critical discourse analysis to analyze the interview data. Through these methods, I demonstrate how racist attitudes continue to shape both place and personal identity through processes operating both within and beyond the scale of the school. Within the school, policies of reward and punishment (such as acceptance into honors or college prep curriculum) are established in ways that implicitly and institutionally reinforce a white racial hegemony. Racist attitudes are reinforced through processes beyond the scale of the school, from relationships in the home to depictions in the media. These multi-scalar processes suggest that undoing race, in any place, requires change at multiple scales in multiple ways.

Keywords: race, high school, critical discourse analysis

George A. Riner, Salem State College. Email: griner@verizon.net; Three Dimensional Road Inventory Mileage

Road length inventory reporting to state and federal agencies plays a major role in allocating funds for maintenance and development of highway infrastructure. A large and growing inventory of roads demands greater expense to determine accurate road mileage, including the component of length that is due to road gradients. Using 3-D information, such as high quality Digital Elevation Models (DEM), and accurate planimetric data, GIS can compute road lengths for large inventories faster, consistently, and cheaper. Various components and types of roads in Massachusetts are analyzed for a successful computation of their lengths over a 3-D topography using GIS.

Keywords: Transportation, HPMS, Highway Performance Monitoring System, DEM, DMI, Massachusetts

Noel Ring, Retired university instructor, Private Consultant. Email: NoelRing@msn.com; Elaina Hyde, Astronomer, Max Planck Institute of Astrophysics. Email: ehdyde@yahoo.com; Ken Goss, Retired General Mgr., AeroGraphics Corp.. Email: ken_goss2000@yahoo.com; Atlantic Trace Settlement Update: Geography, Cartography and Archaeoastronomy

Seventy stars replicated in stone on landscapes in maritime Canada, New England, Great Britain and Ireland form the central pattern of the Atlantic Trace Settlement, first identified by air photo interpretation in the mid-1970's. Likely the largest maps on earth, the lithic celestial charts are of as yet unknown cultural origin. They are predictably located near Bronze Age copper mines, carbon-dated ca.3000B.P., in western Europe and copper ore outcrops in northeast North America. To date, API and groundtruth field surveys place ATS stellar maps, constructed of large boulders often connected by stone walls, at over 25 sites in New Brunswick, Nova Scotia, Maine, Vermont, Ireland, England, Scotland and Wales. Two wedge-shaped and a kite-shaped feature comprise the repeated ATS pattern, which spans an annual view of the night sky. Native American star lore encompasses portions of the ATS complex, such as the Big Dipper (Plough), Polaris, and major planets along the Line of the Ecliptic, also discerned via API. Nothing in European cosmological cartography or colonial cadastral traditions provides precedence for the ATS pattern. As reported at the 2004 AAG Annual Meeting, land use development continues to endanger ATS sites on both sides of the Atlantic. They merit urgent multi-disciplinary research funding for additional detection, dating, GIS application, and site preservation. The co-authors hope the AAG will support efforts to investigate and preserve these unique cartographic monuments.

Keywords: TransAtlantic Stone Star Charts

Claus Rinner, Ryerson University. Email: crinner@ryerson.ca; Sensitivity Analysis for Geographically Referenced Argumentation

Argumentation Maps support public participation and spatial group decision-making in various fields such as urban planning. As map-based online applications, they support a visual, distributed access to geographically referenced discourse. Through linking of discussion contributions to geographic features, references to places become more explicit and a network of geo-argumentative relations unfolds that can be further analyzed in order to understand the course of a debate. In this paper, we are interested in how sensitive a debate is to the granularity of discourse and the accuracy of geo-referencing discourse contribution. The sensitivity of discourse "results" can be measured by the level of agreement, satisfaction, and the length and depth of debate. We are approaching this assessment by reviewing two previous Argumentation Map case studies and comparing their development over time. We conclude that map-based discourse is highly sensitive to spatial and argumentative accuracy and granularity, and that control over these factors is required in order to allow for the comparison of

results from future public participation GIS experiments.

Keywords: Argumentation Maps, Participatory GIS, Spatial Decision Support Systems

Michael Rios, Ph.D., The Pennsylvania State University. Email: mrx43@psu.edu; *Scale and the Branding of Collective Action: The Governance of Obesity Prevention in Pennsylvania*

In using the case of the Pennsylvania Advocates for Nutrition and Activity, this paper describes the role of scale in collective action between policy networks and community mobilization focused on obesity prevention. In approaching scale from an organizational perspective with respect to collective action, the paper addresses the question: what is the significance of scalar discourses in the strategies pursued by governance coalitions? Governance coalitions can be defined as alliances between multiple sectors and between politically recognized levels of jurisdiction. Their primary function is to facilitate interaction between policy and mobilization networks, while simultaneously coordinating the implementation of targeted action. The characteristics of governance coalitions include the reflexive participation of independent groups, despite the existence of mixed motives and competing interests. To situate the case study within methodological discussions of scale, qualitative inquiry was chosen as the preferred approach to draw connections between theoretical constructs and empirical data. Key data sources included participant observations of coalition activities over four years, coalition documents and promotional materials, and key informant interviews with coalition members. The evidence presented in the paper reveals that governance coalitions purposefully and strategically construct scale to create diagnostic, prognostic, and motivational frames resulting in a collective identity among different interests. In the paper, a typological framework of scale is presented to demonstrate the use of scalar representations to structure the issues and agendas of social actors in ways that facilitate collective action in response to the constraints and affordances available.

Keywords: governance, scale, collective action, obesity prevention

Yu Luo Rioux, University Of Colorado at Boulder. Email: yluo@colorado.edu; *Environmentalism in Jiangxi's Tourism Development*

Due to rapid tourism development spurred by the desire of economic profit in Jiangxi since the late 1990's, the advent of "constructive damages" has been cause for concern. The rise of environmentalism is one answer to the national call to solve such development-induced problems, which is synthesized in the new theory of "scientific concept of development." Yet on the other hand, environmentalism is partly used by local governments, tourism agencies and institutions as a marketing strategy for the image creation project of building up a friendly tourism destination to further attract potential tourists and capital investment. The constraints created by environmental destruction for tourism development may have rendered environmental protection superficial on many levels, an ironic and unintended result. This essay explores the controversial relationship between the environment and the economy by illustrating how environmentalism is promoted and implemented in the tourism industry of Jiangxi. It also examines the dynamics of how the tourism industry at the local level is incorporated into, yet differentiated from, the grand national scheme of modernization. A case study of cultural tourism sites in Jiangxi indicates that local tourism practices may not necessarily be environmentally constructive despite the governmental and elite efforts of environmental protection.

Keywords: environmentalism, tourism development, Jiangxi

Michael Ripseester, Brock University. Email: mripmees@brocku.ca; Russell Johnston, Brock University. Email: ; *Memory on a Stick: Historic Plaques as a Gauge of Mnemonic Tradition in the Niagara Region*

In his recent book *Time Maps*, Eviatar Zerubavel suggests one can understand key moments in a group's past through the compilation of a commemograph: a graphic representation of the dates or time periods publicly acknowledged as having significance. As scholarship in public memory and/or nationalism suggests, these mnemonic traditions are significant in the construction of collective identity. Furthermore, geographers, among others, have suggested that the material and symbolic manifestation of mnemonic traditions are equally crucial to their study. This project represents an initial attempt to tie these trajectories together. We have two goals. First, we hope to discover where the memory entrepreneurs in the region have thrown their weight. That is, we are interested in the intersection of places, events, and persons that have been deemed critical to the construction of what it means to be a Canadian, a resident of Ontario, and/or a local resident in the Niagara Region. We have created a database of all historic plaques in the Niagara Region as a material representation of this effort. Second, given that the cumulative effect of this commemoration is, at least in part, to build consensus concerning the past, we hope to discover the degree to which residents of the Region have internalized specific mnemonic traditions. To that end, we interviewed residents in various locations in the

Region to understand the ways in which they have engaged material forms of memory.

Keywords: memory, landscape, commemoration

Clare M Rishbeth, Ms, University of Sheffield. Email: c.rishbeth@sheffield.ac.uk; *Walking Talking Urban Life: real time roving recordings by first generation migrants.*

What are the individual personal experiences of a Pakistani nurse, a Yemani steelworker, a Jamaican allotment holder and a Kurdish refugee walking the same streets? This project aims to investigate perceptions and values of neighbourhoods as described by first generation migrants. Focusing on the spatial, temporal and sensory context of the local environment, the research addresses how experience of place contributes to settlement processes and cultural identity. How might memories of homelands contribute to a sense - or absence - of place attachment in the adopted city? Deepening understandings of both motivations and barriers towards engagement in the public realm can help inform initiatives regarding cohesive communities and healthy lifestyles. Twelve participants from a range of home countries and currently living in north Sheffield were loaned mini-disk recorders and made real-time commentaries of walks or journeys in their daily lives. Supported by training from BBC Radio Sheffield, the recordings were made on a weekly basis over a three month period spanning late summer to early winter, commenting on their own movements and reactions to their neighbourhood. Individual interviews and group sessions help contextualize their immediate accounts, and inform an ethnographic and social mapping of place. The research scope includes interviews with environmental and community organizations to relate findings to policy and practice. The recordings also form the basis of a specifically commissioned BBC local radio programme.

Keywords: ethnic communities, urban, place attachment, walking, landscape

Adena Rissman, University of California, Berkeley. Email: arissman@nature.berkeley.edu; *Assessing Conservation Outcomes: Conservation Easements in the Context of Development Threat and Environmental Planning*

Conservation easements are one of the dominant tools for conservation of private lands in the United States, but assessments of easement outcomes for biodiversity conservation have been limited. The protected area effectiveness literature includes numerous approaches for measuring biodiversity protection, including gap analysis, before and after comparisons, and ranking schemes to evaluate projects. How well might these assessments work for conservation easements, which differ from many protected areas in that they guarantee only partial land ownership, typically determined by a one-time contract? A review of protected area effectiveness literature reveals that many studies do not consider development threats, despite the importance of threat in prioritizing protected area investments and the likely impact of threat on conservation outcomes. In addition, the land use planning or regulatory context is not always incorporated, even though conservation investments may be redundant if they do not exceed regulatory requirements. I collected data on conservation easement size, purposes, restrictions, permitted uses, and regulatory context across a development gradient in California to test the influence of development threat and land use planning on protected area effectiveness measures. The literature review and conservation easement analysis indicate the importance of integrating land use planning and regulation into assessments of biodiversity conservation strategies.

Keywords: conservation easements, protected areas, measuring effectiveness, land conservation, land use planning, California

Ron R Risty, Usgs/eros/saic. Email: risty@usgs.gov; *Supporting Disasters Yesterday, Today, and Tomorrow*

Is how we deal with disasters changed? Natural and human induced disasters, such as hurricanes, tornadoes, earthquakes, volcanoes, landslides, wildland fires, floods, oil spills, tsunamis, drought, and now terrorism impose a large and growing burden on our society. In the U.S. alone, disasters impose many injuries and deaths with the annual cost to the Nation of nearly \$20 billion. Disasters can have a disproportionate impact on developing countries as well as a major barrier to sustainable development. Because of this, these disasters can also affect our own U.S. assets and interests. So, improving our own ability to assess, predict, and monitor these hazardous events can be a key factor as to how we prepare for the readiness, response, and recovery. In so doing, we must rely heavily on the use of geospatial and integrated earth observation systems to fully realize the benefits gained, derived, and disseminated with products tailored to the needs of the emergency response community and the general public.

Keywords: disasters, hazards, emergency response, gis

Alpan Risvanoglu, University of Oklahoma. Email: alpanax@yahoo.co.uk; *Green Spaces in Istanbul*

In a city of more than 12 million inhabitants, one of the most important questions to address, arguably, is the lack of recreational spaces. The current land use map of Istanbul is evidence that this issue has been overlooked by authorities and city planners for some time. Obviously, people's needs for leisure and recreation areas have to be met. This paper presents the results of face-to-face interviews with Istanbul residents who suggest that green spaces be taken into immediate consideration in future urban development plans. My findings provide insight into human-nature relations, the sense of belonging and spatial attachments in Istanbul, as well as into the expectations of people who desire to live in a better city.

Keywords: Istanbul, urban planning, recreation, green space

Natasha M Rivers, UCLA. Email: riversn@ucla.edu; *Migration of Nigerians to Los Angeles: Examining Human Capital & Barriers for Assimilation (tentative)*

In the most recent wave of migration, there has been a significant increase in the number of African immigrants making the United States their permanent home. Important differences in the migration flow before and after 1980 raise questions about the push and pull factors driving these population flows. The behavior associated with first wave suggested that African immigrants would return to Africa upon receiving economic and educational training abroad. Presently, African immigrants are acquiring human capital, but are now choosing to stay in America. The opportunities that exist in America are drawing large flows of immigrants from an increasingly dispersed set of origins, and those from Africa have steadily increased in proportion to the previous decades. Using the Public Use Microdata and US Government Census files, I will examine the demographic profiles for the Nigerian, African Alone (which includes total African from Africa population) and African American population living in Los Angeles. The data will show that Nigerians successfully assimilate based on the accumulation of human capital characteristics of high levels of education, which translates into higher incomes. Nigerians outperform both the African alone and native Black population in educational attainment and prove to have higher per capita, median family and median household incomes to respective populations. The research also poses the question of how being well connected through human and social networks impacts the ways in which Nigerians transcend previous barriers of race and discrimination experienced by native born blacks in America.

Keywords: Migration, African Immigrants, Nigerians, human capital, assimilation, acculturation

Stefanie S. Rixecker, Dr., Lincoln University. Email: phoenix2@paradise.net.nz; *Renegotiating the natural resource map: The political ecology of oil*

Access to natural resources, including oil, has required special, privileged relationships premised upon hegemonic power and geopolitical influence. This has previously been determined in a relatively simple bipolar manner, whereby the natural resource map was drawn according to colonial legacy and Cold War allegiances. Post-Cold War relations saw an increased interest in 'environmental security' where either scarcity or abundance was blamed for endemic conflict and (re)newed hegemonic intervention. Now, post-9/11 and with the attendant rise of China and India (so-called 'developing countries') a new geopolitics is underway to re-negotiate and rewrite the planet's natural resource map. In so doing, a new political ecology of oil is being drawn which includes nation-states, corporates, NGOs and local peoples. This contested space will yield the new geopolitical dynamics of natural resource exploitation and the re-conceptualised political ecology of oil, in particular. As such, the purpose of this paper is to outline the contemporary geopolitics of oil and provide some possible trajectories for future natural resource policy and action. To do so, content analysis, discourse analysis and policy analysis are deployed to construct a critique of contemporary oil exploitation. Reports from nation-states, corporates, Non-Government Organisations and relevant local groups and individuals are used. The conclusions suggest a hegemonic shift is underway, whereby the political ecology of oil exploitation and access will tilt the developed/developing axis towards a different hegemonic discourse and consequential policy.

Keywords: Natural resources, oil, political ecology, environmental security

Jose Roa-Lobo, University of Maryland - College Park. Email: jroa@umd.edu; *The Geomorphological, Multi-criteria Evaluation and Statistical approaches in a regional landslide susceptibility mapping. A comparative study*

This paper explores a comparative analysis of three approaches used to achieve landslide susceptibility mapping: the Geomorphological, Statistical and Multi-criteria. The Geomorphological approach rather than traditional is still the battle line of the Geomorphological community in the practice of landslide hazard zonation however, the need for faster and GIS / remote sensing related

procedures has prompted researchers to survey the capacities of methodologies based on different frameworks as the statistical and multi-criteria evaluation approaches. These three methods are founded upon different conceptual models. The Geomorphological depends intensively on the researcher's experience and familiarity with the study area via fieldwork, which is circumvented in the statistical one where the role of each factor causing slope instability is determined on the basis of the observed relations of the past/present landslide distribution to a full set of related geomorphic variables via weights of evidence. On the other hand, the Multi-criteria Evaluation divides the landsliding process into a number of simpler compounds related to geographical factors that form a decision hierarchy in order to be combined utilizing knowledge-based user preferences to identify and rank areas that are suitable to landslides without necessarily the input of a landslide inventory map. From these methods three subsequent landslide susceptibility maps are compared to the study area landslide inventory map using a success rate curve, which allows a more objective assessing of the landslide predictability accuracy of these approaches. The study area is located in a tropical mountain environment of the Venezuelan Andes.

Keywords: Venezuela-Andes, landslides, slope-instability, tropical mountain-natural hazards

Paul Robbins, University of Arizona. Email: robbins@email.arizona.edu; Anil K Chhangani, Ph.D., Department of Zoology, JNV University, Jodhpur, India. Email: chhanganiak@yahoo.com; *Territories of Prehension: Human/Animal Interaction in Indian Conservation Areas*

It has become increasingly clear that conservation boundaries are porous at best and fictional at worst. What this means for flows of people and non-humans along and across such boundaries is less clear, however. Do humans and animals "compete" for resources, as traditional conservation theory would suggest? Or do they rather produce conditions for their mutual transformation, pushing against one another, providing one another resources, and predating on one another at the margins? This paper argues for the latter view, providing evidence from village surveys, wildlife census, and scat analysis from the Kumbhalgarh Wildlife Sanctuary in Northern India that shows the subsidies that monkeys, herders, blue bull, farmers and panthers produce for one another along with the sometimes violent extractions and encounters these subsidies predicate. The provisional results suggest that social and environmental systems are non-discreet and that the borders between each are produced through inter-species adaptation and coercion. Conservation lines and rules imposed on the map to suggest or enforce otherwise, face systems that resist control.

Keywords: ecology, conservation, India

Martin Roberge, Towson University. Email: mroberge@towson.edu; Angela Carlisle, Towson University. Email: arosbrook@aol.com; *A Comparison of Four Methods for Measuring Impervious Surfaces*

Impervious surface coverage (ISC) is a convenient measure of urban land cover for hydrologic research. Asphalt and concrete have a distinctive radiometric signature that is easily identified in remotely sensed imagery. These impervious surfaces impact urban streams preventing infiltration and promoting flash flooding. Empirical research has found high correlations between percent impervious surfaces and hydrologic variables such as rainfall/runoff relationships, flow variability, percent of annual discharge as direct storm flow, and peak storm discharge divided by baseflow discharge. Unfortunately, empirical studies of urban impacts frequently cannot be compared to one another due to differing methods for estimating ISC. This study compares four methods for estimating ISC over a variety of scales and land uses. Results indicate that planimetric methods (building outlines and edge-of-pavement digitized from airphotos) consistently underestimate ISC at urban sites. Two Landsat methods (supervised classification and the regression tree methods used in the National Land Cover Dataset) underestimate ISC at rural sites under 10% imperviousness. Land use methods (multiplying land use map polygons with published percent ISC factors) produce highly variable estimates of imperviousness due in part to intensity of land use. These findings may have implications for stormwater regulations. Permit applicants will base their estimates of impervious cover on site diagrams, producing a low estimate of ISC similar to planimetric methods. However, regulations may be based on scientific literature that uses other methods of ISC estimation. These other methods will produce higher estimates of imperviousness. The end result will produce ordinances that are less effective than intended.

Keywords: impervious surfaces, stormwater regulation, urban impacts

Justin Roberson, University of South Carolina. Email: robersjl@mailbox.sc.edu; John Kupfer, University of South Carolina. Email: kupfer@sc.edu; Kimberly Meitzen, University of South Carolina. Email: ; Ashley Pipkin, University of South Carolina. Email: ; *Early successional patterns on recently logged areas at Congaree National Park.*

Congaree National Park, located near Columbia, SC, protects and manages

the largest remaining tract of old-growth bottomland hardwood forest in the U.S. While the impacts of natural disturbances such as flooding and hurricanes have been examined at Congaree, ecosystem responses to large-scale anthropogenic disturbances such as logging are poorly understood. The presence of several invasive, non-native plant species within Congaree, for example, suggests that park forests may be subject to rapid changes in species composition following disturbance. It is therefore critical for park managers to understand the role of forest recruitment, seedling establishment, non-native plant invasion and hydrological processes in order to devise strategies to manage and protect this unique and diverse floodplain forest. The purpose of our research was to test hypotheses about the interactive effects of site conditions and seed availability on early, post-logging forest succession in an area of bottomland hardwood forest that was partially clearcut in 2001 before its acquisition by the Park Service in 2005. Vegetation and soil sampling involved the use of paired vegetation plots located along forest-to-field transects as well as individual plots located in unlogged interior stands. Preliminary analyses showed that species patterns were strongly related to environment gradients and disturbance intensity but suggested that species composition on recovering areas did not vary as a function of distance to the nearest intact forest. An examination of colonization strategies of floodplain species suggests that seed limitation may not have been a factor because of the importance of root sprouting.

Keywords: riparian; succession; disturbance ecology

Carolyn Roberts, University of Gloucestershire, UK. Email: croberts@glos.ac.uk; A need for 'joined up thinking': Groundwater management in rural Uganda

Central Uganda's rural population is highly dependent upon the supply of groundwater, and to accommodate population growth, rapid expansion of the number of accessible and functioning boreholes has been a priority. Over the last decade, some progress has been made through central government, local government and international development aid programmes working in partnership. However, studies on the ground have revealed a more complex picture. In many smaller settlements, achievement of the Millennium Development Goals has prioritised borehole drilling in areas lacking effectively managed sanitation systems. Even using very basic field analytical techniques, the groundwater sources closest to peoples' houses can be seen to be contaminated with a variety of health-damaging compounds, with the environmental 'foot-print' of each village spreading well beyond the edge of the built-up area. Questionnaire survey reveals that borehole users are walking into the settlements to buy this water, and further that they are also at risk from malaria whilst queuing for long periods in boggy conditions where borehole maintenance is poor. The study demonstrates the importance of science and social science enquiry being undertaken in tandem, and used to inform the development of effective environmental policies.

Keywords: Groundwater, developing areas, Africa, water management

Evan Roberts, Minnesota Population Center, University of Minnesota. Email: eroberts@hist.umn.edu; Sula Sarkar, Minnesota Population Center, University of Minnesota., Email: sula@socsci.umn.edu; The comparative historical geography of women's work

For the first time ever social scientists have access to both complete individual data and digital boundary files for historical population censuses. These data?from late-nineteenth century censuses of Canada, Great Britain, Norway and the United States?are now freely available to researchers through the North Atlantic Population Project. Most sources of population census data for use in Geographical Information Systems (GIS) are either microdata samples or aggregate statistics. Microdata samples allow the creation of customized variables, and measures of association between variables at the individual level. Researchers then create customized variables for larger geographic areas. Complete-count historical population data combined with GIS boundary files for small areas (counties) has the potential to revolutionize our understanding of the geography of social and economic processes in the late nineteenth century. This paper demonstrates the possibilities of this new data by analyzing the spatial distribution of women's work in Canada, Great Britain, Norway and the United States. Using choropleth maps we show patterns of women's involvement in paid work across counties in every country, data never tabulated at the time, and previously unavailable as aggregate statistics, highlighting an advantage of combining complete population data with GIS. Women's work varied substantially across counties within every country, reflecting the different available employment opportunities women had in areas with different industrial structure. Taking further advantage of the complete-count microdata, we show how women's work varied as families, not just individual women, responded to employment opportunities in different regions and countries.

Keywords: Historical Census, Population, GIS, Women

Jed Roberts, Oregon State University. Email: jed.roberts@geo.oregonstate.edu; Morphological interpretation of seamounts in American Samoa

The purpose of this study is to construe the dominant mechanism for seamount genesis in the Eastern Samoan volcanic province employing geographic techniques applied to a high resolution deep sea multibeam bathymetry dataset. A stepwise approach toward this end includes four principal objectives; (1) a compilation of disparate multibeam bathymetry datasets into one contiguous dataset, (2) production of maps and three-dimensional visualizations of the study area for preliminary inspection, (3) statistical analysis of seamount shape and distribution, and finally (4) the inference of probable seamount genesis using shape and distribution analyses in tandem with available corroborating petrological and geochemical data. A comprehensive geographic analysis of deep sea morphology in the Eastern Samoan volcanic province has never been undertaken. An added value of this study lies largely in the creation of a dataset both broad in extent and precise in resolution, for use beyond this particular effort. This study accompanies a burgeoning collection of academic investigations using multibeam sonar technology to characterize seamount morphology.

Keywords: American Samoa, seamounts, multibeam bathymetry, marine geomorphology, marine volcanism

Susan M. Roberts, University Of Kentucky. Email: sueroberts@uky.edu; Sarah Wright, University of Newcastle, Australia. Email: sarah.wright@newcastle.edu.au; Phillip O'Neill, University of Western Sydney, Australia. Email: p.oneill@uws.edu.au; Good Governance in the Pacific? Ambivalence and Possibility

In September 2005, the Pacific Islands Forum issued the finalized Pacific Plan. The overarching goal of the Plan is to "Enhance and stimulate economic growth, sustainable development, good governance and security for Pacific countries through regionalism." In this paper we focus on the salient role of (good) governance in the Plan. Governance has become a keyword, albeit a deeply ambivalent one, in development and foreign policy realms and the Pacific is now a particularly intense site of activities understood in terms of governance. Using interviews with persons connected in various ways with the development of the Pacific Plan and from a documentary history, we address questions about the political closures and openings the governance agenda enables; we ask about the kinds of work that gets done in the name of governance through an analysis of the ways that it is understood, deployed and redefined in practice. To do this we turn to the Pacific Plan as our case. We find that governance, as it is defined and operationalized in the Plan, is pulled in a highly technocratic direction such that a particularly narrow conceptualization of governance dominates. Despite this disciplining process, however, the continued salience of governance as a framing device within struggles for racial and gender equality and the emergence of Pacific-based projects that act to remake governance in unexpected ways leads us to conclude that the term retains fields of meaning that allow for alternative political openings and possibilities.

Keywords: Pacific; Pacific Islands Forum; Pacific Plan; governance; good governance; development.

Colin Robertson, University of Victoria. Email: colinr23@gmail.com; Trisalyn A. Nelson, University of Victoria. Email: trisalyn@uvic.ca; Barry Boots, Wilfrid Laurier University. Email: bboots@wlu.ca; Michael A. Wulder, Canadian Forest Service. Email: mwulder@pfc.cfs.nrcan.gc.ca; STAMP: Spatial-temporal Analysis of Moving Polygons

Research questions regarding temporal change in spatial patterns are increasingly common in geographical analysis. In this research, we explore and extend an approach to the spatial-temporal analysis of polygons that are spatially distinct and experience discrete changes through time. Events are used to describe spatial changes occurring in polygons related by two types of spatial relationship: overlap and proximity. Spatial-temporal measures of events for size and direction are presented for two time periods, and multiple time periods. Size change metrics are based on area overlaps and a modified cone-based model is used for calculating polygon directional relationships. Quantitative directional measures are used to develop application specific metrics, such as an estimation of the concentration parameter for a von Mises distribution, and the directional rate of spread. The utility of the STAMP methods are demonstrated by a case study on the spread of a wildfire in northwestern Montana.

Keywords: spatial-temporal analysis, GIS, polygons, events

David Robertson, State University Of New York, Geneseo. Email: robertsd@geneseo.edu; S Whitney Snyder, SUNY-Geneseo. Email: sws3@geneseo.edu; Place-Based Attachments in Picher, Oklahoma: Updating a Community Buy-Out

The historic lead and zinc mining town of Picher faces an uncertain future. Located in the Tar Creek Superfund site, one of the oldest and most costly Superfund sites in the nation, the Picher community has long been plagued by a range of seemingly intractable environmental problems. The most troublesome include widespread lead contamination and mine subsidence. Despite these problems, however, many Picherites have maintained a strong attachment to place, a bond to community rooted in the mining way of life and in a history of perseverance in the face of adversity. In *Hard as the Rock Itself: Place and Identity in the American Mining Town* (2006), the author suggested that this bond to place would complicate a potential community buy-out which had not yet been implemented at the time of publication. This presentation updates the community buy-out story in Picher and confirms that a significant number of its residents are resisting voluntary buy-out offers due to attachments to community and home. As predicted, Picher's hold-outs are facing additional hardship as their community is dismantled around them, and the likelihood that the Tar Creek Superfund site will remain inhabited is limiting future remediation options for the area.

Keywords: mining, community buy-out, Superfund.

Morgan M. Robertson, US Environmental Protection Agency, Wetlands Division. Email: robertson.morgan@epa.gov; "Cultivating This Green Frontier": Branding Ecosystem Service Credits

Neoliberal economists have urged the privatization of ecosystem services for decades, reasoning that if the free services of the earth - clean air, clean water, biodiversity, carbon sequestration - could be owned and traded, their real value would be revealed and resources in demand would increase. These notions have jumped from the pages of Science and The Economist to the brochures and web pages of hundreds of private firms around the United States, which over the past decade have sprung up to offer ecosystem services for sale. Cultivating a market for such novel commodities requires unique marketing strategies, including particular uses of natural imagery and efforts to educate the consumer about the tangled web of incentives and regulations that undergird such markets. Because most customers in United States ecosystem credit markets are making purchases to fulfill regulatory directives rather than to satisfy an innate desire for conservation, the task of marketing is complicated by having to advertise environmental quality while actually selling regulatory relief. This paper focuses on the local, entrepreneurial end of the larger trend towards the marketing of ecosystem service credits, to examine what challenges of information, representation, and subject-interpellation are faced when a capitalist must at last close the deal on the sale of nature's services. At stake is the creation of the appropriate kind of consumer for this new market, and the exploration of a new language of desire infected by regulatory compulsion.

Keywords: Neoliberalism, ecosystem services, marketing, commodification, political ecology

Susan Lee Robertson, Professor, University of Bristol. Email: s.l.robertson@bristol.ac.uk; Constructing a Competitive Europe through Higher Education: Space, Strategy, Subjects

'Europe's' approach to internationalising higher education is a multi-faceted set of political strategies that, over time, has become more complex as an array of European-level actors, and most importantly the European Commission, respond to pressures in the regional and global economies. In this paper I explore this complexity, suggesting that Europe's inter/nationalising and recent 'externalising' project for higher education is a long standing set of projects: culturally?to contribute to the construction of Europe as a distinctive entity; economically?to construct a competitive Europe; and, politically?to locate greater power at the supranational scale that would enable European-level actors more control over regional and global affairs. The discourses of 'internationalising' and 'externalising' higher education suggests that the power to direct education is still primarily located within Member States. However, in this paper I argue that these two discourses are more accurately represented as processes of regionalisation and globalisation, and are the outcomes of social forces, both governmental and non-governmental, engaged in the progressive restructuring of European social relations in the global political economy.

Keywords: Europe, knowledge economy, globalisation, regionalisation

Scott M. Robeson, Indiana University. Email: srobeson@indiana.edu; On the Spatial Scale and Intensity of Recent Thermal Anomalies

Estimates of the rates of air-temperature change are the primary evidence of recent climatic change. Typically, hemispheric or global averages of near-surface or satellite-derived air temperature are used. Trends also are estimated at individual grid points and then mapped. On an annual basis, the global warming

from 1978 to the present spans more latitudinal zones than did the warming episode from 1925 to 1944. The spatial characteristics of the individual (daily or monthly) thermal anomalies that contribute to these trends and variations, however, are relatively unknown. Here, using data from both Microwave Sounding Unit (MSU) and surface-based instruments, geostatistical approaches are used to estimate the spatial scale and intensity of atmospheric thermal anomalies. Specifically, the range and sill are estimated from spherical variogram analysis of gridded monthly air-temperature datasets. In addition, parametric and nonparametric estimates of range and sill are compared. Both the range and sill exhibit distinct seasonal and temporal variations that are used to quantify the spatial scale and intensity of recent climatic change in new ways.

Keywords: climatic change, global warming, geostatistics

David A. Robinson, Rutgers University. Email: drobins@rci.rutgers.edu; Thomas Estilow, Rutgers University. Email: esti@rci.rutgers.edu; A hemispheric snow cover extent climate data record

It has been 40 years since satellite-derived maps of Northern Hemisphere snow cover extent (SCE) began being produced by National Oceanic and Atmospheric Administration meteorologists. No other environmental variable has been mapped from satellite data in a generally consistent manner for such a long period. Information generated from these maps has been used in international assessments of climate variability and change, and in numerous investigations regarding the role of snow cover in the climate system. Despite their proven climate utility, meteorological forecasting has long been the driving force behind producing these maps. As such, changes (documented and undocumented) in mapping methodologies have occurred over time, without a focus on their climatological continuity. In particular, 1999 brought a change from weekly to daily maps and a greatly increased resolution to the map's digitized grid. Members of our Global Snow Lab, as well as others elsewhere, have kept a watchful eye on changes in this satellite environmental data record (EDR). We saw the need to thoroughly scrutinize the EDR and to develop a satellite SCE climate data record (CDR). This presentation will discuss efforts within the Global Snow Lab to do just that, and will introduce this CDR. Updated time series analyses of regional to hemispheric SCE through 2006 will also be discussed, along with efforts underway that will integrate visible and microwave satellite and station-observed estimates of extent and depth into valuable new CDRs.

Keywords: snow cover, climatology, cryosphere, remote sensing

Jennifer Robinson, Open University. Email: J.D.Robinson@Open.ac.uk; Cities in a world of cities

Theorising urban experiences invites a comparative approach, by the simple fact of cities existing in a world of cities. However, urban studies has for some time restricted its formal comparative efforts to cities which are in many respects similar, to "control" for key explanatory variables. In addition, as a result of developmentalist thinking, there has been a longstanding custom of considering wealthy and poorer cities broadly incommensurable. More recently, analyses of globalisation in cities have been drawn to trace networks and nodes across different contexts, but in relation to a limited repertoire of economic processes. This paper will set out the existing parameters of comparative urban theorising, and then consider some alternative tactics for thinking across the diversity of cities, inspired by the spatialities of cities themselves. Without abandoning the idea of cities as distinctive places, the paper will explore how the varied circulations across and between cities might draw us to new ways of theorising cities. It will also reflect on the ways in which citizens and managers already imaginatively inhabit a diversity of distant urban contexts as they set about constructing their more immediate environments.

Keywords: Comparative Urbanism; urban theory; spatiality

Karla Rocha, School of Natural Resources and Environment, Land Use and Environmental Change Institute, University of Florida, and Universidade Federal do Acre, Rio Branco, AC, Brasil. Email: rocha@ufl.edu; Matt Marsik, Department of Geography and Land Use and Environmental Change Institute, University of Florida. Email: mmarsik@ufl.edu; Jane Southworth, Department of Geography and Land Use and Environmental Change Institute, University of Florida. Email: jsouthwo@geog.ufl.edu; Frank Barra, Centro para la Investigación y Preservación del Amazonas de la Universidad Amazónica de Pando, Cobija, Pando, Bolivia. Email: sigcipa@yahoo.es; I. Foster Brown, Woods Hole Research Center, Falmouth, Massachusetts and Universidade Federal do Acre, Rio Branco, AC, Brasil. Email: fbrown@uol.com.br; Stephen Perz, Department of Sociology, University of Florida. Email: sperz@soc.ufl.edu; Methods of Data Standardization for Image Processing and Land Cover Change Analysis in the Tri-National Frontier of Madre de Dios (Peru), Acre (Brazil), and Pando (Bolivia) - MAP

A large remote sensing database is being constructed to analyze land cover change in the MAP region of Southwestern Amazonia. This database will provide

baseline observations to measure land cover changes in response to new road construction and paving in the region. Satellite imagery obtained with NSF HSD acquisition funds will provide a time series of Landsat (TM and ETM+) data for the MAP region across a period of 20 years (1986-2006) to evaluate land cover change. Time intervals from 1986 to 2001 will be every five years, and a one year interval from 2000 to 2006. The image season will be austral winter, specifically July, with cloud-free images as temporally close as possible given the large geographic area. Climatic variability among image dates will determine the exact image month and day to acquire each scene. The Landsat data will be radiometrically calibrated, geometrically registered, normalized for precipitation differences (if necessary), and mosaiced. We will combine the spatial data into a GIS with multiple layers for administrative boundaries, various land tenure parcels, roads and rivers, social and agricultural data, vegetation, and satellite data. This database will be constructed with in collaboration with the Universidad Amazonica de Pando (UAP); Universidade Federal do Acre (UFAC); and Universidad Nacional Amazonica de Madre de Dios (UNAMAD). This project highlights the need for institutional collaboration, and data and method standardization across the tri-national boundary and applicable to other multinational research projects.

Keywords: remote sensing, image processing, Southwestern Amazonia, method standardization, land cover change

Yuri T. Rocha, U. of Sao Paulo (Brazil). Email: yurit@usp.br; Edgard B. Cornachione Jr., U. of Sao Paulo / U. of Illinois at Urbana-Champaign. Email: edgardbc@usp.br; Andrea P. Cornachione, U. of Sao Paulo / U. of Illinois at Urbana-Champaign. Email: prezotto@usp.br; Brazilwood Trade Economic Relevance: an historical analysis between the 16th and the 19th centuries

The purpose of this research was to investigate the economic relevance of the Brazilwood trade, between the 16th and the 19th centuries, based on estimated metrics involving quantity, average weight of exported trees, and additional economic indicators. Brazilwood was one of the top-traded commodities in this period, and one of the most relevant products explored by Portuguese navigators. Brazilwood is an arboreal-tropical species, which experienced a high value in Europe, used as a red dye. When Portuguese first arrived at Brazil, Brazilwood was abundant along the coast, soon becoming a very profitable operation as an official monopoly. Due to the trade volume, strong logistics operations were developed via trading posts established near Brazilwood locations to receive and export the commodity to Europe. The economic law of demand and supply explains the stimulus of other expeditions (e.g., French and Dutch) to explore the Brazilwood black market. This is a nonexperimental study based on a descriptive design, supported by both documental and historical techniques, mainly with historic files from the Ultramarino Historic Archives (Portugal) and the National Archives (Brazil). Findings about Brazilwood trade between the 16th and the 19th centuries include a total 527,182 trees (15 meters) which were transformed in 6,082,867 standard pieces (1.3 meters), reaching 91,243 tons of exported wood in this analyzed period. These findings are based on both formal and informal (black market) records. These numbers aligned with the contextual review of this operation are strong evidence of the economic relevance of the Brazilwood trade in this period.

Keywords: Brazilwood, Portugal Exploration, Brazilwood Trade

Stéphane Roche, 1, Université Laval. Email: stephane.roche@scg.ulaval.ca; Deconstructing Google Earth's images with the Spatiograph

In a recent research we have developed a new model aiming at analyzing and classifying geospatial representations (Roche et al, 2006). The Spatiograph is a conceptual and visual framework based on the main characteristics of a geospatial representation (focus, dimension, scale, continuity, physicality, temporality and dimension), allowing us to deconstruct such a representation. In this paper we firstly present the spatiograph. Secondly we use it in order to analyze a set of geospatial images provided by Google Earth and compared it with other geoportals(local windows, mapquest). Finally we propose a theoretical analysis of Google Earth's images compared with their potential uses.

Keywords: Spatial representations, Spatiograph, Geoportals

Dianne E. Rocheleau, Clark University. Email: drocheleau@clarku.edu; Rooted Networks/Relational Webs: Theories and Models for a Socio-Ecological Science

Network theories and models can bridge qualitative/quantitative, physical/social and critical/positivist divisions, to address questions central to Geography and Ecology. The paper addresses problems and promises inherent in partial, parallel and scattered network theories and models in the "natural" and "social" sciences. Despite the compelling advantages of a model that moves beyond the culture/nature dichotomy there is a clear need to theorize and model : 1) power relations within and between networks; 2) rooting systems that anchor networks

to territories/resources; 3) applications spanning social and ecological sciences and 4) integration of static network structures and dynamic systems behavior. Geographers can use network metaphors, models, formal theories and analyses to address questions of power (in patterns, degree and terms of connectivity and autonomy), integration of culture and nature, and relations of rootedness and mobility within and across territories. I advocate a radical empiricist approach to complex assemblages, treating them as networks, observing and evaluating them from multiple standpoints (nodes) within a given set. The methodology is one of "seeing multiple", from situated perspectives within polycentric models. I propose an integrated conceptual model to describe and analyze socio-ecological formations (assemblages of diverse elements commonly divided into biological, physical and social domains). The paper illustrates description and analysis: Mapping power in networks; Mapping rooted networks onto territories; Tracing network topologies of connectivity, autonomy, and sovereignty, as well as mobility, circulation and rootedness; and Reconciling complex systems and networks to include assemblages of humans and other beings, their habitats, technologies and artifacts.

Keywords: Networks, Rooted, Ecology, Power, Territory

Branda Rochwerger, Independent Scholar. Email: miss_rochwerger@yahoo.com.br; Ingolf Vogeler, University of Wisconsin. Email: ivogeler@uwec.edu; House Styles in Urban Brazil and United States in the last 110 Years

Only a minority of urban Brazilians live in detached single-family houses today. Particularly since World War II, the historic residential areas of Brazilian cities have been replaced by high-rise residential buildings. In United States, on the other hand, new houses have been added mostly on the outskirts of older housing areas, adding "concentric rings" of houses by decades, styles, and densities. This poster presents the results of field work in Brazil and USA comparing single-family house styles from the last 110 years in Belo Horizonte and Eau Claire. Maps of the age of housing, by decade, provide the basis for comparing house styles in these two cities. For each decade, photos of major house styles are compared. House styles from the 1890s to the 1950s are more similar in the two cities; thereafter, styles diverge markedly. Regardless of style and age, Brazilian houses are mostly multi-storied and stuccoed with pastel-colors; mansions have light-colored cutstone; and all gabled houses have red-tiled roofs. Brazilian houses look more like California houses than Midwestern ones, where horizontal sliding (wooden, vinyl, steel) is so common. Houses that have survived urban development in Brazilian cities are disproportionately larger, elite houses with dramatic molded-facades. Come see, appreciate, and compare the rich residential fabric of urban landscapes in Brazil and the United States for yourself.

Keywords: urban geography, house styles, age of housing, Brazil, United States

Jan Ketil Rod, Department of Geography, NTNU & Centre for the Study of Civil Wars, PRIO. Email: jan.rod@svt.ntnu.no; Civil Wars: Prospects and Problems by using GIS-generated Local Indicators

Civil wars rarely span throughout the territories of the host countries. More frequently, they are confined to specific sub-national regions where government authority is limited, where its population is dominated by minority groups, and where the rebels have access to contrabands or other sources of finance. In order to avoid the ecological fallacy, or explaining local phenomena with country-level measures, an increasing number of quantitative studies of civil war are applying disaggregated data and research designs. Although such approaches are certainly promising, they introduce or emphasize problems related to classical statistical inference. A fundamental underlying assumption is that of independence, that the units of analysis are unrelated to each other. With geographical data, this assumption is questionable, and particularly so for disaggregated observations. Disaggregation also presents another challenge, known as the modifiable areal unit problem (MAUP). In this paper, we investigate possible effects of spatial autocorrelation and MAUP by conducting a series of disaggregated analyses on the incidence of civil war in Africa, 1970-2001. To test for the zoning effect of MAUP, we use two grids with identical resolution (100 x 100 km) but with different zoning (52% overlap) to generate alternative datasets, which are then analyzed and evaluated. The scale effect of MAUP and the influence of spatial autocorrelation are explored by estimating similar regression models on three alternative samples, generated from grids with a resolution of 50 km, 100 km, and 200 km, respectively.

Keywords: Civil War, GIS, Disaggregation, Ecological Fallacy, MAUP

John C. Rodgers, Mississippi State University. Email: jcr100@msstate.edu; Interactions between Australian pine (*Casuarina equisetifolia*) and native animal species within the Bahamas.

The purpose of this investigation is to examine the abundance and diversity of animal species associated with the invasive Australian pine (*Casuarina equisetifolia*) on San Salvador Island, The Bahamas. Association in the context of this study includes herbivory, nesting, perching, or climbing. Field sampling was conducted at three beach sites and at five inland study sites. Study plots were established at each site where the number of Australian pines was counted and the animal species diversity, if any, was recorded. The results show very few native animal species are associated with the Australian pine. To date only three species were climbing or nesting on the invasive trees. The Cerion land snail (*Cerion* sp.) is the most abundant species associated with Australian pine and was found on trees at 1 beach sites and at 2 interior sites. For those trees where *Cerion* were present, the number of snails ranged from 1 to 15 individuals per tree. Nearest neighbor analysis indicates that the *Cerion* distribution is significantly clustered. There appears to be no significant preference of *Cerion* for tree size. In addition to *Cerion*, there were two wasps nest and one hummingbird nests on separate trees. The extremely low diversity on Australian pine is not unexpected given that their cone-like fruits and needle leaves offer little nutritional value. However it does reinforce that there is limited use of this invasive plant by native animals. Further research continues to quantify the organisms associated with *Casuarinas* in The Bahamas.

Keywords: invasive species, San Salvador Island, species diversity

Scott Rodgers, King's College London. Email: scott.rodgers@kcl.ac.uk; 'Reporting live from?': Researching spatial ontologies of journalism

For at least the past 25 years, there have been intermittent calls to better study the geographies of media, of which news media have been one specific concern. Despite this, most recent human geography research and theory has only indirectly been interested in journalism. Instead, most inquiry has been into the epistemological politics of news media representations of spaces and places. Yet even a cursory survey of journalism studies across other disciplines would point to many other spatialities. For example, the extent to which reporters conduct their daily work in both fixed and mobile spaces: press bureaus, the internet, regular beats and far-flung assignments. Or the importance of newsrooms and studios in assembling and circulating the many different spaces of newsgathering. Indeed, it might be said that such studies imply a spatial ontology concerning journalism. Yet these spatialities so often found in journalism studies do not generally transcend the empirical; they are under-theorized. It is here that I suggest human geography has a contribution to make, not by creating a redundant 'geography of journalism', but by entering into interdisciplinary conversations on the spatialities of news media. As a starting point for such conversations, this paper identifies the current ontological concerns in human geography with social practices and materiality as particularly appropriate for studying the changing politics of journalism and news media. This is followed with an associated review of different methodological possibilities for human geographers interested in pursuing such research avenues, including a consideration of some likely problems and tensions.

Keywords:

journalism, materiality, media, methodology, politics, practices, ontology, space

William Nicholas Rodgers, Western Kentucky University. Email: william.rodgers@wku.edu; Rezaul Mahmood, PhD., Western Kentucky University. Email: rezaul.mahmood@wku.edu; Flash Floods in the Appalachian Region (1993-2005)

Flash Flood (FF) is a major natural hazard in the United States. To better understand its seasonality and inter-annual variations, I am building a FF climatology for the whole Appalachian region. This paper shows FF climatology for the Appalachian region for the years 1993-2005. My primary source of data has been the National Climatic Data Center (NCDC) and their electronic records which can be accessed through the World Wide Web. The analysis of data shows variations in the frequency of FFs during different years, seasons, and months. Also there is a plan to expand this work up to the year 1950 and obtain a better knowledge of FF occurrence. Various parts of the Appalachian Region have been covered thus far. Some states have been completed from 1993-2005 such as, Alabama, Tennessee, Kentucky, West Virginia, and Vermont have all been completely studied from 1993-2005. The states of Ohio and Massachusetts as well as others have been overlooked for the time being. And with this data there is a continuing effort to determine possible patterns monthly, seasonal, and yearly.

Keywords: Flash Flood Event

Jean-Paul Rodrigue, Associate Professor, Hofstra University. Email: ecojpr@hofstra.edu; Theo E. Notteboom, Associate Professor, University of Antwerp. Email: theo.notteboom@ua.ac.be; The Next Fifty Years of Containerization: Inland Freight Distribution

Although the container was an innovation initially applied for maritime transportation, the emergence of global supply chains has placed intense pressures to implement containerization over inland freight distribution systems. Like its maritime counterpart, the inland transportation of containers has limited prospects concerning the improvement in speed, so strategies must be found to use effectively existing modes while abiding to cost and time constraints of logistics. Since inland transportation is bound to accessibility and capacity constraints to a higher extent than maritime transportation, the next fifty years are likely to see attempts to cope with three particular geographical scales. At the continental level, the setting of high capacity long distance rail corridors, in the line of the North American landbridge, will continue to offer a viable option for long distance container movements. Regionally, the process of integration between maritime and inland transport systems will lead to a number of penetration and modal shift strategies where each mode is used in its most cost and time effective way. Locally, the conventional problem of the "last mile" in containerized distribution will cope with increased congestion within metropolitan areas but also around terminals with growing attention placed in city logistics. In all cases, the future of containerized inland transportation will depend on efficient intermodal and transmodal operations as well as energy prices. This contribution is the second in a set of two papers on the theme 'The next fifty years of containerization'.

Keywords: Containerization, Innovation, Inland freight distribution, Rail, Trucking

Alejandro Rodriguez, University of California - Los Angeles. Email: nikanek@ucla.edu; Informal housing markets: How do they work?

This paper explores the informal housing markets in the city of Tijuana, Mexico in order to respond what options do households in poverty have to access the housing market and what are the main correlations for their location? The focus of this research is to unfold the logic behind the informal housing market. This paper will test the hypothesis that informal sub-urbanization is caused by the lack of economic means of the new immigrants to the city. It will suggest that informal housing is expensive and that, structural failures in the formal housing market are the cause of this phenomenon. It also studies the responses from the public sector. With data gathered in the field, this research also explores urban and regional mobility of those living in informal settlements to determine to what extent transportation counts in residential choice in a country with transportation anarchy. All illegal, informal, and socially-charged patterns of residential choices in the world will help to construct the theoretical body of this research. The term informal housing refers to settlements in urban areas that are not planned or regulated by the State laws. By investigating the internal functioning of informal markets and comparing them to formal ones, this paper explores how emerging spatial paradigms affect local housing markets and the social context of urban families.

Keywords: housing, markets, informal

Lourdes Rodriguez-Gamino, MSc, Instituto De Geografia Unam Mexico. Email: lulugamino@correo.unam.mx; Jorge Lopez-Blanco, Dr., Instituto De Geografia Unam Mexico. Email: jlopezblanco@hotmail.com; Gilberto Vela-Correa, Dr., Universidad Autonoma Metropolitana-Xochimilco Mexico. Email: ; Environmental Biophysical Units as a Framework to Characterize Detailed Environmental Indicators for Land Management Purposes in Milpa Alta, Central Mexico

We delineated the environmental biophysical units (EBU) by means of a geomorphogenetic approach in order to obtain a detailed spatial framework to characterize the main environmental indicators (EI) in Milpa Alta, Central Mexico. The geomorphologic units were delineated using aerial photographs (1:75,000 scale) and then the outlines were digitized and corrected by a digital photogrammetric procedure using a GIS. The EBU were integrated according to the general and specific origin of the relief, relief-type, age-lithology and geometric class. The EI considered were defined by means of the relief, soil, water, climate, and vegetation factors. The following morphogenetic classes were obtained: A) Upper Mountain Slopes of Cinder Cones (Andesite-Basalte). B. Upper-Medium-Lower Mountain Slopes of Lava Flows (Andesite-Basalte-Dacite). C. Non-Differentiated Mountain Slopes of Lava Flows (Andesite-Basalte-Dacite). D. Upper/Lower Hillslopes of Cinder Cones (Andesite-Basalte). E. Alluvial Complex-Piedmont (General/Intermountain). F. Accumulative Alluvial Plains (General/Intermountain). All of them from Pleistocene to Holocene. Regarding to altitude the units are found in intervals between 2,390 and 3,530 masl. The EBU alluvial exogenous accumulative plain and the summit slope presented slope classes of 1°-3° and the slopes classes of 7° to 23° correspond to the environmental volcanic endogenous of hillslopes of the monogenetic cone, alluvial

exogenous accumulative of local piedmont and scarp of lava flows. Morphogenetic characteristics control distribution of land use/cover, also the physical and chemical soil properties. The information obtained from the evaluation of EBU and the EI allow us to obtain basic information in the making-decision process into the land management procedure.

Keywords: environmental biophysical units, geomorphologic morphogenetic; environmental indicator; Milpa Alta

Emma Jane Roe, Cardiff University. Email: roeej@cf.ac.uk; Commercialising animals for food products: tales of carcass utilisation, cultural sensibilities and selling sentience in different European cultures.

There is a long geographic history of attention towards the process of commodification, or in other words how nonhumans as resources are given value to become exchanged within commodity chain networks (Whatmore and Thorne 1997, Mansfield 2003, Parry 2005). Yet between the production and consumption of a commodity lies a complex set of commercial practices that work to achieve a commercial position for the product. How do these commercial practices work with the particular socio-material capacities of the embodied nonhuman which often consists of a number of products that culturally and materially vary in their commerciability? Drawing upon findings from the cross-country retailing study - a study of the market for animal welfare-friendly foodstuffs - within the EU funded WelfareQuality® project this paper compares geographies of the process of commercialising different species of farm animals in different European cultures. It will consider how the commercialising of an animal's body for food production is connected to a number of both cultural and corporeal factors that change from one country to another dependent on a complex supra-national geography of legislation, culinary cultural practice, cultural sensibilities towards different animal species and respect for animal sentience. This paper contributes to the development of new cultural economic geographies of materiality situated in the capacities of the embodied nonhuman to be commercialised, or in other words how it becomes subject to the logic of capital (Jackson 2002).

Keywords: nonhuman food animal commodity retail

Robin Jane Roff, Simon Fraser University. Email: rroff@sfu.ca; Engaging with Food: Power, Democracy, and the American GE-Free Movement

On August 28th, 2006 the California Senate shelved SB1056, a bill which would have granted the state sole jurisdiction over the regulation of seed and nursery stock. Ostensibly drafted to ensure "a level playing field" for the state's agricultural and food industries, SB1056 is one of a host of similar legislation drafted across the United States to preempt county and municipal bans on genetically engineered crops. Although such 'preemption bills' are attempts to exclude the local as a source of regulation, they have, in fact, helped re-define the local, and particularly local food, as an important site of socio-political power. In this paper I reconsider the meaning and significance of the GE-Free movement in the United States, arguing that this is not a fight over food but the manifestation of a deeper struggle over state power. Drawing on in-depth interviews with actors on both sides of the fight as it has manifested in Sonoma County, California, I highlight the ways in which food and agriculture are mobilized in efforts to turn a passive consuming public into an engaged citizenry and thereby establish a more 'democratic' social model. In this light, eating local and organic products, frequenting farmers markets, and gardening are attempts to forge new political models as much as agro-food systems. Ultimately this work, and the GE-Free movement, suggests the need to explore the intimate relationship between sustainable food systems and the broader political-economic structure.

Keywords: biotechnology, alternative food, agriculture, political economy, subjectivity

Jennifer Rogalsky, SUNY - Geneseo. Email: rogalsky@geneseo.edu; Strategies for Dispelling the Myth of the Culture of Poverty in the Urban Classroom

In the 1990s, William Julius Wilson provided a critical analysis of the structural causes of poverty. Unfortunately, many school teachers are still led to believe (via best selling books and mainstream discourse) that neighborhoods, parenting, and family are the determinants of students' literacy/educational outcomes. This "culture of poverty" thesis still persists in some inner-city schools. It is therefore crucial to inform educators about the structural causes of poverty as these factors manifest themselves in the classroom. Pedagogical interventions should focus on educating educators about the influences of deindustrialization, decentralization, classism, and racism upon their students' educational outcomes. Teachers need new strategies to promote more critical engagement of poverty in their urban classrooms. Some teachers in Rochester, NY are seeking a deeper understanding of their students as they recognize the need to understand how systemic classism, and de facto racism play a role in perpetuating poverty. However, they cannot begin to transform their classrooms

without the insights gained through in-depth knowledge of students' and families' lives. Through projects aimed at uncovering children's perceptions of their neighborhoods, access, and restrictions, I work with teachers to devise curriculum strategies aimed at uncovering the structural realities of poverty. The goal of such interactive methods is to dispel incorrect assumptions about low-income students in order to move away from blaming the individual and "their culture." The result will be more equal power among children, families, and teachers - developing relationships in which parents and children are accepted and respected, thus improving teacher effectiveness and educational outcomes.

Keywords: Urban, Poverty, Education

Ben Rogaly, University of Sussex. Email: b.rogaly@sussex.ac.uk; Migrant Workers: Using Scale to Deconstruct a 'Progressive' Policy Discourse

The ILO's report A Global Alliance Against Forced Labour (2005) attempts to aggregate global trends in unfree forms of employment, highlighting the vulnerability of migrant workers. The report uses a number of country studies and develops a common position on policies for the protection of workers' rights. Because this position is politically important, and also because it is flawed, the proposed paper develops a geographical critique of the way it was reached. The paper will draw on original multi-scale research with migrant workers and their employers in India and in the UK (Rafique et al, 2006; Rogaly, 2006). It will show that the report neglects the micro-scale, taking insufficient account of individual migrant workers' narratives, and thus too often constructing migrant workers as victims, devoid of agency. Secondly, the use of data at the local and regional scales in the report will be seen to be highly selective, resulting in a neglect of diversity within countries in forms of capitalism reliant on migrant workers. Most importantly, perhaps, the ILO report stops short of a critical analysis of the large scale structures of global capital accumulation and their connections to state action, a process to which the ILO itself has not always been immune. Human geography's engagement with multiple scales, and with the politics of scale, position it well to contribute both to better, more nuanced, understandings of migrant workers' struggles, and to analysing the complex, political issues of policy, regulation and the governance of capitalist employment relations.

Keywords: migrant workers, India, UK, scale, policy discourse

Bethany Rogers, Louisiana State University. Email: broge11@lsu.edu; "That Place Goes Along With What We Do:" Neighborhood Places, Cultural Practices, and Preservation in Post-Katrina New Orleans

This paper considers the effects of Hurricane Katrina on New Orleans' built and cultural landscape, particularly current preservation efforts that are impacting the future of the city's architectural record and cultural traditions. Specifically, this paper is concerned with the role of neighborhood places in the transmission of local cultural meaning and identity. Employing participant observation, interviews, and archival work, the paper presents three neighborhood places that illustrate a range of ways buildings and the people that use the buildings create and continue to sustain local cultural meaning over time. Theoretically the work fuses traditional concepts and methods of American cultural geography that are concerned with the material form of buildings with more recent research that emphasizes the embodied and everyday uses of places. This research thus takes into account the material and intangible elements of architectural spaces, exploring how both inform the place-making process and sustain cultural meaning. Further my research considers how both the material form and everyday uses and meanings of buildings combine to determine the local significance of places. Preservation work has traditionally privileged architectural standards in determining local significance because they are easier to document and assess than personal, social, or cultural meaning. The theoretical frame and ethnohistorical methods developed in this paper expand how community values and associations can be accounted for in addition to the architectural significance of the buildings themselves, so that the role of both in the placemaking process can be conveyed and valued in the preservation process in post-Katrina New Orleans.

Keywords: architecture, practice, performance, placemaking, preservation, New Orleans

Christy L. Rogers, Ohio State University. Email: rogers.441@osu.edu; Governmentality, Race, and Housing Policy in the U.S.

Historically in the United States, whiteness, property ownership and citizenship were defined and understood as mutually constitutive. Over time, the parameters of citizenship and property ownership were gradually expanded, and in the post-Civil Rights period, state-sanctioned discrimination in housing and lending was finally rendered illegal. However, racially and economically segregated neighborhoods remain, with the attendant threat of disparate citizenships. How, then, are ostensibly non-racist actors and policies perpetuating racialized spaces? Critical race theorists, while not always using the term "governmentality," have been chronicling the multi-faceted processes that

produce and sustain whiteness as an invisible, unchallenged hierarchical norm. The geographic literature extending Foucault's work on biopower and governmentality can be usefully threaded into this discussion. Foucault conceptualized the governing of a vast political economy effectively at simultaneous scales, in part through the use of "objective," quantitative tools, such as descriptive statistics, charts, graphs, and maps. Coupled with the flexibility and "memory" of law and legal regulations, geographers have shown how quantitative and visual tools of dividing, measuring, and forecasting became entrenched, racialized tools of state- and economy-building, while boasting what Daston has termed the "aperspectival objectivity" of 19th Century science. It is my contention that such an "aperspectival objectivity" has translated well into neoliberal governmentality, particularly with the dependence on market solutions to racial and economic residential segregation. I will illustrate this with a critical review of housing desegregation litigation and remedies, and conclude with qualitative studies that point to promising ruptures in the governmentalities of segregated spaces.

Keywords: governmentality, race, segregation, housing policy

James Colin Rogers, University of Georgia Department of Geography. Email: chewbacaedu@yahoo.com; David S Leigh, University of Georgia Department of Geography. Email: dleigh@uga.edu; *Estimating sediment yield from tributary stream banks in the Southern Blue Ridge Mountains*

Hillslopes of the Blue Ridge Mountains underwent significant erosion due to logging during the late 19th and early 20th centuries, which caused rapid overbank sedimentation in stream valleys. Subsequently, circa 1910-1940, the tributaries incised and left the historical overbank sediment as a low terrace, which provides a significant source of sediment to overall basin sediment yield. We developed linear regression models that predict minimum estimates of bank erosion and yield as functions of the correlations between Shreve stream order, floodplain width, and historical terrace height. The models are based on field measurements from 40 to 50 catchments smaller than 50 km² and a drainage network delineated from digital elevation models using ArcView. Age estimates for incision and floodplain establishment come from stratigraphic, photographic, dendrochronologic, and geochronologic (luminescence and radiocarbon) measurements. Terrace height minus floodplain height is the basis for calculating net yield from bank erosion. Preliminary results indicate that banks erode at 1.0 to 1.5 cm/yr, which yields about 10-20 t/km²/yr. This estimate is equivalent to published direct observations of sediment yield (sediment rating curve and reservoir sedimentation approaches) from fully forested catchments in the region where bank erosion is the primary source of sediment. Thus, our approach is validated as a suitable alternative to other methods of estimating bank erosion, such as process-based models and measurements from erosion-pins. Future research will investigate whether various types and intensities of land uses influence variation in bank erosion rates.

Keywords: sediment budget, erosion, Appalachian, fluvial, geomorphology

Jeffrey C. Rogers, Ohio State University. Email: rogers.21@osu.edu; *The Annual Cycle of Monthly Correlations between Station Mean Air Temperatures and Sunshine Duration across the United States*

Correlations between long-term monthly mean air temperatures and observed percentage of maximum possible sunshine (sunshine duration) are obtained at 113 U.S. stations and subsequently subjected to a principal components analysis. The component explaining the greatest U.S. variance is characterized by positive sunshine/temperature correlations from April through October, peaking in May and June, while negative coefficients occur from December - February. Regional variation includes high positive sunshine/temperature correlations in October across the northern tier of states while October coefficients are decidedly negative in the southeastern states. Differences in October atmospheric circulation are illustrated and discussed for representative northern and southeastern cities. Stations along the southernmost states can have positive winter sunshine duration/temperature correlations while those at the sunniest U.S. locales have sunshine/temperature relationships that are largely independent of the major principal components.

Keywords: Climate, solar radiation, climate variability

Peter A. Rogerson, Professor, University At Buffalo. Email: rogerson@buffalo.edu; Gyoungju Lee, Ph.D. student, University at Buffalo. Email: gilee@buffalo.edu; Ikuho Yamada, Professor, University of Utah. Email: ikuho.yamada@geog.utah.edu; *GeoSurveillance: Monitoring Temporal Change in Spatial Patterns*

The majority of statistical investigations of spatial pattern are retrospective in nature; they examine one hypothesis at one point in time. However, there are many circumstances where repeated hypotheses regarding spatial pattern are desired. For example, as new data on crime or disease becomes available, we may wish to carry out repeated tests of pattern. This paper will first address the prospective statistical tests that can be applied to this situation, and

then illustrate software designed to investigate questions of this type.

Keywords: monitoring, spatial statistics

Robert V. Rohli, Louisiana State University. Email: garohl@lsu.edu; Lynn Copeland Hardegree, United States Army Corps of Engineers. Email: lynn.c.hardegree@sam.usace.army.mil; DeWitt H. Braud, Louisiana State University. Email: dbraud1@lsu.edu; *Remotely-sensed Urban Heat Island Features of Baton Rouge, Louisiana*

Despite recent advances, understanding of urban effects on local climate remains unsatisfactory. This research analyzes the urban heat island (UHI) of Baton Rouge, Louisiana, a medium-sized urban area with extensive forest cover and much potential for future UHI-related warming as a result of increasing growth and deforestation. The spatial variability in surface temperature as depicted by thermal longwave radiative emissions collected from the Advanced Thermal and Land Application Sensor (ATLAS) in May 1998 reveals far more detail than that provided by surface meteorological-station-based air temperatures. LANDSAT-based multispectral datasets from May 1988 and May 2003 were used to derive regression equations to estimate surface temperatures for various land covers from known NDVI values. Color infrared orthophotography produced from aerial photography provided ground truth/accuracy assessment. Results confirmed that altering amounts of vegetation within a given land cover over time produces significant changes in surface temperature values. The regression equations were then used to reconstruct past UHI values and forecast future UHI magnitude for Baton Rouge. Results may be useful for environmental planners in assessing an economic value on the functions provided by urban vegetation.

Keywords: urban heat island, Baton Rouge, Louisiana, urban climatology

Carmen Rojas, Department of City & Regional Planning; University of California, Berkeley. Email: crojas@berkeley.edu; *Revolutionary Urbanism: Interrogating Space & Citizenship in 21st Century Socialism*

South America is an emerging geography of radical politics. Venezuela, under the leadership of Hugo Frías Chávez and with massive petroleum revenues, has been a key political and economic force for this shift towards what is being called '21st century socialism'. This '21st Century Socialism' has been praised for providing medical, education, and food services to those who have traditionally been marginalized from the economic wealth of the nation. As interest grows in the nature of this new project, a series of contradictions in this strategy to serve the poor have become evident. These contradictions become clearest when interrogating economic redistribution, the production of urban space, and street vendors in the city. Vendors, who can access the services provided by the state, have been the focus of an attack by local and national leaders in an attempt to 'clean-up' the city. The clean-up operations have taken two forms. Within the densest informal market, vendors are forced out by the military police, stands are destroyed, and a climate of uneasiness is pervasive. If the first operation is characterized by violence, than the second should be understood as 'operation formalization'. Just two metro stops away, vendors are organized by the Chavista mayor into a micro-enterprise project where they will rent out small scale kiosks from which they will be able to sell their products- formally. This paper explores the role of the state in producing a fragmented urban landscape by establishing differentiated forms of regulation and reprisal in Caracas, Venezuela.

Keywords: Urban, Informality, Venezuela, Street Vendors, Chavez, State

Carole Ann Rollins, PhD Candidate, University of Nevada Las Vegas. Email: naturetech@earthlink.net; *Valuing a quasi-public environmental good: revealed versus stated preferences*

There is an ongoing debate concerning how non-market valuation estimates derived from different methods compare for use in evaluating public policy concerning an environmental good. The purpose of this paper is to examine the relationship between the value of a quasi-public environmental good using alternative non-market valuation methods. In this study two types of valuation methods are compared using revealed and stated preference estimates. The hedonic pricing method (HPM) provides estimates of revealed preference values and the contingent valuation method (CVM) provides estimates of stated preference values. The array of benefits associated with residential landscaping policies designed to promote water conservation in Clark County, Nevada is the quasi-public environmental good examined in this study. The results extend earlier works of Carson et al (1996) to show how CVM estimates compare with estimates obtained from HPM, thus providing policy makers with a range of estimates as a potential input into their environmental decision making process. The results also contribute to further understanding the relationship between revealed and stated preference valuation estimations for environmental goods, and contribute to the work of Sudip et al (2005) by providing ways of combining and calibrating different data sources which may be useful for future studies within the economics field.

Keywords: HPM, CVM, xeriscape, environmental good, contingent

valuation method, hedonic pricing method, comparison studies, quasi-public environmental good, water conservation, landscaping policies, valuation estimations, revealed preference, stated preference, alternative non-market valuation methods, public policy, non-market valuation, survey, hedonic pricing, contingent valuation, economics

Karen Sue Rolph, Ph.D., Stanford University. Email: karenrolph@hotmail.com; *Ecologically Meaningful Toponyms: linking a lexical domain to production ecology in the Peruvian Andes.*

The intention of this poster is to illustrate how traditional Quechua Indian place name knowledge has been mapped, but also, how traditional knowledge is being lost due to changes in culture and globalization more generally. I have detailed two groups of people in a native region, those who live farther from roads, and those who live closer to roads. Those living closer to roads are more likely to participate in the market economy, to speak Spanish, to know less about traditional toponyms, and finally, they are less likely to plant native or indigenous crops. Conversely, those who live farther from roads demonstrate greater traditional place name knowledge, are more likely to speak Quechua, and are more likely to preserve, plant and consume traditional crops. The poster I present will show "mental maps" of indigenous knowledge using GIS, and loss of knowledge based on age and market involvement.

Keywords: Place names, traditional indigenous knowledge, GIS, Andes

Arie Romein, OTB Research Institute, University of Technology Delft, Netherlands. Email: a.romein@tudelft.nl; Otto Verkoren, Department of Geography, Utrecht University, Netherlands. Email: o.verkoren@geo.uu.nl; *Polycentricity as a Context Dependent Concept: the Case of Latin-American Metropolitan Areas*

In the current discourse on polycentric development on the city-region scale, it has been stated repeatedly that this concept is not exclusive for advanced economies but also adequate to characterise recent metropolitan dynamics in the developing world. These are, however, anecdotal suggestions that have not been explicitly investigated yet. Our paper explores this claim in a systematic manner for the contemporary large metropolitan areas in Latin America, by means of a review of existing literature. Since a clear-cut definition of polycentricity or the polycentric metropolis does not exist yet, it first distinguishes some key-elements of polycentric metropolitan development in North America - in many respects the cradle of this phenomenon - as a frame of reference. The answer to the question to what extent developments in Latin America fit in these key-elements is that 'polycentricity U.S. style' is at best dawning in Latin-American metropolises. This observation is explained by some typical social, economic and spatial conditions that, in broad terms, distinguish Latin-American from North-American metropolises. Characteristics like an 'unstoppable' demographic growth by migration of rural poor, a still incipient postindustrial economic development, and lower levels of 'automobilization' have hardly resulted in polycentric forms if we take those in North America as the standard. The lack of a universal definition leaves the door open for a more context dependent concept of polycentricity however. The paper concludes with some adjustments of the concept to Latin American conditions that would reveal a less incipient polycentric picture of its metropolitan regions

Keywords: Polycentricity, Metropolitan Development, Latin America

Kevin Romig, Texas State University. Email: Kevin_Romig@txstate.edu; *Re-Scaling Community Formation and Place Attachment*

While the politics of neoliberalism has created a surge in market-driven housing exemplified by large estate homes seemingly detached from the surrounding neighborhood and broad society, this paper investigates how residents form communities and become attached to place within landscapes reflecting the privatization movement. Based on fieldwork in six communities in Arizona and Texas, this paper reveals a more detailed picture of neighborhood life and sociability than a landscape appraisal might characterize. Through technology, private groups, and an intrinsic nature to know others, residents create meaningful social relationships at different scales than the neighborhood or municipality and tend to focus attention on other community institutions than ones traditionally seen at the municipal level instilling civic pride and awareness. While these new relationships help residents feel connected and a sense of place, they generally promote bonding over bridging social capital. Using post-structural theory, a new diagram of neighborhood social interaction is highlighted representing how people negotiate community interaction and build social bonds. These bonds happen at various scales across space and challenge geographers to consider the re-scaling of community and place attachment.

Keywords: community, place attachment, social capital

Alison Rooke, Goldsmiths College. Email: a.rooke@gold.ac.uk; *Navigating Queer Distinction in Lesbian Space*

This paper is based on a visual ethnography of working class lesbian's everyday life. It focuses on the ways that lesbian and bisexual women navigate, and make sense of, and live in relation the visual regimes, material and embodied practices which construct and occupy two lesbian and gay spaces: a LGBT community centre and a lesbian bar. By drawing on Judith Butler's and Pierre Bourdieu's work on performativity, embodiment, distinction and cultural capital, the paper offers the concept of the lesbian habitus to make sense the ways in which visual and embodied cultures of lesbian identity spaces produce and maintain the homonormativity of the space. This paper points towards some of the ambivalence integral to the promise of indifference, and recognition found in 'identity spaces'.

Keywords: bourdieu, habitus, lesbian, bar, performativity

Esther Rootham, York University. Email: erootham@yorku.ca; Esther M Rootham, York University. Email: erootham@yorku.ca; *The Vietnamese Second Generation in Toronto- Racialization and Labour Market Segmentation*

The focus of my study is on the lived experience of young Vietnamese people who have grown up in Canada and who are not pursuing post-secondary education but rather working in low-paying manufacturing or service sector positions. I take as my starting point that the categories of 'race' and ethnicity are social constructs, and that they intersect with gender, religion, sexuality and class (etc.) identities. I will use Bourdieu's concept of habitus, that is, the matrix of meanings through which we understand our own actions and also against which we are ascribed and we create our identities. This framework allows an exploration of the agency that individuals have, all the while keeping in sight the durability of the meanings of identity. In this way I will explore the reproduction of class in the labour market trajectory of Vietnamese youth in Toronto.

Keywords: youth, second generation, Toronto, labour market, identity

Kathleen Rose, University of California, Santa Barbara. Email: rose@geog.ucsb.edu; *A Surface Feature-Based Model of CA-Code GPS Error*

Data quality information is crucial in evaluating the suitability for use of any spatial dataset. This paper uses GPS accuracy as one example of error that exists in spatial data. Global positioning devices are fast becoming common place items in today's information on demand world. The information produced from these tools is often used as a primary data acquisition source. The accuracy of this information is dependent on a number of factors, including atmospheric delays, clock errors, and ephemeris data. Despite recent improvements in GPS receivers and antenna technology, multipath error has continued to be a major source of error. By collecting coarse acquisition (CA) code GPS observations over a specified area over a given period of time, a model is built to predict the error of a given location based on surface features in close proximity.

Keywords: GPS, spatial data error, multipath, GIS

Leanna Shea Rose, Florida State University. Email: lsr02c@fsu.edu; *An event-based climatology of cloud-to-ground flash patterns for Atlanta, Georgia: Assessment of elevation effects*

Based on earlier studies, an area to the northeast of Atlanta, Georgia exhibits high cloud-to-ground (CG) lightning production in terms of both flash density and numbers of flash days. In order to further understand the processes that contribute to this area of augmentation, twelve years (1992-2003) of CG lightning flashes for the Atlanta region were clustered into individual storm tracks. Storm tracks with flashes that contribute to this northeastern zone were extracted from this dataset and categorized according to synoptic conditions, and wind speed and direction. Regressions of flash counts and elevation within grid cells over the study area were performed for wind groupings and synoptic types with the potential for elevation effects based on local topography and conditions.

Keywords: lightning,gis,urban climatology

Robert Andrew Rose, University of Wisconsin, U.S. Geological Survey. Email: raroel1@wisc.edu; *Changing Farms, Changing Forests: A Multi-scaled Model of Land Cover Change in Northwestern Wisconsin*

To understand the environmental outcome of anthropogenic change, researchers need to empirically link social processes with ecosystem conditions. By modeling land cover changes in relation to social, economic and spatial factors, geographers are able to understand how driving factors affect land cover change over time. With a dynamic land use history and the availability of long-term social and physical data, northwestern Wisconsin presents a unique opportunity to conduct research on the changing pattern of land use and land cover. In this region, land use and land cover patterns are affected by fundamental shifts in agricultural economies as well as the growth of the recreation industry. Using a layer stack method, four Landsat scenes were analyzed to assess land cover change at approximately 10 year intervals, from 1974 to 2001. Land

change trajectories were then incorporated into a multi-scaled, statistical model linking the location and pattern of land cover change to a set of socioeconomic and spatial factors representing the driving causes of change. Results revealed that, in contrast to regional trends of forest recovery, recreation and long-term housing as well as the consolidation of farm operations has led to local loss and fragmentation of forest cover.

Keywords: Land use, cover, change, model, landsat, GIS

Reuben S. Rose-Redwood, Ph.D., Pennsylvania State University. Email: rsr158@psu.edu; From Number to Name: Real Estate Dreams and the Politics of Collective Memory in the Cartesian City

Street naming plays an important role in the formation and legitimization of cultural and political identities through the construction of 'commemorative landscapes.' The politics of street naming is often so contentious, in part, because it opens a space for the contestation of collective memory and the spatial representation of political commitments. In contrast, the numbering of streets is often portrayed as impersonal, unaesthetic, and an imposition of Cartesian abstraction upon the cultural landscape. While many streets in the gridded cities of the United States are sequentially numbered, there have been numerous attempts to re-inscribe urban streetscapes through commemorative naming, some more successful than others. The current paper provides a comparative analysis of two cases in which formerly numbered streets and avenues in Manhattan were renamed for divergent purposes. I compare and contrast the politics of changing the names of the numbered avenues on the Upper West Side during the 1880s-90s with the renaming of Harlem's streets to commemorate civil rights leaders a century later. The former was an elite scheme by wealthy property owners to encourage real estate development whereas the latter project was a means by which a marginalized socio-cultural group could commemorate its heroes and spatialize its socially constructed collective memories. The benefit of examining both of these renaming projects together is that it provides a useful corrective to universalizing and romanticizing the 'symbolic reappropriation' of the landscape by illustrating the divergent interests involved in such shifts from 'number' to 'name.'

Keywords: street naming, collective memory, commemoration, cultural recognition, urban space

Mark Roseland, Dr., Simon Fraser University. Email: roseland@sfu.ca; Sustainable Local Economies

Strong local economies are the foundation of strong communities that can grow and withstand the pressures created by an increasingly urbanized world. Strong communities require a holistic approach that not only provides the traditional deliverables of economic development?jobs, income, wealth, security?but also protects the environment, improves community infrastructure, increases and develops local skills and capacity, strengthens the social fabric, and respects heritage and cultural identity. In this way, strong local economies also provide a foundation for strong national economies. Conventional approaches to economic development leave little room for strengthening local economies. Strong local economies are those that not only generate revenue but also take into consideration the equitable distribution of wealth within communities and the environmental implications of economic activities. How does the overall approach to economic development need to change in order to facilitate the development of strong local economies? This paper explores various approaches to strengthening local economies, some of the tools and strategies available, the actors involved in local economic development, and a development framework that addresses this broad range of concerns. This sustainable community development framework includes six forms of community capital coordinated, balanced, and catalyzed by community mobilization. The cooperative economy of Emilia Romagna in northern Italy, the Grameen Bank in Bangladesh, Vancity Credit Union in Vancouver, the Women's International Sewing Cooperative of Nueva Vida, and the campaigns for local trade across North America are all examples of the potential of community mobilization to help strengthen local economies.

Keywords: sustainable community development, sustainable local economies

Mark W. Rosenberg, Ph.D., Queen's University. Email: rosenber@post.queensu.ca; Sarah Lovell, Ph.D. Candidate, Queen's University. Email: 2sal3@qmlink.queensu.ca; Making 'Space' for Volunteers in Restructured Communities at the Beginning of the 21st Century

Similar to other developed countries, the 1990s was a period of restructuring of health care and communities in Canada. Geographically, restructuring manifested itself as the regionalization of health care and the amalgamation of urban and regional municipalities into single geopolitical units although not necessarily with matching borders. Programmatically, restructuring meant the 'downloading' of health and social services to volunteer organizations and informal service providers. Using the results of a survey of volunteer organizations carried out in 2004 and focus groups held with volunteers in 2006 in

Kingston, Ontario, Canada, the challenges of providing services in the new spaces of restructured communities is examined. We conclude by questioning whether the neo-liberal arguments that favour the new spaces of regionalization, the advantages of volunteer provision, new socio-legal arrangements and social capital as their virtuous framework are as advantageous to volunteers and those who receive services.

Keywords: volunteers, restructured communities, health and social services

Stacy R. Rosenberg, Texas A&M University. Email: srosenberg@bushschool.tamu.edu; Climate Change Scientists and Decision-Makers: Communication Gaps and Information Exchange

Climate change scientists play a significant role in the dissemination of information on global climate change. University and government scientists have their own views on what type of information is relevant for decision-makers who may address climate change issues. Decision-makers, meanwhile, have their own opinions about the kinds of information they need on climate change. This paper highlights the type of information that climate change scientists believe decision-makers need, describes the type and format that decision-makers (e.g. planners, local and state officials, and interest group representatives) prefer, and reviews how decision-makers use climate change information. It also discusses how climate change scientists view the relevancy of their work for decision-makers and the role that scientists believe they played in transforming climate change from a scientific issue to a public policy issue. Surveys were conducted with climate change scientists (N = 544) and local and state decision-makers (N = 500). Public health officials, economic development interests, environmental agencies, and agricultural interests were targeted in the decision-maker survey. This paper will unveil how these decision-makers use scientific information on climate change, and the communication gaps that currently exist between climate change scientists and decision-makers. It will also provide a comparison between the different views of academic and government scientists who conduct research on climate change and among the diversity of decision-makers included in this project. This research will provide valuable insights into how to improve communications between climate change scientists and local and state decision-makers.

Keywords: global climate change, decision-making, U.S.

Christopher J. Rosin, Centre for the Study of Agriculture, Food, and the Environment. Email: cjrosin@stonebow.otago.ac.nz; Life in the Audit Lane: Retail driven audits schemes and the sustainability of New Zealand agriculture

New Zealand, having virtually eliminated government subsidies in the agriculture sector in the 1980s, provides a unique opportunity to examine the processes through which sustainable farm management is adopted under neoliberal governance structures. Rather than receiving state initiated incentives, agricultural producers are expected to respond to market signals and the desires of consumers. The extreme export orientation of New Zealand's agriculture sector, however, requires marketers of agricultural products to explore alternative strategies for achieving access to wealthier markets in North America, Europe, and Japan. In these markets, New Zealand products must increasingly comply with audit requirements developed by retailers seeking to convince consumers of a food's safety and the relatively benign environmental and social impacts of its production. This situation appears to create the context for a classical political economic explanation of management practices subject to the interests of more powerful actors - in this case, large European retailers. Comparative analysis of New Zealand's dairy, kiwifruit, and sheep/beef production systems within the ARGOS (Agriculture Research Group on Sustainability) project has, however, demonstrated the uneven nature in which such audit schemes are incorporated. From the perspective of convention theory, I argue that this unevenness is the result of the varying ability of the diverse actors to employ strategic justifications of quality designations ? specifically those related to social justice and environmental sustainability. I conclude that the origin (domestic vs. international) of pressures to improve social and environmental standards of production strongly influences the character and process of adoption of audit systems.

Keywords: rural geography, sustainable management, audit systems, convention theory, New Zealand

Amy Ross, University Of Georgia, Athens. Email: Rossamy@uga.edu; Genocide and GISci: Using geographic information science (GISci) to study human rights

In this project, we combine GISci technologies with qualitative data to analyze the potential for critical cartography in the study of mass atrocity. The case study we use is Northern Uganda, where millions have been affected by physical violence and hardship, displacement and fear. The United Nations estimates that more than 1,000 persons a week die from violence, malnutrition and disease? an 'excess mortality' that places Northern Uganda among the worse crises of the 21st century. Images of broad spatial extent acquired periodically

over the duration of the displacement and destruction can be used to visualize and analyze these events. Derived classified maps and areal statistics provide quantified data that can be combined with testimonials and ground photographs from field visits. Cartographic functions, geovisualization and spatial analysis available in GIS are then used to extract information from available remote sensing images. The data drawn from GISci technologies will be merged with qualitative accounts from sources such as primary and secondary interviews with victims, scholarly and journalistic reports of events, and other secondary materials. A central goal of the project is to critique each methodology (qualitative and quantitative) in light of the other. We wish to explore how human rights violations and mass atrocity appear in the world of geo-spatial representations. How does GISci succeed, or fail, to complement the 'ground truth' of the qualitative interview data? How does reliance on personal narrative and their interpretation (qualitative analysis) succeed, or fail to depict, the social realities apparent in the GIS data?

Keywords: GIS, critical cartography, human rights

Robert Ross, Syracuse University. Email: rbross@maxwell.syr.edu; *The Scales and Skills of Monopoly Power: the Case of the 1890-1891 Chicago Carpenters' Strike*

This paper further develops Labor Geography by linking the impetus for constructing a geographic scale to historical-geographic changes to the labor process and monopoly power. The 1890-1891 Chicago carpenters' strike is used as a case study. Striking for an eight-hour day and a pay rise, Chicago's United Carpenters' Council (UCC) secured the entry points to the city in order to prevent other carpenters from traveling to Chicago, and thus, to control the labor market. For those non-union carpenters who did manage to gain entry to Chicago, the UCC picketed the existing worksites in order to prevent construction from taking place during the work stoppages. It was necessary, in other words, to produce and contain the scale of the labor market in order to both win the strike and to ensure that they would retain that which they could win. In order to more fully understand the UCC's need to control the scale of the labor market, however, we need to uncover the historical-geographic processes by which a ready supply of outside and nonunion carpenters was created in the first place. The deskilling of carpentry in the nineteenth century created certain social and geographic changes, including the expansion of the labor market, but also a shift in monopoly power from individual carpenters to large contractors. The UCC's strike, and the labor geography they constructed in order to wage it, was an attempt to reclaim some of what had been lost from these transformations.

Keywords: Cultural Geography, Economic Geography, Political-Economy, North America

Eliana Consoni Rossi, Universidade Federal Do Rio De Janeiro. Email: consoni@acd.ufrj.br; *Global links configuring a South American/Brazilian polycentric city-region*

Since the 1980s, the regional connections of globalization in South America have been addressed to Sao Paulo. While the global flows happened substantially in North-North paths, in a considerable extent South America became part of the global periphery. After 2002, the Brazilian policies were oriented to South-South agreements and the Brazilian annual growth rates were very low. However, this is only part of the story. From the viewpoint of South America, the global linkage to Sao Paulo has a passive tendency in the global arrangements. An anterior study shows the different roles of Sao Paulo in banking circles and its shadow over the former and the contemporary Brazilian capitals - Rio de Janeiro and Brasilia. But after 2002 a new global path - from the periphery to the world - appears in such scenery. It is an active tendency promoted by the Brazilian main firms located in Rio de Janeiro and Brazilian main banks located in Brasilia and Sao Paulo. Despite the effort such firms and banks undertake to surpass the challenges of both country and continent i.e. Brazil and South America, the Brazilian global linkages abroad created by the firms-and banks subsidiary, offices and branches impregnate new capabilities in scattered Brazilian sites. We study the development of a Brazilian polycentric city-region as a consequence of the passive and active global paths.

Keywords: Polycentric city-region, Brazil, globalization, Brazilian firms, Brazilian banks, Brazilian cities

Jairus Rossi, Pennsylvania State University. Email: jairusrossi@gmail.com; *The (Re)Imagining of Jeju Island: Multi-Scale Construction of Place and the Jeju Free International City*

Historically resistant to large-scale development activities, Jeju Island has escaped the environmental degradation that characterizes South Korea's rapid economic and industrial expansion. Driven by an IMF structural adjustment program, the state and local governments are attempting to transform Jeju into a major East Asian economic hub by integrating free trade, biotechnology, ecotourism and international education in an ecologically sustainable manner.

While local communities previously contested changes similar to those necessitated by this initiative, opposition is surprisingly absent. This research asks how different visions of place discursively interact to induce new types of development on Jeju Island under the auspices of the Jeju Free International City (JFIC). With conceptual mapping and scenario ranking exercises augmenting interviews with community, student, and producer focus groups, the JFIC proposal will be shown to mirror and use competing understandings of Jeju as a place, resource, and natural environment to induce support for this initiative. More specifically, this research examines how diverse local conceptions of place simultaneously contest and embrace different aspects of the development project as it is represented in externally-directed promotional literature and the internally-directed master plan and associated media. As the JFIC is in its early stages, the ongoing multi-scale redefinition and (re)creation of place has significant relevance to the actual implementation of this development plan. The transition of a rural, previously marginalized province to a high-tech internationalized place is instructive in understanding neoliberal development's practical impacts. Word Count: 250

Keywords: Jeju Island, place construction, neoliberal development, cultural representation, special economic zones, South Korea, East Asia

Ugo Rossi, Johns Hopkins University, USA / University L'Orientale of Naples, Italy. Email: urossi@unior.it; *Dystopianism as a growth machine and the normalisation of urban entrepreneurialism*

In this paper I offer a comparative analysis of the politics of urban entrepreneurialism in the cities of Baltimore (US) and Naples (Italy). Both cities have long-standing negative images and representations stressing crime, physical decay and the presence of 'dangerous classes' as distinguishing features of their urban life. The paper takes into account the role that dystopian views on the cities have played in forging institutions, coalitions, and networks of urban growth. Urban dystopianism is usually regarded as a force opposed to urban utopianism and many authors have noticed the way in which this view has deeply informed critical urban research over the last decades (see Baeten, 2002; Merrifield, 2000). In this paper I seek to highlight the potential of urban dystopianism in driving the policies of cities' economic regeneration and physical renewal towards the adoption of an entrepreneurial imperative which obliterates the social issues that are at the origin of the negative representations of the city. In particular, I explore two different stages in entrepreneurial urbanism in the two cities: an early-entrepreneurialist stage in the 1980s, in which entrepreneurial strategies had de-stabilising effects on the institutions of urban government (I define this mode of governance as "subversive entrepreneurial governance"), and a post-entrepreneurialist stage in the 2000s marked by the 'normalisation' and the culturalisation of urban entrepreneurialism ("normalised entrepreneurial governance").

Keywords: urban governance, dystopianism, cultural turn, Baltimore, Naples

David Andrew Rossiter, Western Washington University. Email: david.rossiter@wwu.edu; *Negotiating Nature: Colonial History and Environmental Politics in the Trans-boundary Pacific Northwest*

Since the early-1990s, the Pacific Northwest region of North America has been the setting of several intense and well-publicized environmental conflicts. In addition to expected confrontations with a variety of resource extraction industries, environmental non-governmental organizations (ENGOS) advocating for landscape and wildlife preservation have often, and with surprise, found themselves to be at odds with First Nations over prescriptions for future land and resource use. In this paper, I consider the different colonial histories experienced north and south of the Canada-USA border and trace these through modern environmental politics. I focus on two case studies: Greenpeace's campaign to "save" British Columbia's Great Bear Rainforest and Sea Sheppard's campaign to stop the Makah Nation from pursuing the grey whale hunt off of the coast of Washington State. Drawing evidence from the comments of a variety of stakeholders and deploying a concept of political ecology advocated by Bruno Latour, I argue that the Makah's historic treaty with the US Government has not provided a satisfactory guarantee of resource rights and, in fact, has limited the Nation's ability to negotiate with the opponents of the hunt. I then contrast the situation in western Washington with that of First Nations in coastal BC who, I claim, occupy an increasingly powerful place at the table in negotiations over resource use in their traditional territories because of the presence of serious and ongoing land claims in the province.

Keywords: aboriginal land claims, environmentalism, Pacific Northwest

Matthias Roth, National University of Singapore. Email: geomr@nud.edu.sg; Review of (sub)tropical urban energy balance studies

Over the last 50 years the developing world, much of which is located in (sub)tropical regions, has seen a dramatic growth of its urban population associated with serious degradation of environmental quality. The total number of (sub)tropical urban climate studies, however, is still small (

Keywords: digital cartography, usability, interface design, web design, user testing, Lakeshore Nature Preserve

Robin J Roth, PhD, York University. Email: rothr@yorku.ca; Constrained by Conservation? The Bounded Territories and Rooted Networks of Livelihood Change in Northern Thailand

This paper documents livelihood change associated with protected area establishment in Northern Thailand. The paper is based on research conducted in two villages located inside newly established Mae Tho National Park. In conjunction with park establishment, these communities have been told to reduce their farming land and increase cash crop farming to compensate for lost resources. Consequently livelihoods are becoming both spatially constrained on smaller plots of farming land, and spatially flexible and diverse, as some residents migrate, seek wage labour far from home and sell goods to national and international markets. Livelihoods are less and less conducted within bounded territories but increasingly connected through a variety of networks rooted in territory. This paper explores preliminary results of research into livelihood change associated with park establishment and (following Rocheleau and Roth, 2007) argues for a theoretical lens that reconciles classic notions of territory with emerging notions of social and ecological networks as appropriate for investigations into conservation-induced livelihood change.

Keywords: livelihood, thailand, political ecology, conservation, networks, territory

Tamar Y. Rothenberg, City University of New York. Email: tamar.rothenberg@bcc.cuny.edu; "Conserving the American Race:" American Geography and the Immigration Debate, 1910-1925

This paper examines ways in which American geographers and outlets of popular geographic knowledge such as the National Geographic Magazine and World's Work portrayed American immigrants and the issue of increased immigration to the United States, especially that of immigration from non-Northern-European countries. Harvard climatologist Robert De Courcy Ward, for example, was a leading advocate of immigrant restriction who called for "conserving the American race." National Geographic Magazine published an article by Ward in 1912 that lambasted lenient immigration laws and called for a eugenics policy in immigration. But after the U.S. entered the World War, the magazine ran an article favorable to the new immigrants. This shift has been contextualized by Richard Slotkin in his 2005 book, *Lost Battalions: The Great War and the Crisis of American Nationality*. Slotkin argues that as the United States went to war, there was a change in the national rhetoric regarding the country's newest immigrants. As new recruits were needed to join the volunteer U.S. Army, it became impractical to argue that immigrants from central and southern Europe (in particular) were inferior and unable to assimilate. Immigrant battalions in World War I demonstrated their courage, American patriotism, and American-ness, but that moment was short-lived. In my paper, I will explore the participation of American geography educators in these varying representations of immigrants and immigration.

Keywords: history of geography, immigration, eugenics

John Round, University of Leicester. Email: jpr15@le.ac.uk; Everyday Tactics and Spaces of Power: the role of informal economies in post-Soviet Ukraine

Through exploring de Certeau's concepts of daily life and the development of tactics as a response to economic marginalisation this paper examines the role of informal economies in post-Ukraine. Based on 700 household surveys and 75 in-depth interviews, conducted in three Ukrainian cities, the paper argues that individuals/households have developed a wide range of tactics in response to the economic marginalisation the country has endured since the collapse of the Soviet Union. After discussing a variety of these tactics the paper then goes on to explore how unequal power relations shape the spaces in which these practices take place in and how they can be simultaneously sites of exploitation and resistance to economic marginalisation. Through a critical reading of social capital theory the paper then moves on to demonstrate the importance of informal networks in facilitating such tactics. The paper concludes pessimistically by suggesting that the way in which these economic spaces are shaped precludes the development of state policies which might benefit the economically marginalised.

Keywords: Economic marginalisation, coping tactics, everyday life, informal economies, Ukraine, social capital.

Paul Routledge, Dr., University of Glasgow. Email: Paul.Routledge@ges.gla.ac.uk; Kristina N Weaver, University of Glasgow. Email: Kristina.Weaver@ges.gla.ac.uk; Major Disasters and General Panics: Affinity, Autonomy and Affect in the Clandestine Insurgent Rebel Clown Army.

In this paper, we will run away (all too briefly) from the capitalist/war circus and (re)join the Clandestine Insurgent Rebel Clown Army (CIRCA). This paper considers the work of the CIRCA during, and after, the protests against the G8 in Gleneagles, Scotland, 2005, from the perspective of two 'clownbats', General Panic and Sergeant Ina. In so doing, the paper considers the deconstructive discursive potential of Rebel Clown logic, and how the practices of affinity, autonomy and affect are worked through in a particular CIRCA battalion, Glasgow Kiss. The paper argues that CIRCA activists draw upon what Laura Pulido (2003) terms the 'interior life of politics' articulating a 'vulnerable present' in conflict contexts. Relationality and mutual responsibility are worked through in active practice in imaginative, material, emotional, and political spaces in an attempt to invert the operational logic of certain conflict scenarios.

Keywords: autonomy, politics, performance

Michael J Rovito, PhD candidate, Information Technology in Society Research Group, Temple University. Email: mrovito@temple.edu; A Deontological Ethical Evaluation of GIS

The blending of health applications and GIS has transformed the way diseases are studied by health officials and the way that society views and reacts to disease. In other words, the manner in which maps can transform raw, sometimes convoluted quantitative data into tangible visual information has led to many discoveries in public health. However, there are many issues surrounding GIS and health applications, including ethics. This paper seeks to elaborate upon the usage of GIS in health applications and the ethical issues surrounding said usage from a Kantian deontological perspective. In contrast to a consequentialist perspective, a Kantian deontological perspective of GIS suggests that the ends do not necessarily justify the means. Instead, how a health GIS is built should be of greater concern to what the product is. For GIS health applications, there must be uniformity of responsible and accountable behavior in order to produce a GIS that not only serves the community, but upholds the moral fabric of society. This is done by the treating each individual as a free and rational being. A built GIS has the power to implicate social change and political action within public health. It is within this realm where the availability of good information is a means to good policy. GIS data collection, information creation, and presentation of said data should be consistent and grounded in the preservation of the free and rational being. Consistency breeds responsibility. Responsibility breeds accountability. Accountability is inherently good and doing one's duty according to Kant.

Keywords: deontology, GIS, ethics, duty

Gwyn Rowley, University of Sheffield. Email: gk.rowley@talk21.com; Uncovering Israel: Myth to Reality?

This presentation considers the initial separation, emergence and subsequent development of Israel as a people within a specific territorial area. The background is comprised of four parts. Firstly, a brief overview of the Pentateuch and its component inputs, Priestley, Yahwist and Eloist, facilitates a deconstruction of the scriptures. Secondly, we consider the 'Heretic Pharaoh' Akhenaton's (c.1353-1356 BCE) worship of Aten, the sun disk and, soon after his demise, the return to 'the old ways', and a departure (exodus) of a 'few thousand' Atenists to Canaan (Mendenhall 1961). Thirdly, a Levi-Straussian structural analysis of certain Biblical myths serves to clarify their meaning, specifically for societal endurance and kinship practices (Leach 1970). Fourthly, we refer to the late Bronze Age (later 13th century BCE) coastal- marauder activities within the Eastern Mediterranean and the havoc caused to communities about the littoral. Certain base hypotheses concerning Israel's separation within the Canaanite Central Highlands relate to a Peaceful Infiltration Model, Invasion of Sea-Peoples, Attack-Retreat Models, a Peasant Revolt Model, ideas of Cultic Separation and an amalgam of these variants (Harel 1977; Rowley 1999; Fieldstein and Silberman 2001). Finally, Stephen Jones' Unified Field Theory 1954 provides a base theoretical structure to contextualize notions of idea/field, and the subsequent maturation and development of both ancient and modern Jewish-state formations.

Keywords: Israel-Canaan, Peoplehood, Pentateuch, Separation and Emergence, Eretz Yisrael

Rex Rowley, University of Kansas. Email: rjrowls@ku.edu; The Other Side of Las Vegas: A Local's Sense of Place

"Which hotel do you live in?" It wasn't long ago that Las Vegas would hear this question regularly from outsiders. The query is not so common anymore as the city has matured over the past two decades. Yet, even today, Las Vegas is one of the least understood famous places in the world. Although people now recognize that it has many full-time residents, they still have very little

knowledge about what this “other” Las Vegas is like. In the minds of its residents, as I discovered through ethnographic research, the local’s Las Vegas has a unique, multifaceted personality. Life in Las Vegas is similar to other American cities with the exception of an overwhelming presence of casinos and gambling related activities. Las Vegas typically live their lives separate from the neon and glitz of the Strip, but are inevitably connected to the mystic and pervasiveness of its image, which provides a cohesive effect on the city’s sense of community and place. At the same time, the connection to place and sense of community that one might expect in a typical American city is quite different in Las Vegas, partly because of that ‘Vegas image’ and partly because of the city’s rapid growth and the diversity within its population. Understanding this aspect of Las Vegas allows geographers and others to see the pervasive nature of the insider vs. outsider dichotomy as it exists, not only for a tourist destination, but also within the most remote town.

Keywords: Las Vegas, Sense of Place, Place Perception, Ethnography

Ananya Roy, University of California - Berkeley. Email: ananya@berkeley.edu; Development Evangelisms: USAID, Hezbollah, and Other Terrains in Egypt and Lebanon

This paper examines geographies of development in Egypt and Lebanon. With a particular focus on poverty-alleviation policies, it traces flows of official development assistance and aid as they condense and congeal in a landscape of institutions that broker ideas, money, best practices, and expertise. The paper also examines “other” terrains of development in each geopolitical context, for example, Hezbollah, which is Lebanon’s most influential provider of development resources and services. The paper is particularly interested in comparing and contrasting these various forms of “development evangelism,” thus exploring the possibilities and limits of counter-hegemony.

Keywords: development, imperialism, neoliberalism

Anurupa Roy, The Ohio State University, Department of Geography. Email: anuruparoy@hotmail.com; Spaces of Labour Process: A Case Study of Call Centres in Kolkata, India

Of the many recent developments in the sphere of economic globalization, Business Process Outsourcing (BPO) stands out to be one of the most important. Call centres epitomize the new service-based economy in the globalizing world and form an integral part of the BPO (Business Process Outsourcing) sector. Particularly, in the less developed countries, call centres represent an important aspect of the landscape of economic globalization. At present India is the foremost location of outsourced call centre work from the advanced world. The call centre sector (within the broader Information Technology and Information Technology Enabled services) in India is viewed as one of the promising solutions to its development problems. There is, therefore, a relentless promotion of the call centre sector by the industry’s supporters, which is being backed up by the Indian government and the media. Even though some exciting images are presented describing call centres, the rate of attrition (labour turnover rate) is markedly high in this sector. To understand the reason for this, it is important to explore the spaces of labour process, i.e. the workplace, where capital and labour directly interact. This paper examines the nature of the labour process in call centres, taking Kolkata (India) as my study area. My study suggests that the call centre labour process is characterized by long and odd working hours, deskilling, and emotional labour. This results in spaces of alienation, which is further exacerbated by the stringent labour control system.

Keywords: labour process, call centres, India

Parama Roy, University of Wisconsin-Milwaukee. Email: proy@uwm.edu; Civil Participation? A Means Towards Environmental Equitability or Perpetual Inequality?

Growth of grassroots efforts within processes of urban green space production and management can be conceptualized as a reflection of changing state-market-civil society relationship under present neoliberal economy. These community-based efforts are often thought to be potential means towards enhancing socio-environmental equitability and empowering marginalized communities. Thus Walnut Way Conservation Corp., a neighborhood greening and revitalization effort by a predominantly African-American community of inner-city Milwaukee, lacking equitable access to urban green space (Heynen et al, 2006), have important implications for future environmental equality. Yet, being embedded within complex geometry of differential socio-political power relations, these organizations remain vulnerable to the interests and decisions of political/business elites and other non-profit foundations, which provide them with financial and administrative support (Moulaert et al., 2005; Swyngedouw, 2005). This often results in further perpetuation of social exclusion and inequality. Through an ethnographic study of Walnut Way Conservation Corp. and in-depth interviews with their representatives and members of Walnut Way’s social network, this paper will uncover the extent to which a grassroots organization may mobilize its role within this new tripartite institutional

arrangement towards actual empowerment and equitability (in this case, equitability in enjoying the benefits of access to urban green environment). This will help shed light on the broader implications of grassroots participation within the neoliberal economy to affect, support or prevent creation of a more inclusive, emancipatory and equitable urban environment.

Keywords: grassroots organization, neoliberalism, urban green space, environmental equitability.

Shouraseni Sen Roy, University of Miami. Email: SSR@miami.edu; A Spatio Temporal Analysis Of Urban Thermal Structures In The Twin Cities Metropolitan Area

Urban Heat Island (UHI), defined by considerably higher temperatures over densely built urban areas, has been the focus of study for different parts of the world. Studies focusing on UHI have placed much emphasis on analyzing spatial thermal patterns of either canopy layer or surface heat islands. In the present study, the spatial and temporal characteristics of UHI development in the Twin Cities Metropolitan Area (TCMA) of Minnesota were examined using both long-term climatic and multi-temporal remote sensing data. Daily maximum and minimum temperatures and precipitation data from eleven stations were examined to determine the differences in trends over space. Land surface temperature was calculated based on the thermal band of Landsat TM imagery. Different spatial analysis techniques will be used to investigate the driving factors behind the development of UHI in this area. The results of the present study will help in understanding the interactions between urban climate and other physical/social infrastructure.

Keywords: UHI, Remote Sensing, Extreme Temperatures

Rinku Roy Chowdhury, Ph.D., University Of Miami. Email: rroychowdhury@miami.edu; Eric G Keys, Ph.D., University of Florida. Email: ekeys@ufl.edu; Bridging Theories of Landscape Ecology and Agricultural Change

Landscape ecology has progressed from its initial focus on the quantification of spatial pattern to the study of ecological patterns and processes, more recently incorporating the anthropogenic dimensions of ecological change. Process-pattern research in landscape ecology that integrates human/social systems focused initially on the imposition of human disturbance regimes and their spatio-temporal effects on the landscape. Social dynamics were generally factored in as the immediate environmental constraints affecting land use or as the direct effect of land use on the landscape. More recently, research on social-ecological systems has begun to connect theories, data and analysis from the social and natural sciences, although methodological and empirical advances in such integration may have outpaced theoretical bridging. In this paper, we canvass in particular the areas of complementarity between landscape ecological and geographic/economic theories of agricultural change, and analyze the potential, promise and challenges in their joining. To this end, we also undertake a representative rather than comprehensive review of research that has demonstrated such theoretical integration, and report on the theoretical gaps identified as well as unrealized potentials and challenges. Among the lines of inquiry that hold the most promise for reconciling agricultural change theories with landscape ecology are diachronic approaches, the significance of perceptions, resource-use strategies and decision-making, neighborhood effects, hierarchical scales and chains of explanation.

Keywords: landscape ecology, agricultural change, decision making, perception

Dan Royall, UNC-Greensboro. Email: pdroyall@uncg.edu; Anita Henderson, UNC-Greensboro. Email: aahender@uncg.edu; Zhi-Jun Liu, UNC-Greensboro. Email: z_liu@uncg.edu; Downstream Reduction of Urban Influence on Channel Processes: a Case Study

The impacts of urbanization on the fluvial system, water resources, and aquatic biota are of increasing global concern. Locally, within more populous portions of the US, the most rapidly urbanizing areas face potential land and water resource conflicts with neighboring urban centers. How far downstream do urban influences extend? The answers to this question apparently vary widely with environmental and geographical specifics. In this study, we consider the case of fully urbanized headwaters exiting into rural landscape. The headwaters of North Buffalo Creek lie entirely within the urbanized area of Greensboro, NC (population 230,000) in the Appalachian Piedmont province. The stream exits abruptly into rural landscape at the city’s eastern margin, and its watershed begins to acquire a growing proportion of pervious surface area with downstream distance. The purpose of this paper is to document the nature of the resulting transition in stream hydrology and form for North Buffalo Creek. Indices of urban streamflow regime (e.g., days exceeding mean annual discharge; TQmean) suggest substantial urban influence after more than 5 km down-valley distance (~45% rural). Channel cross-section area switches from general conformity with published urban regional curves to greater rural curve similitude soon after exiting

the urbanized area (~ 15% rural). Both physical effects and choice of urban streamflow regime indices can account for the apparent difference in location at which rural dominance is reached.

Keywords: urban stream, hydrology, channel form, North Carolina

Jesse Ryan Rozelle, Undergraduate Student, University of Colorado at Denver. Email: j_rozelle@hotmail.com; Rafael Moreno, Assistant Professor, University of Colorado at Denver. Email: Rafael.Moreno@cudenver.edu; Adam Lee Rowan, Web Programmer, Classic Glass. Email: adam@glassblowingart.com; Building a Web-based Spatial Information System for the Forests in Armenia Using Open Source Software

The extent and condition of forest ecosystems in Armenia have decreased drastically since the disintegration of the USSR in 1991. There has not been a national inventory of the Armenian forests since 1988. Recent projects in the University of Colorado at Denver have produced new estimates of the forest cover extent and deforestation rates. There is an urgent need to disseminate this information in Armenia and abroad to support scientists, forest managers, environmental NGO's, and education institutions from K-12 to universities. Armenian organizations have very limited human, technological, and financial resources. After considering several technological alternatives to create a web-based spatial information system, we decided that Open Source Software tools have the best characteristics to address the socio-economic and technological challenges we were facing to create this system for Armenia. We present the final product and our experiences in building the system.

Keywords: Web-GIS, Environmental, Web-mapping, Armenia, Open Source Software, Forestry

Celine Rozenblat, Pr., University of Lausanne, Switzerland. Email: celine.rozenblat@unil.ch; Carine Discazeaux, University of Lausanne. Email: Carine_Discazeaux@ucs.inrs.ca; Guy Melancon, LIRMM Montpellier - France. Email: Guy.Melancon@labri.fr; Pierre-Yves Koenig, LIRMM Montpellier - France. Email: Pierre-yves.Koenig@lirmm.fr; Main Evolution Trends in Worldwide Air Transport Network (2000-2004)

The aim of this study is to characterize the structure and evolution of the global air transportation network. Using data from the ITA database for both 2000 and 2004, we analyze the topologies of the networks with a new approach based on weighted graphs from a small world perspective (Watts, 1999; Barabasi, Albert, 1999; Barat et al. 2005). The analysis is carried out in three stages: First, we look at classical graph metrics like centrality or connectivity of nodes; this first step shows that the most connected cities are not necessarily the most central ones (Guimera et al., 2005). Second, we explore the structure of the network. This step is performed through graph clustering algorithms unfolding the different "small worlds" together making up the whole network. The clusters are seen as communities and are captured with the use of edge metrics conveying topological properties of the underlying communities. The outcome of the clustering procedure provides a multilevel presentation of the most interconnected airports in the world. In a third stage, we identify the position of each airport in the network (satellite, hub or bridge?) and their cohesive role at three different levels: 1) inside their own cluster; 2) with all other clusters; 3) and inside the whole network. Finally, we compare the two networks, from 2000 and 2004, in order to detect an eventual dispersion/polarization tendency of the air traffic, the transformation of the different clusters and the stabilization or evolution of major hubs' individual position

Keywords: Air Traffic, Small worlds, visualization, World, evolution

James M. Rubenstein, Miami University Of Ohio. Email: rubensjm@muohio.edu; Impact on Employment of Changing U.S. Content in Motor Vehicles

This paper examines changing employment in the U.S. motor vehicle industry and assesses impact on employment changes of market shifts in the United States from the traditional "Detroit Three" (GM, Ford, and Chrysler) to foreign-owned brands (led by Toyota and Honda). As foreign-owned carmakers open production facilities in the United States, they argue that their vehicles are "just as American" as the traditional Detroit Three. Local and state governments provide generous incentives to international carmakers to locate in their communities. This study first discusses whether vehicles produced in the United States by foreign-owned carmakers are truly as "American" as those produced by the Detroit Three. Results are based on disaggregated data for submitted by carmakers and parts suppliers for each model, in compliance with the American Automobile Labeling Act of 1992, and stored at the U.S. Department of Transportation (USDOT) headquarters in Washington, DC. Access to data has been with the support and cooperation of the Federal Reserve Bank of Chicago. This study concludes that the market shift from Detroit Three to international carmakers has not been "job neutral" in the United States. More U.S. jobs have

been lost than gained in the shift. However, a significant portion of the job loss is attributable to productivity gains rather than market shift.

Keywords: auto industry

Gilles Rudaz, Department of geography, University of California-Berkeley. Email: rudaz@berkeley.edu; They are, we are mountain people!

The official motto of the International Year of Mountains (2002) was "We are all mountain people!" It highlighted the fact that a large part of humanity, even if not living directly in mountains, depends on them, notably on their waters. But to identify oneself as mountain people is something. The first part of the title of this presentation refers to the fact that, traditionally, communities do not define themselves as mountain people but are qualified as such by outsiders. The second part refers to some cases, where, as an effect of this outside qualification, these communities define themselves or at least present themselves as mountain ones. This presentation addresses the process of the building of mountain identities. It will start from long established ones to the current trend of mountain worldwide networks. Parallel to the international rise of mountain issues, communities have established worldwide contacts among themselves. One emblematic example is the World Mountain Population Association, founded in 2002. How to conceal the diversity of the mountain communities under the same banner? What interests do they have in common? If these communities benefit from exchanges of experiences in various fields, especially resources management, by presenting themselves as mountain people, they gain legitimacy and audience for their own claims.

Keywords: mountain people, identity

Susan Ruddick, University of Toronto. Email: ruddick@geog.utoronto.ca; Dead Dog Dialectics

Spinoza seems, perhaps, an unlikely source for the re-invigoration of a dialectical materialism now widely critiqued for its teleology and a dynamism derived from the abstract power of negation. Spinoza was dismissed by Marx as a "dead dog"; and castigated by Hegel who summarized his philosophical system in the phrase "every determination is a negation". But Marx himself never provided a full blow account of dialectical materialism per se, and his project to "turn Hegel's dialectic back on its feet" took as its starting point a Hegel who critically misread Spinoza. This paper explores a Spinozist re-visioning of dialectical materialism. It begins with Macherey's critical rereading of Hegel and Spinoza, and drawing on his work and others offers the (Spinozist) possibility of thinking a materialist dialectic that is positive and open-ended.

Keywords: dialectics Spinoza Hegel Marx Macherey

Purba Rudra, rutgers university. Email: purba@eden.rutgers.edu; Medical tourism in India; who benefits and who pays

The last decade or so has seen a tremendous increase in the number of medical tourists heading towards the developing world for cheap hi-tech treatments and for a wholesome body and mind rejuvenation experience. India is fast emerging as one of the preferred destination for this increasingly visible section of tourists. The amalgamation of age old traditions of healing and modern day medical practices is creating a deep niche for the Indian brand of medical tourism. The Indian Ministry of Tourism and the Ministry of Health and Family Welfare have worked to bring tourism and health care together into a more or less mutually beneficial form of Medical Tourism. They have taken steps like giving subsidies etc. to promote this sector. Though this has spelled good news for tourism in India, when seen in the larger context of globalization of health services, medical tourism has had a mixed impact on the health care sector in India. There is an increasing trend towards islands of medical excellence which are becoming more and more remote for the general public. It has also led to an "internal brain drain" of health care professionals from the public sector health services into the corporate health services sector. This paper takes a preliminary look into the rationale of the continuation, or not, of government subsidy to the private health care sector in India, given the gains to be had from it because of the increasing popularity of India as one of the foremost medical tourism destinations.

Keywords: Medical tourism, India, health care

Jana L. Ruhlman, United States Geological Survey. Email: jruhlman@usgs.gov; Leila Gass, United States Geological Survey. Email: lgass@usgs.gov; Barry Middleton, United States Geological Survey. Email: bmiddleton@usgs.gov; Comparison of Contemporary Land-Cover Trends among the Sonoran Basin and Range, Madrean Archipelago, and Chihuahuan Deserts Ecoregions

The Land Cover Trends project, a joint effort between the USGS and EPA, uses satellite imagery to classify land cover and estimate contemporary (1973-2000) changes in land use and land cover in the United States. Using ecoregions defined by Omernik and the EPA, estimates of land-cover and land-use change are derived from interpretations of a statistical sampling of image blocks from

five dates of Landsat imagery. The statistical results, in conjunction with site visits, geographical research, and socioeconomic data, are used to assess regional driving forces of land-use change. This poster examines and compares three adjacent southwestern ecoregions — the Sonoran Basin and Range, the Madrean Archipelago, and the Chihuahuan Deserts. Combined, these ecoregions stretch along the U.S.-Mexico border from south-central California to western Texas. They each have their own distinct landscapes, contain high amounts of biological diversity, and share common as well as disparate issues that affect land use. Increased oil and gas extraction, availability of ground-water resources, and reduction of natural grasslands because of overgrazing and other desertification processes are some of the factors affecting contemporary land use in these ecoregions. Using the Land Cover Trends research and interpretation results, the rates and types of land-cover change are being compared to find similarities and contrasts among these three contiguous areas. Initial findings indicate that change is infrequent and occurs mostly within the grass/shrub, agriculture, and mining classes. A closer examination and comparison will provide a look at regional land-cover trends for the border areas of the southwest.

Keywords: land cover, land use, ecoregions, southwest, trends

Stevie R Ruiz, San Diego State University. Email: SRRuiz1982@yahoo.com; *Re-Producing Fear in the City: Film, Rape, and Women's Hysteria in Ciudad Juárez, Mexico*

Since 1993, Ciudad Juárez has gained considerable international media attention surrounding the rapes and murders of over four hundred young Mexican women. Yet, most of this international coverage has primarily been purely sensational. In this paper, I examine competing representations of femicide victims in activist documentaries and popular docudramas. I analyze how activist madres (mothers) have used film space as a tool to re-codify memories of the young victims as virgin women. Yet, I also examine how sensational news stories and U.S. rape culture have reinforced the discourse that victims were prostitutes. I argue that although femicide victims are represented differently in each set of films, there is an underlying similarity between activist documentaries and Juárez docudramas. Both sets of films reinforce women's fear of urban public spaces at nighttime and thus use film spaces to incite women's hysteria in Ciudad Juárez, Mexico

Keywords: public space, border spaces, and geographies of fear

Robert Rundstrom, University of Oklahoma. Email: rrundstrom@ou.edu; *Race and Resettlement in the Arbuckle Uplands of Oklahoma Prior to Statehood*

Prior to statehood in 1907, the Arbuckle Uplands in southern Oklahoma were part of a vast federal protectorate termed "Indian Territory." Before the U.S. Civil War, the area was home primarily to Chickasaws and their African-American slaves. Whites from Texas and other parts of the south and newly freed Blacks came soon after the war, first in a trickle, then in a stream. By the twentieth century, the region had a complex social structure molded by Indians, Blacks, and Whites whose impact on each other and on the physical environment varied considerably. This paper uses maps drawn from our database of more than 5,000 post-war immigrants to Indian Territory and other sources to reveal these relations in the Arbuckles.

Keywords: race, Plains, settlement, historical geography

Melissa Rura, . Email: melissa.rura@utdallas.edu; Jacqueline Carr, . Email: ; *Automated Turn Table Creation For Street Network Modeling*

In street network modeling it is important to model many different aspects of the street network when calculating a drive time. One of these aspects is the intersections that themselves include many components that can influence driving time calculations. The purpose of this paper is to detail the algorithm used in a tool that automates the turn table creation process for a given street network. This turn table is used to find the total driving time in the calculation of the best route algorithm. Two examples turntables are described. The first is a simple two-intersection dataset easily checked for accuracy through manual calculation, the second dataset is the city of West Lafayette, Indiana street network with 1029 intersections, which is then spot-checked for accuracy visually. A GUI is also created to allow the user to add additional information about the intersection that could also be incorporated into turn time and drive time calculations such as type of intersection (i.e. stop sign/stop light) or amount of traffic flow (number of cars per hour).

Keywords: Transportation, Turn Table

Dereka Rushbrook, University of Arizona. Email: dereka@u.arizona.edu; *Three stories: local responses to migrant flows through northern Sonora*

Over the past decade, U.S. enforcement strategies along the U.S.-Mexico border have shifted migrant traffic to more remote areas of the boundary. While these policies have had dramatic and well-documented consequences for nontraditional crossing areas in the U.S. border zone and the migrants themselves, they have also impacted the economies and communities located along the migrant route in Mexico. This paper explores the consequences for small towns along the border in the state of Sonora that have found themselves at the "epicenter" of these flows. The landscapes of the prosperous agricultural centers and remote outposts alike bear witness to the variety of businesses and networks that have sprung up to cater to the migrants moving north and to those who have been deported south, posing both challenge and opportunity. The most recent shift in enforcement efforts highlights the cyclical nature of these economies and the transnational links that shape them, as illustrated in three cases of civic responses examined here.

Keywords: US-Mexico border

Laura Russ, UCLA. Email: lruss@ucla.edu; *Exerting Organizational Legitimacy through Strategic Conflict: A Case Study of the South African Homeless People's Federation*

Although the literature on interorganizational conflict and collaboration has spanned many decades, this literature are only recently been adapted to examine NGO relations. Further because much of the literature on NGOs assumes a high level of altruism, the discussion has focused on NGO capacity for collaboration - both as a bridge between community and the government and in terms of partnerships with other NGOs. This paper explores the ways in which conflict, in addition to collaboration, have been used in the restructuring process of civil society coalitions with varying degrees of success. Based on the concept of organizational power as a function of access to multiple types of capital and subsequent ways to assert legitimacy, it is possible to think of different scenarios when conflict or collaboration is most strategic. This case study of conflict amongst housing service providers in Cape Town, South Africa seeks to uncover underlying structural, organizational and individual power relations as a means to understand the extent to which conflict can be considered strategic for the individual organizations involved and for the growth of the sector more broadly.

Keywords: Housing/Homelessness, Organizational Conflict, South Africa

Rachel Russell, Arizona State University. Email: Rachel.Russell@asu.edu; *Commodification of Tempe Town Lake: Changing Perceptions of Landscapes*

Through the construction of the Tempe Town Lake, the City of Tempe, Arizona reconstructed its cultural landscape and changed the image of the city in the process. By lining the lakeshore with luxury high-rises, Tempe Town Lake emerged as the focal point for new businesses and economic redevelopment of the city. This commodification of urban space is transforming Tempe from a college town to a city of high-rise development. This paper uncovers the critical landscape images around Tempe Town Lake and the local government, development companies, and neighborhood groups use of the symbols to further their development goals. An examination of current and archival newspapers opinion pieces, development documents, and promotional material revealed that major actors manipulate landscape symbols for their own development objectives. A survey of lake-users exposed community attitudes towards new economic development and its affect on local identity. The results indicate that the commodification remains unsuccessful at removing the connections to traditional local landscapes and critical cultural landscapes remain prominent fixtures in promotional and advertising materials. These findings are crucial to policy-makers who will use this research to design future development to better serve the community.

Keywords: Cities-commodification, cultural landscapes, place-making

Richard A. Russo, University of Maryland. Email: rarusso@umd.edu; *Cooperatives in the Function and Meaning of Local Food Systems*

With corporate and industrial farms now dominating a global organic food supply chain, alternative food advocates are going "beyond organic" and focusing on re-localizing food systems. This paper investigates the extent to which cooperatives are a factor in creating and strengthening local or regional "foodsheds" (Kloppenborg et al., 1996). Cooperatives are important institutions in the decentralization of decision-making and in the economic empowerment of local communities. What economic and cultural impacts do producer and consumer cooperatives currently have on local food networks? How do cooperatives act to spatially define a foodshed? How do they imbue local food landscapes with cultural meaning?

Keywords: cooperatives, food, local, landscape

David J Rutherford, PhD, National Geographic Society. Email: david.rutherford@geo.txstate.edu; *Advancing Geography as Integrative Discipline of Synthesis: A View through the Lens of Geography Education*

Long-standing claims assert that geography is an integrative discipline of synthesis, and one recent essay even proposed geography as the center of an "emerging new transdisciplinary synthesis science" (Skole 2004, 739). Additional - and sometimes the same ? voices make observations about the perceived incompatibility or "outright conflicting" nature of geography's traditions/specialties (Kwan 2004, 756) that are "more akin to a confederation of feudal fiefdoms than to a union of mutually interdependent states" (Gober 2000, 3). Such claims, observations, proposals, etc. exist primarily as anecdotal and/or literature-based arguments and interpretations that are often advocacy-oriented and, at their best, may encourage disciplinary synthesis. One way to move beyond mere encouragement is to utilize theoretically informed, empirical research to help "engineer the synergies that are now latent" in the discipline (Abler 1992, 224). This research used theory from geography education as the framework for a mixed-method design that identified and analyzed the subject matter and faculty disciplinary identities across three broadly recognized sub-disciplines ? human, physical, and regional geography. Results tested and refined existing understandings and demonstrated the existence of: (1) limited commonality of subject matter among the three sub-disciplines; (2) significant differences in disciplinary identity between faculty members in physical geography and the human and regional sub-disciplines; (3) a set of subject matter items and disciplinary identities that may promote synthesis; and (4) suggestions for approaches that can foster research and teaching across sub-disciplinary specialties. Results also served to refine and advance the theories that provided the basis for the research.

Keywords: human geography, physical geography, regional geography, interdisciplinary, geography education

Stephanie Rutherford, York University. Email: stephier@yorku.ca; *"The wild was never this wild?": nature, power and the consuming subject at Disney's Animal Kingdom*

Much of the scholarly work on governmentality (with notable exceptions) has focused on the state, adeptly exploring the operation and circulation of neoliberal policies and their attendant impacts on subject formation. This paper, however, takes as its starting point the notion that power can and does operate outside of the state, often through cultural institutions that shape how different subjects come to understand the world and their place within it. To that end, my paper examines Disney's Animal Kingdom Theme Park as a site of green governmentality. Using Foucault and his interlocutors, this paper argues that theme parks can generate particular forms of power, specific biopolitical agendas and kinds of environmental subjectivities, which are the hallmark of the 'conduct of conduct'. While governmentality functions as my theoretical scaffolding, I also seek to bring Foucault into conversation with other theorists of power - namely Gramsci, McClintock and Baudrillard ? to explore how they might inform, extend and refine notions of green governmentality at this site. In doing so, I will attempt complicate notions of governmentality by signaling the ways in which commodification and governmentality often work in hand in hand to produce a political economy of nature consumption.

Keywords: governmentality, subjectivity, nature recreation, theme parks

Tod D. Rutherford, Syracuse University. Email: trutherford@maxwell.syr.edu; John Holmes, Dept of Geography, Queen's University. Email: John Holmes [holmesj@post.queensu.ca]; *Governance and Global Production Networks in the Southern Ontario Auto Industry*

In this paper we argue that the theoretical approach which characterizes clusters research is drawn mainly from an eclectic heterodox perspective which emphasizes institutional embeddedness and the importance of often localized governance. We recognize the important insights by heterodoxy/governance approaches but argue also for an engagement with marxian value theory and its stress on how value via price and profit pressures inflect firm competitive and innovation strategies. Drawing on the work of Jessop, 2002 Smith et al, 2002 and Coe et al 2004 we examine the key role of the state via accumulation projects in capturing, creating and enhancing Global Production Network (GPN) value and creating economies of scale and scope at the cluster scale. We examine the development of the Canadian auto industry and the Kitchener and Windsor clusters as the result of successive federal and provincial state projects. Despite their success these clusters and the Canadian auto industry are being threatened by neo-liberal policies and the restructuring of North American auto industry GPNs due to overcapacity and falling profits. Both firms and the state have reflexive capacity and the Canadian state is adopting more Schumpeterian Competition Strategies (SCS) involving a wide range of stakeholders. We argue however that because institutions are both constitutive of and often subject to value flows, firm

innovation and cluster coherence are being negatively impacted by the current restructuring process.

Keywords: governance, networks, automobile industry

Ted Rutland, University of British Columbia. Email: tedrutland@yahoo.com; *Scales, Agencies, and Socio-Natures: Governing the "Local Environment" in Portland, Oregon*

Studies of local environmental policies typically take the "local environment" as given, and proceed to examine how local political actors struggle to actualize their visions of how it should be governed. But what if the constitution of the "local" is a crucial influence on that struggle? In this paper, I explore how the local scale, local actors, and the local environment were each constituted in the process of developing a municipal climate change policy in Portland, Oregon. Attending to the practices that allowed citywide carbon dioxide emissions to be estimated, I show that the "local environment" did not pre-exist the struggle to govern it; rather, it emerged in a long process of political contestation and consultation, gradually becoming an object that could be governed in an acceptable way.

Keywords: Scale, Agency, Socio-Natures, Environmental Governance, Actor-Network Theory

Mary Ruvane, MSIS, University of North Carolina - Chapel Hill. Email: ruvane@email.unc.edu; *Mapping the Past: interdisciplinary opportunities for reconstructing early American settlement patterns*

This paper will give an overview of the variety of disciplines intent on reconstructing early American settlement patterns. It will review their tools, communication channels, value of GIS for reconstructing previously unmapped phenomena, and point to collaborative opportunities for building upon each others research.

Keywords: GIS, history, cadastral maps

Lanham L Ryan, Virginia Tech. Email: rlanham@vt.edu; Katherine F. Lanham, Virginia Tech. Email: klanham@vt.edu; *Re-Centering Greensboro: The Center City Park and the Re(creation) of Community*

The paper discusses the actions of a coordinated group of nonprofits and foundations called "Action Greensboro!" and its effort to build a new park in center city of Greensboro. The park was dedicated December 1, 2006. The theme of the paper suggests that nonprofit organizations in general and foundations in particular, are working to create spatial identities in ways formerly associated almost exclusively with state or governmental organizations. This transformation of actants results in a decentering of the state as the definer of spatial identity opening up not prospects for the recreating of urban areas by new entities.

Keywords: nonprofits, urban geography, urban parks, actor-network-theory

Meghan A Ryan, Boston University. Email: megryan@bu.edu; Benjamin Bowen Anderson, Boston University. Email: bowenanderson@gmail.com; *Marine Integrated Decision Analysis System for Marine Area Monitoring and Management*

Marine areas are critical regions on the Earth's surface as nearly two-thirds of the world's people live within 150km of a coastline and are dependent on marine resources. Marine conservation has become seminal in this context. The Marine Management Area Science Program (MMAS) was created to advance the science and application of marine management areas in the service of marine conservation. Among the most important products of MMAS are to be model-based decision tools of utility to managers and decision makers working in MMA environments. We present a decision support system framework called MIDAS - Marine Integrated Decision Analysis System that is being developed at Boston University that can integrate spatial and nonspatial data for marine management. MIDAS includes two components ? an Integrative modeling system, and a marine area decision environment that combines ecological, socio-economic and governance variables. The project includes 10 MMAs across the globe. In this presentation, we present results of our spatial analysis models relating to Belize. A GIS database for Belize is developed using primary and secondary data sources 1970-2006. We examine two research hypotheses relating to Belize. How does coastal development specifically urbanization and recreation affect coastal marine resources? How does land cover change impact MMA in Belize? In this presentation will emphasize data quality, spatial accuracy, representation and other modeling issues involved in such large scale projects.

Keywords: Marine GIS, spatial model, conservation, marine management

Patrick J. Ryan, George Washington University. Email: bengee@gwu.edu; Loudoun's Road to Opportunity: The Dulles Toll Road Extension, promises and reality

Through the use of maps and spatial statistical methods this poster details the transportation, economic and settlement benefits of the privately built and operated Dulles Toll Road Extension in Eastern Loudoun County, Virginia. The study uses data from the United States Census Bureau, Virginia Department of Transportation, and Loudoun County Government.

Keywords: Loudoun County, Transportation Corridor

Timothy Ryan, . Email: timryan5749@yahoo.com; Geostrategy in the Long War: A neo-conservative crusade to a neo-realist conclusion

The publicly stated grand strategy of the American "Long War" against terror has been the spread of democracy, by force if necessary, into an autocratic region. The results of this strategy have been mixed, at best. However, it is the contention of this author that a de facto counter strategy of containment has been pursued silently and parallel to the public strategy, with decidedly positive results. This paper examines American progress in The Long War on terror from a politico-military perspective along two axes. On the first axis, the number and location of terror-supporting states and terror-fighting states in the Central Asia/Middle East/North Africa (CAMENA) region in the summer of 2001 are noted and plotted, then compared with the numbers and locations of such states in the summer of 2006. On the second axis, the number and location of states that housed or allowed access to US military forces in the summer of 2001 are compared to the number and location of such states in the winter of 2005/2006. Comparison of the maps of these two measures indicates that the military isolation of Iran is nearly complete. Publicly embracing and vigorously pursuing a containment strategy at this stage of the conflict would pay more long term strategic dividends to the US than the strategies of preemptive war and aggressive democracy promotion.

Keywords: Middle East, military, geopolitics

Winifred L. Ryan, Ph.D., . Email: maritimeresearch@cox.net; The Effects of Recent Storms on Gloucester County, VA

Since mid-2003 three major storms have struck southeastern Virginia, including Gloucester County, Virginia. The county is representative of the tidewater area in that formerly the economic bases of the county were agriculture, fishing, and boatbuilding; however, in more recent years the county has become a bedroom community for the Hampton Roads and Richmond metropolitan areas. The county is situated along the southern portion of the western shore of the Chesapeake Bay, and, like many areas near urban growth centers, has been undergoing substantial recent growth, but has retained some rural character. The storms since 2003 have included Hurricane Isabel, Tropical Storm Eduardo, and an unnamed nor'easter that struck during October of 2006. These storms have resulted in deaths, loss of property, and isolation of property by inundating roads. In this paper I offer a comparison of the severity of each of the storms in terms of winds, rains, storm surge, waves, and pressure changes from local meteorological monitoring stations, and provide damage information from these storms. Finally, local residents and decision makers are interviewed to assess their perceptions of the damage in response to the storms' severity to contribute understanding of peoples' assessment of storm concern and how they may react in future hazard situations.

Keywords: hazards, storms, Gloucester County Virginia, hazard perception

Róisín Ryan-Flood, Dr., University of Essex. Email: rflood@essex.ac.uk; Negotiating Sexual Citizenship: Lesbians and Reproductive Health Care

This paper explores the implications of choosing to parent outside heteronormative parameters at different spatial scales. Drawing on interviews with 68 lesbian parents in two European countries, Sweden and Ireland, the paper examines the practical challenges facing lesbians embarking on parenthood. All participants embarked on parenthood in the context of an openly lesbian lifestyle. Lesbians faced numerous difficulties in accessing reproductive health care services. This occurs at the national level, where assisted insemination services may be curtailed, leaving lesbian women with a difficult situation. They may struggle to find a known donor and only those with sufficient financial resources can travel abroad to avail themselves of donor insemination at a clinic. The paper explores the transnational networks that develop for lesbians seeking fertility services abroad. Secondly, the experiences of reproductive healthcare 'at home' are addressed during pregnancy and childbirth, where heteronormative assumptions about 'the family' are constantly negotiated by lesbian parents. It is argued that prevailing theories of sexual citizenship fail to take sufficient account of gender in relation to biopolitics. The paper also examines how cross-national differences in constructions of homo- and hetero-normativity suggest a reconsideration of the production of queer subjectivities.

Keywords: gender, family, lesbian, reproductive rights, sexual citizenship, spatial scales

Karl Ryavec, University of Wisconsin at Stevens Point. Email: kryavec@uwsp.edu; HGIS and Whither the Historical Atlas: The Case of the Tibetan World

Historical geographic information systems enable the spatial analysis of past cultures and environments. This approach is different from the focus of historical atlases in that geographic information science (GIS) is utilized to reveal dimensions of historical reality and change that cartography alone cannot do. By examining recent historical geographical research on the interrelationships between religion and politics across the Tibetan culture region, this study focuses on the problems and prospects in developing a Tibetan and Himalayan Historical GIS in light of also making a Historical Atlas of Tibet. Preliminary findings indicate that many aspects of the traditional historical atlas approach are not easily transferable to an HGIS venue given the limited state of current knowledge about the nature and extents of historical Tibetan politics and religious sites.

Keywords: GIS, Cartography, Historical Geography, Tibet, China

Greg Rybarczyk, PhD. Student, University of Wisconsin-Milwaukee. Email: gar2@uwm.edu; Changshan Wu, Assistant Professor, University of Wisconsin-Milwaukee. Email: cswu@uwm.edu; Bicycle Travel Demand Estimation Using Urban Morphological Indicators

With the increased recognition that bicycle transportation can be a viable mode choice in Western cities, there remains a need for estimating traffic volumes of bicycles at a disaggregated level. Current bicycle travel demand estimation primarily utilizes aggregate-level methods based on land-use or population for a particular area. Aggregate methods can be further broken down into: attitudinal surveys, discrete choice models, and regional travel models. Unfortunately, the aforementioned methods do not address fine scale bicycle facility analysis needed for bicycle planning, nor do they effectively account for urban morphology and transportation geometry-which has been documented to be closely related to bicycling and walking. In this research, a space syntax model is utilized to predict bicycle volume within an urban neighborhood in the city of Milwaukee, Wisconsin. Space Syntax has the unique ability to describe computationally spatial movement patterns and probabilities at a micro-scale and therefore, can be utilized to estimate bicycle travel at the disaggregated network facility level. In particular, bicycle volumes will be predicted at road intersections then extrapolated to all network links in the study area with road network and urban configuration as major determinants. The results from this model will be compared to field measurements of bicycle volumes to assess the model robustness. This work will contribute to current bicycle demand estimation literature by utilizing a model incorporating facility level conditions in the prediction of bicycle route patterns and subsequent volume estimation.

Keywords: bicycle, travel demand, space syntax

Simon Rycroft, University of Sussex. Email: S.P.Rycroft@sussex.ac.uk; Lightshows, Cosmic Connections and the Countercultural Subject

For a few years in the late 1960s and early 1970s multimedia lightshows became one of the dominant countercultural performance practices in the west. Emerging first on the West Coast of the United States, lightshows had their aesthetic roots in post-war innovations in non-figurative and some figurative art, philosophies of architecture and design, and contemporary scientific discourse. With these influences lightshows shared a technoscientific vision of an holistic, cosmic nature. During the 1960s this new conception of a multi-dimensional, infinitely complex cosmic nature resulted in a range of practices that eschewed traditional forms of representation and attempted to develop more intuitive, embodied and multi-sensory modes of expression. The multi-media lightshow was one such practice, along with related developments in underground cinema aesthetics, performance art, painting, and experiments with the written word on the pages of certain underground publications. The intention of the lightshow was not to produce static, enframed and frozen representations of nature, but to create microcosmic 'models' of the macrocosmos that were intended to be experienced in a multi-sensory embodied mode by their participants. The message in these activities was that the self was fundamentally and inescapably networked, not only to other subjects in the world, but to the objects of nature within and beyond the world. As an aesthetic and representational practice therefore the lightshow has much to say about the significance of 1960s countercultural practices to contemporary notions of representation and nonrepresentation.

Keywords: Lightshows, counterculture, 1960s

Andrew Ryder, University of Portsmouth. Email: andrew.ryder@port.ac.uk; *Gentrification revisited: the case of Tompkins Square*

In the 1990s, New York's Tompkins Square came to epitomise the process of gentrification, allegedly led by rapacious developers and a complaisant government, forcing the poor from their homes and replacing them with wealthy newcomers. However, analyses selectively filtered information and events to paint a distorted picture, ignoring past trends and ongoing processes. In fact, although middle class people are moving into the area, this is not a new development. The latest shifts are part of an ongoing series of changes in ethnic and income composition of residents going back over 50 years. Nor have wealthy newcomers displaced many residents. However, ethnic succession, particularly the northwards expansion of Chinatown, has substantially altered the area's ethnic mix. This shift has happened during a time of exceptional population growth, when the city gained an additional million people. Thus, the neighbourhood has moved "sideways" as much as "upwards", suggesting perhaps that in this case, the gentrification paradigm raises more questions than it answers.

Keywords: gentrification, cities, succession, filtering, social change, economics

Wansang Ryu, Texas A&M University. Email: wansryu@geog.tamu.edu; *Assessment of Blowout Morphometry using a Thinning Algorithm*

Blowouts or erosional saucer- or trough-shaped depressions, act as corridors for wind-blown sand moving from the beach through the dune system. This paper investigates the morphometry of blowouts by using a thinning algorithm. Thinning, widely used for the recognition of patterns in machine/computer science and in Geographic Information System, is the reduction of points or layers of outline from a pattern resulting in arcs and curves of a single pixel wide. Two blowout fields (Morro Bay, CA and Padre Island, TX) were examined and compared in terms of morphometry. Thinning algorithm extracted the middle lines of blowouts from aerial photographs consistently and automatically. Morphometric variables used in this research are length, width, area, perimeter, average spacing between blowouts.

Keywords: aerial photographs, blowouts, morphometry, thinning algorithm

Yeon-Taek Ryu, Chungbuk National University, South Korea. Email: ytryu@chungbuk.ac.kr; *Diverse Perspectives on Urban Housing: Institutional, Political Economy, Identity, and Feminist Perspectives*

In the field of urban housing studies, many Western scholars increasingly devoted their attention to the meanings and roles of housing agents, institutions, capitalist system, identities, and gender in (re)configuring the internal structure of Western housing markets. However, there is no much Korean housing literature that pays attention to these perspectives in the field of urban housing studies. Given this lack of interests in alternative theoretical perspectives on urban housing in Korean housing literature, the purpose of this paper is to draw more attention to and explore discourses on research subjects of urban housing studies such as agent, institution, capital, identity, and gender. Institutional perspectives on urban housing emphasize the roles and effects of institutions and agents involved in the supply and allocation of urban housing and the relationships between conflict, power, and access in the urban housing market. According to political economy perspectives on urban housing, the forms in which urban housing is provided are interlinked with the reproduction of the social relations of capitalism. Identity perspectives on urban housing regard housing as an indicator or symbol of identity, personality, social status, accomplishments, and group values. Feminist perspectives on urban housing are concerned with women's disadvantaged position compared with men's in relation to access into the urban housing market.

Keywords: urban housing, agent, institution, capital, identity, gender

Brooke R. Saari, University of West Florida. Email: brk2gd4u@hotmail.com; *Post-hurricane Interactions Between Vegetation Dynamics, Dune Recovery, and Physical Gradients on Barrier Islands*

Northwest Florida has been exposed to many extreme storm events during the past few years, resulting in varying impacts on the dune morphology of the barrier island. Post-hurricane dune recovery depends on the establishment of vegetation which in turn depends on sediment mobility, exposure to salt spray, lag deposits and topography. In this study the environmental gradients on Santa Rosa Island were examined after significant morphological changes during Hurricanes Ivan and Dennis. Wind speed, salt spray and sediment movement were measured for a one month period at sites that are representative of the range of hurricane changes to the island morphology (from no impact to breeches). Preliminary results suggest that strong environmental gradients exist and that the gradients are significantly different between sites, largely in response to the pattern of vegetation. This suggests that the level of impact, and the resulting distribution of vegetation, affects the rate and pattern of dune recovery.

Keywords: environmental gradients, dune recovery, coastal vegetation, barrier islands

Jarkko Saarinen, Department of Geography, University of Oulu, Finland. Email: jarkko.saarinen@oulu.fi; *Competing carrying capacities and sustainabilities: Setting the limits of growth in tourism*

During the 1990s the issue of sustainability became a discourse which started to direct the economic and political structures that constitute the present context of the tourism and its development ideologies and practices. The major academic concern over the impacts of tourism dates back at least to the 1960s, however, and to the tradition of research into carrying capacity. Over two decades, the idea of carrying capacity formed a basis for approaching the negative impacts of tourism and their management, but after the period of enthusiasm it was realized that the issue of carrying capacity could be somewhat problematic both in theory and in practice. While sustainability has largely replaced the idea of carrying capacity and it has emerged as an important policy issue in tourism, the present realm of sustainable tourism is also arousing growing criticism and conceptual confusion. Resulting from this there is a need to understand and re-conceptualize the nature of the limits of growth in tourism. This paper aims to discuss the conflicting approaches on the limits of growth in tourism and analyze how they have been approached and evaluated in the tradition of tourism development studies. The purpose is to recognize that behind the different understandings of the limits of growth there lie distinct traditions that are different in their focus and relation to space. These are referred to here as resource-based and activity-based traditions. Finally, the relationship between sustainable tourism and sustainable development is critically discussed in an ethical context.

Keywords: tourism, carrying capacity, sustainable development, tourism geographies

Anu Sabhlok, Penn State University. Email: axs456@psu.edu; *Seva in relief: looking at the world downside-up*

This paper draws from my ethnographic study of relief work performed by women in the world's largest trade union of informal sector workers - The Self-Employed Women's Association (SEWA). Women in SEWA are emphatic about their identities as working-class women and yet they describe their labor in relief camps as seva (selfless service). I look at seva as a socio-spatial practice that constructs gendered and national subjectivities in particular ways in particular contexts ? here the context being post-1990s Gujarat of intensified economic liberalization and a heightened religious nationalism. In my story SEWA women emerge as active agents in shaping their visions of capitalism, feminism, and nationalism, which contradict and pose a challenge to many of the contemporary understandings of these processes. I rely upon a critical reading of Gandhi to argue for a grassroots theory of feminism, nationalism and capitalism.

Keywords: Gandhi, nation, gender, capitalism

Dorothy Sack, Ohio University. Email: sack@ohio.edu; Jahan Kariyeva, University of Arizona. Email: jahank@email.arizona.edu; Valentina Marochkina, Amu Darya Nature Reserve. Email: ; *Status of Nature Reserves in Turkmenistan in the Post-Soviet Era of Transition*

Nature protection is a very broad topic that ranges from such activities as identifying and protecting rare and endangered species, through establishing and managing spatial units with broad public access, such as American national forests, wildlife refuges, and national parks, to the almost total isolation of other areas from the public at large, as in American wilderness areas. The U.S. has a long tradition of extensive governmentally administered nature protection programs, but many non-first world countries are struggling to maintain minimum protective measures. As globalization continues to impact nature as well as society, nature protection efforts in all countries are becoming increasingly important for the world as a whole. Understanding the quality and status of

existing nature protection systems in non-first world countries can help the international environmental community in prioritizing the distribution of research, education, and financial resources. This paper assesses the current status of the nature reserve system in one of the former Soviet central Asian republics, Turkmenistan. Results from a 2006 case study of the Amu Darya Nature Reserve, established in 1982, reveal the great importance of dedicated individual reserve employees in maintaining the status of the protection area despite limited financial support during the present post-Soviet period of transition. Careful selection of reserve administrators and scientists by the Turkmenistan Ministry of Nature Protection, contributes to the continued quality of each of the country's nature reserves.

Keywords: Turkmenistan, Amu Darya, nature reserve

Warren SACK, University of California - Santa Cruz. Email: wsack@ucsc.edu; *The Spaces of Open Source Software Design*

For the last five years, I have been working with students and colleagues on a project in which we are trying to understand the "complex geography of the writing of software" (Thrift and French, 2002), specifically the virtual spaces articulated by the designers of Open Source Software (OSS). OSS systems are built by potentially large numbers of volunteers; work is not assigned: people undertake the work they choose to undertake; there is no explicit system-level design, or even a detailed design; and, there is no project plan, schedule, or list of deliverables. As such, OSS represents an extreme but successful case of geographically-distributed design. Co-designers work in arbitrary locations, rarely or never meet face-to-face, and coordinate their design activity almost exclusively in three information spaces; spaces that my students, colleagues and I call the implementation space (usually via CVS - Concurrent Versioning System), the documentation space (frequently the web), and the discussion space (which includes mailing lists, newsgroups, instant messaging exchanges, etc.). Our approach to understanding these spaces integrates qualitative and quantitative methods from ethnography, science studies (especially actor-network theory), discourse analysis, cognitive science and information visualization.

Keywords: open source software, distributed spaces, design

Jovian Pfeil Sackett, University of South Carolina. Email: sackett@mailbox.sc.edu; *Political Ecology and Rural Sprawl on the Front Porch of Western North Carolina*

Rural land-use change in the United States is different from land-use change in urban and suburban areas and therefore must be measured with these differences in mind. Land-use planners unsuccessfully apply urban and suburban planning philosophies to rural areas. Their failure is reflective of an emerging problem known as rural sprawl. Rural sprawl occurs when intensive residential development springs up in rural isolated areas, usually driven by a desire to live in scenic rural areas. Rural sprawl is known to cause parcelization, habitat fragmentation, and alteration of local socio-economic structures. This study looks at emerging rural sprawl in the Swannanoa Valley of Western North Carolina to show how rural land-use change evolves in a relatively short period of time. It is part of a larger study, which is attempting to answer the question: what is zoning meant to conserve in the Swannanoa Valley? The Swannanoa Valley is composed of two zoned municipalities and public lands nestled in an unzoned area of Buncombe County, NC. Concerns over uneven growth and development are at the forefront of concern for this area, which is well known for its scenic views and tourism and recreation based economy. For this paper I will show how examples of recent rural residential development changes in the Swannanoa Valley fit into the larger issues of first world political ecology and rural sprawl in the United States.

Keywords: First World political ecology, rural sprawl, Western North Carolina

Yukio Sadahiro, University of Tokyo. Email: sada@okabe.t.u-tokyo.ac.jp; *Analysis of Unidirectional and Spreading Event Occurrences*

With the widespread of spatiotemporal data in GIS, demand for spatiotemporal analysis has been rapidly increasing. Among various types of objects treated in spatiotemporal analysis, zero-dimensional objects such as events in the spatiotemporal dimension are the most fundamental. Existing studies, however, mainly focus on the detection of clusters in the spatio-temporal point distribution, though spatio-temporal dimension has a wider variety of concepts useful for analysis. This paper proposes a new method for analyzing spatiotemporal point patterns. A focus is on the detection of unidirectional and spreading patterns in point generation processes. Given a set of points in a spatiotemporal dimension, the method determines a principal direction of point generation that fit the observed data. The significance of direction is evaluated by a randomization test. Assuming that points are distributed from a certain location to its surrounding, the method determines the center of point distribution that fit the observed data. Significance test is again available that uses random assignment of point generation order. The method was applied to the spatial data of clothing shops in Tokyo from 1990 to 2003. Among 213 point clusters, 10 clusters were extracted

to have a significant principal direction. Spreading pattern, on the other hand, was detected in 8 clusters. The clusters detected represent shops around big railway stations and those along major traffic roads near railway stations.

Keywords: spatiotemporal analysis, unidirectional event occurrence, spreading event occurrence

Grant Saff, Dr, Hofstra University. Email: Grant.Saff@hofstra.edu; Charlotte Lemanski, University College London. Email: charlotte.lemanski@gmail.com; *The value(s) of space: the discourses and strategies of residential exclusion In Cape Town And Long Island*

This paper analyses the discourses and strategies surrounding attempts to enforce residential exclusion in Muizenberg in Cape Town and Farmingville, Long Island (New York). Although these two case studies represent vastly different regions, both are historically middle-class residential areas that have recently undergone significant immigrant influx. The responses of long-term residents and local governments are analysed to consider the factors that affect discourses and strategies of residential exclusion - in particular, the role of 'values' (socio-cultural, territorial, physical and economic) in shaping exclusive attitudes. Particular attention is paid to the way the exclusivist discourse is framed in the press coverage of the events in these areas. The use of positivist (e.g. 'improvement') and technical/neutral (e.g. 're-zoning', 'code-enforcement') language to justify residential exclusion of those deemed as 'other' is also considered. Qualitative data from the two case studies are analysed, recognising that while long-term homeowners sometimes express very 'real' and 'valid' reasons for their exclusionary attitudes (and do not just mask racism as often implied in the literature), the consequences of homeowners actions in excluding an already underprivileged demographic group are problematic. The opposing needs of immigrant communities and the long-term residents in the areas in which they choose to reside are analysed, and the possibilities for common-ground are considered.

Keywords: segregation, Cape Town, immigration, New York

Daniel Sage, University of Wales, Aberystwyth. Email: djs98@aber.ac.uk; Laura Jones, University of Wales Aberystwyth. Email: lj00@aber.ac.uk; *Introducing New Directions in Critical Geopolitics*

This paper provides an introduction to a series of session entitled 'New Directions in Critical Geopolitics' which challenge the critical geopolitics constellation to address a new set of problematics of writing the global. Recent non-representational approaches emerging within geography have problematized the idea that spaces, including global space, can be exclusively produced and understood through discursive constructions. These debates pose important questions for the ways in which space is understood across geography, critical geopolitics is no exception. Indeed in response, critical geopolitics is increasingly being reworked in relation to non-cognitive bodily capacities of spectacle, affect, percept, movement and emotion. While concurrently, the unfolding of such bodily capabilities can be situated across and within quotidian techniques, discourses, tactics and regulations that attempt to police the body as an intelligible, self-recognizing entity through notions of "good" citizenship and national identity. This conceptual momentum is also matched by a political aptness, as the aftermath of 9/11 and the ensuing 'war on terror' has drawn into sharp focus, both inside and outside academia, the dovetailing of grand geopolitical discourse and lived and bodily geographies of the home, the street, the combat zone, the factory or the prison camp. The contributing speakers explore various dimensions of these innovative debates across a wide variety of spaces, scales and contexts from the biopolitical regulation of borders and biometric identities to the use of grand strategies that articulate the global war on terror.

Keywords: critical geopolitics, affect, empire, terror, security,

Asato Saito, National University of Singapore. Email: jpsas@nus.edu.sg; *Japanese Transnational Workers with Non-expatriate Contract in Asian Cities*

Going abroad for work is not unusual for Asian youth in some countries like Philippines and some parts of China. Usual explanations are attractiveness of economic opportunities abroad and underdevelopment hence lack of job opportunities in domestic economies. Japan too has a history of sending many migrants to abroad before the WWII based on similar reason. After the high-speed economic growth in the 1960s, the migration stopped and the place for employment is mainly confined to domestic arena. Most of those who work abroad are male full-time workers employed by Japanese corporation as core workforce and sent as expatriate for a limited period. There are, however, increasing number of young generations, mainly 20s and 30s female, who are working in the Asian cities like Bangkok and Singapore for the last ten years or so. They are not working with traditional expatriate contract, but as local employees. They seem to have opted for less favorable economic condition and life course as their payment is significantly lower and don't have fringe benefit which expatriate enjoy. Japan has highly developed economy which usually works against sending economic migrants. Thus there seems to be some contradictions

and paradox. It may be possible to hypothesize that this is related to a significant transformation of labor market and working practice in Japan after the 1990s. Based on that assumption, the paper will explore this phenomenon by investigating the background, causes of increase, and individual pathway to work abroad.

Keywords: Migration, labor market, globalization, Japanese

Chie Sakakibara, University of Oklahoma. Email: depochie@ou.edu; *Drumming for the Whales: Climate Change and its Impact on Iñupiat Music*

As the fruit of my 2005-6 fieldwork in the North Slope Borough, Alaska, this study explores how climate change has recently influenced the Iñupiat cultural identity as the People of the Whales. The traditional Iñupiat whaling cycle reveals strong indivisibility of music, emotions, and place-based human identity. To illustrate such integrity of the Iñupiat and their culturally critical bowhead whale, I look for specific ways in which climate change in the Arctic influences Iñupiat spiritual and physical ties with the bowhead whale in relation to traditional music-making. The Iñupiat people say that it is the whale who brings music to the people, thus no whale harvest means no music. Without music, the continuity of Iñupiat heritage is threatened. Therefore, the place of music and its integrity with Iñupiat identity are closely linked with the northern cultural survival. The whale remains as the provider of music on multiple scales for the Iñupiat, and music serves as a powerful inspiration to retain the Iñupiat kinship with the Arctic homeland. Within the annual whaling cycle, traditional performances connect indigenous spirituality to sacred whales. However, when the environment is less predictable, the homeland eroded, place-based songs gone, and human-whale integrity threatened, how specifically are these changes manifested in the Iñupiat-whale relationship? Providing detailed descriptions of Nalukataq (the midsummer whale feast) from the post-whaling periods of 2005 and 2006 in the North Slope Borough, this paper examines how the Iñupiat respond to environmental changes in the emotional and cultural dimensions through their music-making.

Keywords: climate change, Iñupiat, music

Arun Saldanha, University of Minnesota - Minneapolis. Email: saldanha@umn.edu; *Spicy Trade: Calvinism and Squandering in the Early Modern Netherlands*

The Dutch exploration and colonization of the Indian Ocean world was from the start driven by a hedonistic demand for luxury items such as spices, silk, gold and porcelain. Understanding the acceleration of mercantile capitalism in the sixteenth and seventeenth centuries through the alternative political economy of Georges Bataille, this paper will take the Dutch example to think through the implications of this hedonistic drive for contemporary theorizations of capitalism, which are still mostly based on Malthusian norms of scarcity. In particular, as Simon Schama has argued, the Dutch case exemplifies the contradiction between a particularly Calvinist emphasis on frugality and rationality (Weber's 'spirit of capitalism') on the one hand, and new metropolitan tastes for the exotic and the on the other. The paper will conclude that at the heart of capitalist expansion there has been a thirst for difference which cannot be reduced to Orientalism or the intentions of capital.

Keywords: spice trade, capitalism, consumption, colonialism, ocean

Zia Salim, California State University, Fullerton. Email: ziasalim@hotmail.com; *Downtown Redevelopment and its Impacts on the Homeless: Los Angeles' Skid Row*

The hyper-marginalized status of the homeless makes them particularly vulnerable to processes of urban restructuring, including downtown renewal. Downtown Los Angeles is a hub of both homelessness and urban renewal. Within this context, I examine some of the effects of this redevelopment using Los Angeles' Skid Row as a case study. How does downtown renewal impact the lives of the homeless? To answer this question, I undertook a spatial analysis to determine the extent of redevelopment as it encroaches on Skid Row. I also interviewed individuals involved in, and impacted by, downtown redevelopment. There are direct and indirect impacts on the homeless, and I conclude that understanding these impacts can help mitigate negative effects.

Keywords: downtown, redevelopment, Los Angeles

David S. Salisbury, University Of Texas. Email: dsalisbury@mail.utexas.edu; *Coca Cultivation, Trafficking, and Eradication in the Amazon Borderlands*

The cultivation, traffic, and eradication of coca, *Erythroxylum coca*, is currently transforming land use and livelihoods in the Amazon borderlands shared by Brazil and Peru. The isolated nature of this region characterized by indigenous populations, conservation units, and forestry concessions provides fertile ground for the boom and bust cycle of coca production and facilitates the international transport of the product by ground, water, and air. This paper explores the social and environmental impacts of coca production, trafficking, and eradication through an analysis of both spatial and ethnographic data on land use and

livelihood strategies in four sub-basins of the Ucayali River. Results map out the distribution, cultivars, and recent history of commercial coca fields in the region and identify transboundary transportation routes used for the coca product.

Keywords: coca, Amazonia, border, Peru, Brazil, land use, human-environment

Alda Anibal Isabel Salomao, Centro Terra Viva. Email: asalomao@tvcabo.co.mz; *An Assessment Of Legal And Institutional Arrangements For Community-Based Natural Resources Management With Reference To Regional Experiences*

Theories on CBNRM consider it important that communities be given the responsibility to manage resources sustainable as well as the right to exercise power over them and accrue significant benefits resulting from that use and management (Gibson, 1999). The objective of this paper is to assess whether the legal provisions for community participation contained in the environmental laws from Mozambique take into account the various factors that shape the effectiveness of participation and decentralization (Agrawal and Ribot, 1999) and the elements that promote the achievement of the dual objective defined for CBNRM. Granting natural resources management powers and the right to accrue benefits from such management to local communities is a complex task (Ribot, 1999). The complexity results from the political, legal and institutional issues that must be addressed in order to enable the effective exercise of management powers by local communities. Furthermore, ensuring that the powers devolved to local communities contribute to the efficient and equitable satisfaction of their economic and social needs, and simultaneously to natural resources conservation interests may not be simple. This paper will also try to identify existing gaps and discuss alternatives to fill them.

Keywords: Natural resources, local community

Pere A. Salva-Tomas, Dr., University of Balearic Islands (Spain). Email: PSALVA@telefonica.net; *Processes and tendencies of the residential tourism in the Balearic Islands (Spain): ¿ Immigrants of luxury or tourists of long stay?*

The aim of this paper is to analyze one of the main aspects of the human mobility related with the irruption of new ways of tourist practical. Among them highlights the notable increment of the residential tourism that shows up as a qualitative important change in the traditional pattern of sun and beach tourism. The international residential tourism can be considered as the new location of different sectors of the people in foreign destinations in those that reside during long periods of time, using basically non tourist lodgings. The Balearic Islands (Spain), registered 11.486.668 tourists (2004), of which only 8.031.398 travelers used the tourist lodgings. The rest used apartments and/or second houses of its property and/or rented in way not to regulate or they declared to reside in friends or family houses. It highlights the retirement international migration that correspond to tourist that inaugurated the mass tourism in the 60's and 70's of the or 20th Century that have transformed into the last decade in an important part of the permanent or temporary foreign residents that they have chosen to the Balearic Islands as place of their second or main residence. From this perspective one can affirm their transformation of tourists to migrants. It is imposed the necessity to debate if the residential tourism is tourists of long stay or deluxe migrants.

Keywords: Residential tourism, Retirement international migration, New tourist practices, Spain

Regina Salvador, New University Of Lisbon. Email: regleo@netcabo.pt; *Regional Planning and Development in the European Union*

The paper provides a review and assessment of a number of the major features evident in regional planning and development in Europe. A series of regional case studies will be presented which are drawn from current research in various European countries; France, UK, Spain, Germany, Poland, Greece and Portugal. These studies will illustrate a broad range of theoretical views which offer different perspectives on; the operation of the EU Structural Funds, regional restructuring, development, key concerns evident in spatial planning and environmental management lessons from past experience. In particular, the Community Strategic Guidelines for Cohesion policy for 2007-2013 will be examined, trying to get conclusions and suggestions for future policy priorities.

Keywords: regional development; territorial planning; European Cohesion policy; European integration

Vidyamali Samarasinghe, American University. Email: svidy@american.edu; *Gender and Geography in fieldwork in developing countries: analyzing two decades of field research*

Field surveys are not unique to geographers. However since, place and location continue to be core areas of the geographical discourse geographers enjoy a unique "subject-specific" comfort in researching at the field level. For feminist Geographers researching gendered dimensions of socio-cultural and economic issues pertaining to women, field-based surveys become uniquely

important since it gives the feminist researcher the most appropriate tool to understand and analyze the “place-specific” dimensions of women’s lives. It also creates the space to situate the research -participant-women’s point of view in the center of the research agenda. As a feminist and a geographer whose focus of research is in developing countries of Asia, doing fieldwork has been intellectually and emotionally both rewarding and frustrating. In this paper I review more than two decades of my direct involvement in field-based feminist research and I attempt to analyze the methods used from the prisms of varying themes, locations, time-lines and time periods of research undertaken, the gendered situation of the researcher and the research participant, I probe the appropriateness and pitfalls of field-based feminist geography research

Keywords: Gender Fieldwork developing countries Asia

Richard Alan Sambrook, Ph.D., Eastern Kentucky University. Email: richard.sambrook@eku.edu; *The Battle of Richmond Re-enactment: An Examination of an Emerging Living History tourist destination in Madison Co., Kentucky*

An historic farm located approximately ten miles south of the City of Richmond, Kentucky served as the site for a small scale but still decisive conflict between northern and southern forces during the American Civil War. Approximately five years ago, much of the farm site where the thrust of the battle took place became available for purchase as a result of a failed housing development project. Members of the Madison Co. Historical Society were able to successfully build the capital to purchase the site and create a county park that serves as a staging area for an annual two day battle re-enactment tourism event. Due to the sites location and situation relative to a major Interstate and population centers, the developers believe this new Civil War living history theme weekend will soon rival the long held success of similar battle re-enactment events in Perryville, Ky. This presentation reports an assessment of the overall success of the Madison Co. endeavor in light of the tourism development plan currently in practice, and makes a comparison to the nearby re-enactment event in Perryville, Kentucky.

Keywords: Civil War Re-enactment, living history, tourism development

Arthur N. Samel, Bowling Green State University. Email: ansamel@bgsu.edu; *The Promise and Challenges of Integrating GIS into the 7-12 curriculum in Toledo Public Schools*

East Broadway Middle School (EBMS) and Waite Senior High School are located in the economically depressed east side of Toledo, Ohio. All students from EBMS attend Waite, where graduation rates are approximately 50 percent. Few of these graduates then pursue post-secondary education. Since 2000, Bowling Green State University has been funded by a Federal “Gaining Early Awareness and Readiness for Undergraduate Programs” grant to work with both EBMS and Waite to increase the graduation rate as well as the number of graduates who pursue post-secondary education. Geography faculty worked with EBMS and Waite faculty throughout 2006 to integrate GIS into classroom content that cuts across the core subject areas. During this time, the teachers substantially increased their understanding of geography, as a discipline, and developed several exciting content rich units that provide students with the opportunity to learn and use GIS. These units are being taught in the classroom during the 2006-2007 school year. In spite of these positive developments, there exist several barriers to success. These include antiquated computers, teacher resistance to learning new technologies, and institutional obstacles to installing GIS software on school owned computers. Solutions that address these obstacles are continually being developed and will be discussed.

Keywords: GIS, curriculum development

Michael Samers, University of Kentucky. Email: michael.samers@uky.edu; Jane Pollard, University of Newcastle. Email: J.S.Pollard@newcastle.ac.uk; *Is the concept of neo-liberalism, neo-colonial? Kuala Lumpur and the history of Islamic Banking*

In this paper we interrogate the concept of ‘neo-liberalism’ with respect to the emergence of ‘modern’ Islamic banking in 1940s Malaya, and the Malaysian government’s twenty-first century campaign to construct Kuala Lumpur as the Southeast Asian capital of Islamic banking and finance (IBF). Our paper is designed to contribute to the debate around the growing dissatisfaction with the concept of neo-liberalism, and we ask whether the development of IBF in Malaysia offers an economic and financial history that is substantially different from that supposed by the literature on ‘neo-liberalism’. More specifically, we ask whether such a history reveals a set of historical and contemporary ‘power geometries’ involving a specific set of techniques (e.g. the fatwas of Shari’a boards; banking and financial products such as Murabaha), and technocratic organizations (e.g. the AAOIFI, and the Association of Banks in Malaysia) which diverge markedly from typical neo-liberal accounts. And we question the extent to which ‘market orthodoxy’ is a feature of the practice of twenty-first century IBF. Our provisional argument is familiar in its post-colonial critique - in other words, that the (normative) concept of neo-liberalism rests partly on a certain

‘western-centric’ romanticization of Keynesian-inspired capitalism in the ‘global north’ (and its transformation). We argue further that this theorization - through an erasure of ? an alternative history of financialization and economic development ? may be a form of academic ‘neo-colonialism’. In the conclusion we return to a classic question about the status of ‘meta-theory’ and its contemporary role in understanding world development.

Keywords: neo-liberalism, economic geography, Islamic banking

Cyrus Samimi, University of Erlangen-Nuremberg. Email: csami@geographie.uni-erlangen.de; *Protected Area Networks in Southern Africa. Benefits or Restrictions for the Commons.*

In spite of general expectations that nature reserves established during the colonial period might have been disintegrated after independence, the concept of nature conservation is nowadays integrated into the political agenda of most countries in Africa. Especially in Southern Africa many large nature reserves are located and often countries large portions of countries are protected areas. The close economic relations with South Africa as a driving force and the tradition of nature conservation result in visions of a network of protected areas and the establishment of transfrontier conservation areas. Since many of the nature areas and habitats are fragmented by national borders, transnational protected areas are a suitable concept of an international cooperation for ecological security and biodiversity. Beside efforts to ensure ecological integrity, transboundary management systems could also create valuable impulses for rural development and for the strengthening of economic and political ties. But on the other hand the growing influence of regional and international actors, e.g. safari companies and NGOs, could weaken the control of local and regional authorities and of the commons. So through existing conservation area and their extension or linkages it could come to more restrictions on access to land and the exclusion of commons from developments in their area. The Peace Park Foundation initiatives have already shown result through projects and many more are in the planning phase. Our contribution reflects on the current status of planning and realization. Perspectives and problems are discussed in the background of examples from established and planned parks.

Keywords: Africa, Nature Conservation, Poverty

Val Samonis, The Viessmann Centre on Modern Europe. Email: val@samonis.com; *Special Economic Zones in CEE: An Attempt at Clusterization?*

The paper looks at the efforts to instill modern development in CEE based on the theory of clusters by Harvard’s Prof. M. Porter. Early post-communist reform initiatives entailed policies to attract Western FDI by offering tax and other incentives (privileged treatment) to foreign investors on the strength of the traditional FDI theory. While such policies have been and still are controversial, a sort of “infant industry argument” can be made that they prepare a ground for more modern frameworks of development, e.g. clusters of high tech and other knowledge-based companies. While North American policies at clusterization and actual cluster practices do not usually stem from any special economic zones, it is worthwhile to examine more closely, based on the PSEZ case, if the opposite might be more appropriate for CEE given the shortcomings and the uneven pace of reforms, esp. in the context of the EU regional policies.

Val Samonis
Keywords: cluster analysis, special economic zones, knowledge-based development

Eric Samson, Texas State University-San Marcos; Mayan Esteem Project. Email: eric.samson@txstate.edu; *Geopolitical Subdivisions in Chiapas, Mexico*

This research considers the geopolitical history of the state of Chiapas, Mexico and the most recent catalyst to change in geopolitical stasis - the Zapatista rebellion of 1994. Four municipios in a transportation corridor were examined by administrative size for parity in services including, police, public works, and health. The concepts of service area and allocation theory are discussed in relation to the Chiapan problem and an index of administrative carrying capacity is proposed to avoid conflict hazards. Normative solutions for inequity of municipio service areas are also proposed. Concluded is that the Zapatista solution of municipios en rebeldes is an organic solution to a geopolitical shortcoming.

Keywords: Chiapas; Zapatista; EZLN; Allocation Theory; Service Area; Political Ecology; Central Place; Mexico

Luis D. Sanchez, Florida State University. Email: luisitopip@hotmail.com; Elections in Florida and Puerto Rican Migration

Florida's electoral patterns for the last decade have given the state the status of the biggest "swing state" in the U.S. The increasing influence of Hispanic voters has been important in this transformation. These patterns put great pressure on candidates' ability to connect with increasing influential Hispanic voters, and more so in their ability to understand the diversity and different interests of these groups. For decades, Florida's Hispanic vote has been synonymous with South Florida's Cuban-Americans, a solidly Republican voting bloc. But the population of non-Cuban Hispanics is growing rapidly and dramatically shifting the state's political landscape. Currently the Hispanic population in the Orlando metropolitan area has experienced a dramatic increase by nearly 900 percent since 1980, making the area the very important in the battle for the Florida's Hispanic vote. Among the non-Cuban Hispanics in Central Florida, Puerto Ricans are the fastest growing community. Puerto Ricans now account for nearly 60 percent of the Hispanic population in Osceola County (Kissimmee), nearly 50 percent in Orange County (Orlando), and nearly 30 percent in Hillsborough County (Tampa). For Puerto Ricans voters, a candidate's stance on whether their homeland should become a state, continue as a commonwealth, or become an independent nation is an important issue. In this regard Florida's elections are becoming a battlefield for issues concerning Puerto Rico's political status definition.

Keywords: Puerto Rican Migration, Elections, Florida

Erick Sanchez Flores, University of Arizona, Universidad Autónoma de Ciudad Juárez. Email: ericks@email.arizona.edu; Hugo Rodriguez Gallegos, University of Arizona. Email: hugor@email.arizona.edu; Steve Yool, University of Arizona. Email: yools@email.arizona.edu; Landscape dynamic and vulnerability to invasion. Integrated spatial modeling for plant invasion assessment in desert ecosystems

Invasive species are considered an agent of ecological change with more significant effects than global warming. Robust predictive models of invasive species inform long term resource management strategies. We used a scaled down modeling approach, based on field data and high spatial resolution multispectral imagery, to assess the predictive skill of combined Genetic Algorithm Rule set-Production (GARP) and Change Vector Analysis (CVA) models. We hypothesized that highly dynamic desert environments are unstable, thus more vulnerable to invasion by exotic plant species. Initial model results confirm this hypothesis. The GARP-CVA models identified areas vulnerable to invasion by *Brassica tournefortii* (Saharan mustard) and *Schismus arabicus* (Arabian grass) over dynamic landscapes in the eastern portion of 'El Pinacate' Biosphere Reserve (ePBR), a natural area under potential increasing pressure by humans. The GARP-CVA models showed low accuracy when tested against confirmed locations of the invasives due very likely to the large modeling scale. Land cover characterization showed that *B. tournefortii* is associated with landscapes occupied by microphyllous desert scrub and grassland, as well as sarcocaulous desert scrub. *S. arabicus* was found more abundantly in the flat low lands occupied by microphyllous and crassicaulescent desert scrub. The GARP-CVA models representing the most dynamic landscapes with high probability to invasion showed a good spatial agreement with the distribution of invasives per the land cover type. This relationship needs however to be investigated further because the ecology of these invasives is likely more complex than we can model.

Keywords: Invasive species, predictive modeling, GARP, CVA, land cover classification, IKONOS, 'El Pinacate' Biosphere Reserve

Scott E Sandberg, Central College. Email: Sandbergs1@central.edu; Developing a Land Management Plan for Central College's Carlson Kuyper Field Station.

Land management is essential to the restoration of prairies and conservation efforts for a preserve area. Invasive species management must be used to ensure native species prosper and are not forced out. The Carlson Kuyper Field Station was donated to Central College in order to help restore a natural prairie. The field station is 60 acres which includes planted prairie and woodland ravines. Management to date has been haphazard, with efforts depending on interests and time available by Central College faculty since the college acquired the land in 2000. Proper management will entail a long term land management plan for the field station which I will be developing, focusing on addressing important issues. These issues include: invasive species, tree line encroachment on native prairie, and gully erosion. I will use GIS and surveying techniques to lay the ground work for future work, while establishing a management plan that can be followed to guide future work in restoring and maintaining the prairie and the field station. In this presentation, I will discuss the process of developing a plan and the management guidelines for this area.

Keywords: GIS, Invasive Species, Iowa, Prairie,

Heather A. Sander, Ph.D. Candidate, Conservation Biology Department, University of Minnesota, Twin Cities. Email: evans324@umn.edu; Steven M. Manson, McKnight Land-Grant Professor, Geography Department, University of Minnesota, Twin Cities. Email: Manson@umn.edu; Artificial Structure Locations and Heights in Viewshed Calculation: How Much Accuracy Is Necessary?

Landscape change can reduce view quality with associated socioeconomic costs. Forecasting the visibility impacts of proposed land use changes prior to their approval is thus desirable. Viewshed calculation can be used to do this, although with difficulty as future structure's locations and heights cannot be known with certainty. We examined how generalizing building locations and heights impacted properties of viewsheds created in a geographic information system. We tested two location methods (actual versus estimated) and two height assignment methods (realistic versus uniform) by calculating viewsheds for 220 identical viewpoints. We considered viewsheds generated using realistic heights and actual locations accurate and compared them to viewsheds generated using generalization methods to assess their impacts on accuracy. Viewsheds generated using uniform heights and actual footprints differed significantly from accurate viewsheds in their areal extents and areas of many land uses. Viewsheds produced using estimated locations and realistic heights did not differ from accurate viewsheds in their areal extents and differed significantly in only two land use type areas. Viewsheds generated using both uniform heights and estimated locations did not differ significantly in their areal extents from the accurate viewsheds, but differed in the areas of many land uses. All generalization methods resulted in viewsheds with complexity measures that differed significantly from accurate viewsheds. When areal extents and land use class areas are central to viewshed analysis, it is thus feasible to generalize building locations, but not building heights. When complexity metrics are critical to an analysis, location or height generalization is ill-advised.

Keywords: Viewshed simulation, GIS, visibility analysis-urban, visual impact analysis

Andrew Michael Sanderson, University of Memphis - Department of Earth Sciences. Email: a.m.sanderson@gmail.com; Hsiang-te Kung, PhD, University of Memphis - Department of Earth Sciences. Email: hkung@memphis.edu; Does Sediment Supply or Deficiency Influence Biodiversity in Regulated Rivers?

Navigational and hydroelectric development of river systems has the potential for significant positive and negative effects upon aquatic habitat and biodiversity. As evidenced through extensive development of large-scale dams in the United States during the 20th century, vast transformations in geomorphologic processes have occurred with the conversion of natural flow regimes to regulated reservoirs and downstream reaches of streams and rivers. While general assumptions may be made concerning the effect of sediment trapping and the subsequent downstream channel-armoring and incision accompanying dam construction upon biodiversity, few studies focus on the effect of sediment supply upon habitat structure. Analysis of how sediment supply/deficiency does or does not impact aquatic habitat structure in modified channels along multiple stream reaches should be combined with historical and recent flow data for the purpose of deriving an enhanced awareness of what occurs on the small scale. Moreover, data from similar systems in various stages of development may be compared in order to provide information not only on the spatial, but also the temporal scale. The result should be a more refined method of analysis where information on a coarser scale may be used as for more rapid prediction and subsequent development and maintenance of sustainable watershed management as it relates to the preservation of aquatic habitat.

Keywords: Hydroelectricity, Aquatic Habitat, Sediment Supply, Fluvial Geomorphology, Fisheries, Solute Transport, Yunnan, China, Mekong, Lancang Jiang, River

Sarah Sanford, University of Toronto. Email: sarah.sanford@utoronto.ca; Constructing 'Vulnerable' Populations in Understandings of Infectious Disease

This paper investigates the experience of infectious disease in current contexts, with a focus on the connection between existing systems of oppression and inequality in society and notions of vulnerability with respect to dominant understandings of disease. I assert that the scientific and medical representations of health and infectious disease as solely biological entities, contributes to the naturalization of inequality and simultaneously neglects and obscures profoundly important social circumstances impacting upon the understandings and embodiment of disease. These social factors are exemplified through processes such as the feminization of disease, or the disparate power relations epitomized by existing structures of neo-colonialism on an international scale. In addition, discourse involving 'security' concerns, 'choice' and 'self-control' with respect to infectious disease will be discussed, along with their implications for the construction of difference in current contexts. Through an analysis of the

representation of emerging infectious diseases and their connection to ideas of vulnerability, both locally and globally, I seek to problematize dominant conceptualizations of vulnerability that govern everyday understandings of infection and normalize processes of differentiation and inequality.

Keywords: vulnerability, choice, security, medicalization, infectious disease

Sangtin Writers, Sangtin. Email: sangtin002@gmail.com; Richa Nagar, University of Minnesota. Email: nagar002@tc.umn.edu; *Translations in Struggle: Reflections on Intersectionality, Activism, and NGO-ized Feminism through Sangtin's Ongoing Journeys...*

The NGOization of grassroots activism has emerged as an important theme in recent conversations around "globalization from below." Feminist critics have focused on the ways that agendas of many NGOs in the south have come to be dominated by northern donors, and on how knowledges and strategies produced in/through such NGOs are often constrained by what donors such as World Bank or Ford Foundation wish to see based on their assumptions about the "basic needs" and priorities of "poor women." Thus, there is often funding for addressing such issues as violence against women, but there is little support for projects that refuse to see bodily violence in isolation from processes such as landlessness, privatization of water, or elimination of subsidized education and health care. In this paper, four authors situate such processes in relation to the complex journey of their own organization, Sangtin, which works with poor women, peasants and laborers in the Sitapur district of Uttar Pradesh (India). We specifically ask: What happens when feminist activism is limited to a predetermined list of issues, and when a complex political and cultural economy at multiple geographical scales becomes invested in such a ghettoization of "poor women's problems"? We frame our reflections in terms of challenges associated with a radical conceptualization and practice of intersectionality at a time when women's empowerment and activism have become "respectable" jobs in Sitapur's NGO sector, complete with the blessings of the rural development machinery at the village and district levels.

Keywords: NGO-ization, empowerment, intersectionality, India

Johanne Sanschagrin, University of Toronto. Email: jo.sanschagrin@utoronto.ca; *Engendering Family Earnings in Canada*

In past decades, partnered women with or without children have become increasingly conspicuous in the labour market. Dual-earning arrangements are now the norm for Canadian couples. While arrangements where the male partner is the sole earner continue to exist, the number of couples in which women are the sole earners is slowly increasing in the population. However, changes toward more equal earning arrangements are not occurring uniformly within the country. In urban social geography, little attention has been given to these differences at the regional level. Based on a demographic and basic statistical analysis at the Canadian census metropolitan area (CMA) level, this paper focuses on regional and urban differences in the light of other socio-economic characteristics.

Keywords: earnings, couples, gender, Canada

Fernanda Santos, Hunter College Department of Geography. Email: fsantos@hunter.cuny.edu; Haydee Salmun, Hunter College Department of Geography. Email: hsalmun@geo.hunter.cuny.edu; Andrea Molod, Massachusetts Institute of Technology Department of Earth, Atmospheric, and Planetary Sciences. Email: molod@ocean.mit.edu; Jochen Albrecht, Hunter College Department of Geography. Email: jochen@hunter.cuny.edu; *Quantifying the Scales of the Land Surface Heterogeneity*

The heterogeneity of the Earth's land surface plays an important role in regulating the climate and maintaining water resources. The land surface heterogeneity varies at a wide range of scales, and current research has demonstrated that different scales of the land surface variability have different impact on the surface-atmosphere flux exchanges. The physical processes involved in the mechanisms by which the heterogeneous land surface influences climate dynamics have been studied and are well known. However, a global quantification of the dominant scales of surface variability has not been addressed directly. The present study discusses research to quantify the scales of heterogeneity in the land cover vegetation globally. We used an 8km spatial resolution dataset derived from satellite imagery, the Global Land Cover Classification provided by the University of Maryland, to quantify the characteristic patch area of thirteen land cover classes. The area of patches for each land cover class was calculated using a spatial pattern program, Fragstats. A criterion based on the scales relevant to global climate models (subgrid, meso-scale and large scale resolvable processes) guided the analysis of results. A distribution of patch size according to this criterion indicates that, on average, large scale surface vegetation patches dominate the landscape, followed by subgrid and meso-scale size patches, respectively.

Keywords: landscape ecology, land-atmosphere interactions, land cover change, surface vegetation heterogeneity

Gonzalez Sara, University of Leeds. Email: S.Gonzalez@leeds.ac.uk; *Scaling up European cities while/ by skewing territorial justice concerns*

Cities across Europe are taking a more proactive urban governance style. In Europe, however, the State is still the main promoter and investor. Another characteristic of European urban entrepreneurialism is that is embedded in a complex web of, sometimes competing, territorial political projects. Bilbao, Newcastle and Milan are neither global nor capital cities and belong to the second or third tier in the hierarchy of European cities. The three cities have significantly changed their economic base, lost population in the central areas and heavily invested on new infrastructures to compete internationally. They are embedded in complex scalar choreographies from the European Union to the neighbourhood level that shape and constrain their governance mechanisms. In Bilbao, the Regional Government is the main political and economic player and tensions with the Central Government have put at risk several major infrastructures to internationalise the city. Milan is not anymore a defined urban centre but forms part of a diffused mega-city region in the North-west of Italy which is trying to re-establish its role as the economic capital of the nation. In Newcastle, the central government plays a significant role in defining urban policy but there are new emerging sub-national arrangements in part aimed at raising the international profile of the city. There is no unique mode of entrepreneurial governance in European cities as they are embedded in complex scalar politics, but there is a common trend towards developing more competitive urban policies.

Keywords: cities, territorial justice, competitiveness

Michael Said Sarhan, Texas State University - San Marcos. Email: ms1484@txstate.edu; *A Comparative Assessment of the Flooding Caused by Tropical Storm Jeanne in Haiti and the Dominican Republic*

Tropical Storm Jeanne devastated the city of Gonaives and extensively damaged the Haitian countryside in 2004, killing more than 3,000 people and leaving hundreds of thousands homeless. The landscape of the Dominican Republic, however, was comparatively unscathed and their death toll was only in the dozens. This study examines the possible influences of land-use practices on the disparity in damages and deaths, and discusses the influences of geology, hydrology, topography, and socio-economic pressures. This study employs satellite imagery, geographic information systems (GIS), thematic cartography, and field observations and interviews to ascertain the relative influences of the physical and socio-economic factors listed above. The results indicate that despite the well known problem of deforestation in Haiti, poor land-use practices alone cannot explain the differences in damages caused by Tropical Storm Jeanne. Rather a hierarchy of factors generated the landscape damage patterns. Topography and hydrology are the most important physical influences and land-use itself was the least important factor.

Keywords: Hispaniola, Dominican Republic, Haiti, Tropical Storm Jeanne.

Philip Sarre, Dr, The Open University, UK. Email: p.v.sarre@open.ac.uk; *Crime, corruption and crisis: the role of international finance.*

Free movement of capital has been a central feature of the new international financial architecture that has evolved since 1970, promoted by the Reagan and Thatcher governments, then widely imitated and frequently imposed by IMF and World Bank. The system, dominated by New York and London, but also including dozens of on- and offshore financial centres (many of which have strong secrecy laws) now moves huge amounts of bank assets, securities, currency and derivatives across international borders every day. Geographers have studied financial centres, but few have looked at the effects of the new system. Recent ngo, practitioner, academic and official critiques have made it easier to specify the effects in a number of areas. Highlights are- 1. Facilitation of crime and corruption; perhaps \$150 billion of profits from crime laundered into the banking system each year. 2. Encouragement of tax avoidance and evasion; HNWIs moving assets offshore (\$600 billion a year, over \$12 billion in total); corporations 'move' assets and profits to low tax jurisdictions through transfer pricing. 3. Destabilisation of emerging economies: high incidence of financial crises 1970-2000, culminating in Latin America and East Asia, where some countries lost 20% GDP over a year or two, and many years of growth were cancelled. On balance the system moves capital from poorer to richer countries. The overall outcome has been greater inequality, both between and within more and less developed countries, without any identifiable increase in global economic growth.

Keywords: international finance

Jade Sasser, University of California - Berkeley. Email: sasserja@berkeley.edu; *Shifting The Agenda From Economic Growth To Social Development: A Historical Analysis Of Large Scale Mining Projects In Madagascar*

Madagascar has recently adopted a set of neoliberal political and economic policies that place mineral resource development at the top of the economic agenda, encouraging the development of large scale, corporation-based mining projects. This paper charts the historical trajectory of mineral resource extraction in Madagascar, highlighting the changing ways large scale mining projects have positioned themselves in relation to local Malagasy communities, moving from the role of drivers of economic growth to agents of social development via institutional programs in education, public health, and the development of protected areas. The contradictions produced by these changes manifest in struggles with local communities at mining sites, at the same historical moment in which mining projects have been repositioned as providers of wide-ranging social benefits. Drawing on political economy and development studies literature as well as preliminary ethnographic data collected in Madagascar, this paper argues that the drive to intensify and expand mining operations in Madagascar has produced new struggles over access to and control of natural resources at the same time that social benefit programs attempt to mask these conflicts. My analysis also underscores the importance of understanding the historical contexts of the situated struggles produced at the sites where local communities, mining corporations, government and multilateral donor groups converge.

Keywords: Mining, Madagascar, development

Afton Sather-Knutsen, Michigan Technological University. Email: aesather@mtu.edu; *The Politics of Parcels: Community and Land Ownership Change in Michigan's Keweenaw Peninsula*

This study examines the politics of rural residential development in Michigan's sparsely populated Keweenaw Peninsula on Lake Superior. Keweenaw County is Michigan's least populous county, but during the 1990s experienced the second fastest rate of population growth. Land ownership in the Keweenaw has long been dominated by a few large corporate owners, who have traditionally allowed public access to their lands, leading local residents to view these lands as a public resource. Since these companies began selling parcels along lakeshores for development and forest tracts for hunting land in the mid-1990s, land sales and land access have become the major political issue in the Keweenaw. The politics of land ownership parcelization are best understood in terms of a local culture of private property that both overlaps and conflicts with an orthodox conception of private property. Whether lands are conceptualized as public or private often is a question of parcel size and the specific owner. The political response to parcelization in the Keweenaw has been manifold: local governments have become more active in zoning and planning; and a diverse group of public and private organizations have begun protecting lands for public access and conservation values. The problems faced by residents of the Keweenaw are common to areas across the country where rural residential development is changing the landscape and altering patterns of land use. Research was conducted during the summer and fall of 2006 and consisted of approximately 30 semi-structured interviews and textual analysis of print articles and public hearing comments.

Keywords: forests, land tenure, residential development, public lands

Ashley M. Satinsky, Plymouth State University. Email: amsatinsky@plymouth.edu; Bryon D. Middlekauff, PhD., Plymouth State University. Email: bryonm@plymouth.edu; Brian Shiplee, Ph.D., University of Wolverhampton, UK. Email: B.Shiplee@wlv.ac.uk; *Undergraduate field experiences: application of classroom skills*

Field trips for undergraduates have become increasingly difficult to arrange, expensive of both time and dollars, and generate considerable anxiety in terms of safety. They remain, however, invaluable experiences for the application and demonstration of skills taught in the classroom. A site activity has been developed over time at Livermore Falls, Pemigewasset River, New Hampshire, where upper level undergraduate students are quickly introduced to the site, divided into teams, and assigned the task of developing a management plan. Previous to the field activity, students are introduced to the process of describing the elements of the site, evaluating the value of the resources there, and prescribing recommendations for its use. This field activity is guided by one or more faculty who stand by as a resource; additionally, faculty gather the students at three different points during the day to debrief, clarify, answer questions, and encourage their work. We have found this model to be a particularly useful means by which students can practice the skills which are discussed in a classroom setting.

Keywords: Field work, geographic education, undergraduates

Noriyuki Sato, Indiana University. Email: nosato@indiana.edu; *Trends and Relationships between Air Temperature and Snowfall Characteristics in North America*

Air temperature is an important variable that determines the type of precipitation during cold months. With rising air temperature during winter, the frequency of snowfall diminishes as that of rainfall increases in certain areas, whereas the amount of snowfall increases in other areas due to an increased availability of moisture in the air. Since air temperature also is one of the important variables of climate change, it is expected that the distribution, timing, and amount of snowfall will change dynamically as climate change progresses. While several researchers have studied this relationship between air temperature and winter precipitation, those studies are based on the temporal trends and spatial patterns of the monthly and seasonal characteristics. The timing and magnitude of snowfall events over a winter period may be changing, and this study examines those characteristics of snowfall events at a finer resolution. The study employs linear regression with possible breakpoints to determine temporal trends of air temperature and snowfall relationships at representative weather stations and then the spatial patterns of the trends are analyzed. In the process, the frequency, timing, duration, and amount of snowfall will be examined together. The study utilizes the daily air temperature and snowfall amount data from the United States Historical Climatology Network (USHCN) for the U.S. and quality-controlled datasets for Canada. The study period is from 1948 through 2002.

Keywords: climate change, air temperature, snowfall, trend analysis

Toshiaki Satoh, University of Tokyo. Email: toshiss@csis.u-tokyo.ac.jp; Atsuyuki Okabe, University of Tokyo. Email: atsu@ua.t.u-tokyo.ac.jp; *The nearest neighbor distance method for point pattern analysis in relation to sub-networks of a network and its application to the analysis of street burglaries*

This paper proposes a statistical method for analyzing the distribution of activity points (e.g., incidence points of street burglaries) with respect to the shortest-path distances between the activity points and their nearest nodes on sub-networks (e.g., arterial streets), termed base sub-networks, of a network (e.g., a street network). The shortest-path distance can consider the direction of the shortest-path, that is, the shortest-path distance from an activity point to the nearest node of a base sub-network, termed the inward shortest-path distance; and the shortest-path from the nodes of a base sub-network to an activity point, termed the outward shortest-path distance. The method is designed to test the null hypothesis that points on the network are randomly distributed according to the uniform distribution over the network. The paper develops a computational method for measuring the average shortest-path distance from every observed activity point to its nearest node on the base sub-network, and derives the expected shortest-path distance under the null hypothesis. The comparison between the observed average shortest-path distance and the expected shortest-path distance statistically tests whether the points are clustered, random or regular. This method is implemented as a GIS-based tool using the directed network Voronoi diagram for sub-networks. The method was applied to the analysis of the distribution of street burglaries on streets, and it was found that street burglaries tended to occur around arterial streets and difference existed between the outward and inward shortest-path distances.

Keywords: point pattern analysis, network, GIS

Allison Sauer, York University. Email: alisauer@yorku.ca; *Constructed Illegitimacies: Nationalism, Racialization and Citizenship-based Inclusions and Exclusions*

This paper examines how the cultural construction of nationalism is shaped by concepts of inclusion and exclusion often mediated through hegemonic discourses of differential citizenship and racialization with specific reference to the mass round-up of non-status Portuguese people in the City of Toronto, in the summer of 2006. Dominant national discourses rationalize exclusionary, racialized immigration policies as protecting and enhancing national security (Bannerji 1997). Nations and citizenship are frequently defined through membership to an 'imagined community' (Anderson: 1983), and, significantly, non-membership, or exclusion. Differential citizenship status serves as an historical and contemporary regulatory framework through which heavily racialized projects of nation-building can protect the integrity of the imagined community while still accessing the labour-base of non-citizen residents. Stricter immigration controls correspond to ever increasing migrations flows exposing that border regulation is predominantly an ideological apparatus (Yuval-Davis 1997) that seeks to limit access to citizenship rather than barring people from crossing borders.

Keywords: Citizenship, Nationalism, Illegality

Angharad Saunders, Glamorgan University. Email: angharad@saundersweb.org.uk; *The practice of the text: the geography of walking, talking and writing*

This paper explores the spatial practices of writing within Britain at the turn of the twentieth century. Through the work and journals of the journalist, editor and author, Arnold Bennett (1867-1931), it considers how his writings are inextricably bound up with what Lorimer (2003) terms the 'livedness' of experience; the routines and tactics of being in the world and the rhythms which stimulate social life. It does so through an examination of the friendship which existed between Arnold Bennett and the novelist and dramatist Eden Phillpotts (1862-1960), and the practices through which this was expressed during a long weekend Bennett spent with Phillpotts in October 1899. During his stay Bennett and Phillpotts spent much of their time walking on the south coast and conversing over the development of their respective works and ways of writing. This paper explores these practices of walking and talking and suggests that in fundamentally shaping Bennett's social world they simultaneously activated his writing strategies and the narrative styles of his future work.

Keywords: Writing, walking, talking, practice

Houston Saunderson, Wilfrid Laurier University. Email: hsaunderson@rogers.com; *Structure of Volcanic Eruption Clouds*

The equations of motion are used to predict the structure of clouds formed during volcanic eruptions. This approach has yielded typically a three-part structure: a ballistic section close to ground level, a column in which motion is mostly vertical but from which fall-out may occur at the sides, and an umbrella section at the top of the cloud. Iterative loops have been used to date to model the paths of ejecta in these clouds, reflecting variations in particle diameter, velocity, take-off angle and other quantities. Although the paths have been animated to show details, the serial nature of these plots is a significant limitation of the method. The use of multiple threads is being explored as an alternative to a strictly serial approach.

Keywords: paths, ejecta, threads

Carol F. Sawyer, Texas State University-San Marcos. Email: cs1123@txstate.edu; David R. Butler, Texas State University-San Marcos. Email: db25@txstate.edu; *Patterns of seasonal frost heaving and surface clast movement in turf-banked terraces, eastern Glacier National Park, Montana*

In Glacier National Park, ongoing research seeks to determine the processes, patterns, and rates of movement of miniature patterned ground on alpine tundra. Observations of sorting of markers and surface clasts within turf-banked terraces began 3 years ago, whereas observations of vertical heaving, using nails, began 14 months ago. Field data and repeat photography techniques were used to measure and observe changes over time. New data continued to show evidence of seasonal movement of markers and clasts around the markers; however, some markers showed minimal movement compared to previous observations. In 2 months, 53% of the nails at the first site were heaved to a maximum height of 7 mm. In a 12 month time span, 70% of the nails at a second site were heaved to a maximum height of 14 mm. Markers were re-located with varying success rates, ranging from 33 - 100 % one year to 40 - 93% the next year. Success of re-locating markers was not dependent on length of placement in the field; two sites established 2 years apart had location rates of 93%. Miniature sorted circles with fine sediment enclosed by gravel were observed at one site 3 years ago but not since that time. New miniature sorted circles were recently observed at a nearby site. Final analysis will show the patterns of movement of nails, marker, and clasts, both laterally and vertically, attributed to frost processes.

Keywords: patterned ground, Glacier National Park, frost processes, alpine tundra

Claudia Sawyer, Syracuse University. Email: crsawyer@maxwell.syr.edu; *Setting the Stage: Guanajuato's Historic Center*

Guanajuato, located in northern-central Mexico, has focused its efforts on becoming a cultural tourism hotspot. A former mining center, its colonial architecture and canyon topography give it unique appeal among Mexico's nine UNESCO World Heritage historic city centers. Its yearly Cervantes Festival attracts international attention and increasingly, large numbers of spectators that severely challenge the city's capacity to provide services to visitors and citizens alike. In the wake of preservation investment, original pavements have been removed in favor of Romanesque patterns seen in Europe. Simultaneously, the Tourism Secretariat has rewarded neighborhood associations for their own clean-up efforts, fostering a top-down yet seemingly grassroots approach to heritage preservation. This paper will focus on state and municipal preservation efforts in Guanajuato, draw on interviews with local officials and experts, and suggest where Guanajuato might be headed in its attempt to position itself as a major urban tourism destination.

Keywords: heritage, tourism, preservation

AnnaLee Saxenian, University of California, Berkeley. Email: anno@simms.berkeley.edu; *The New Argonauts: Regional Advantage in a Global Economy*

Like the Greeks who sailed with Jason in search of the Golden Fleece, the new Argonauts?US-educated, foreign-born professionals who travel between Silicon Valley and their home countries?have pursued the risky but economically rewarding project of starting new ventures far from established centers of skill and technology. Their contributions to the growth of formerly peripheral economies, from Israel and Taiwan to China and India, illuminate a developmental trajectory not anticipated by standard models of development. By experimenting with innovations in the organization of local production, institutions, and policy, while maintaining cross-regional collaborations with their counterparts in Silicon Valley, the new Argonauts have created a context for technology entrepreneurship and growth in locations that are "poorly" endowed by standard economic metrics (property rights, rule of law, investment climate, etc.) These locations rarely provide lasting cost advantages either: as producers continue to cluster and upgrade their capabilities, they contribute to rapidly rising wages. The creation of regional advantage in the periphery underscores the need to view entrepreneurs, firms, policymakers and other actors as endogenous to the growth process. Professional and technical communities like Silicon Valley's new Argonauts have assumed unanticipated economic significance by providing flexible and responsive search networks that link local and global actors.

Keywords: clusters, high skilled migration, entrepreneurship, globalization

Andrew Sayer, Lancaster University. Email: a.sayer@lancaster.ac.uk; *What's Critical About Critical Geography?*

The meaning of the terms 'critical' and 'critique' has undergone a remarkable dilution, de-valuation and de-politicisation in the last three decades in the social sciences, including radical geography. Eight different concepts of critique are identified. Once associated with the identification, evaluative explanation of avoidable suffering (domination, exploitation, abuse, neglect) critique has turned inwards and reduced to a concern with reflexivity and examination of presuppositions. While these are undoubtedly academic virtues, the justifications for dropping the ethical-political critique of suffering are argued to be feeble.

Keywords: critique, reflexivity, suffering

Kristi L Saylor, United States Geological Survey. Email: saylor@usgs.gov; Terry L Sohl, SAIC, contractor to United States Geological Survey. Email: sohl@usgs.gov; *Projecting land use change in the southeastern United States using a scenario-based modeling technique*

The carbon cycle, climate, hydrology, and biodiversity are all affected by the consequences of land use and land cover change. The FOREcasting SCEnarios (FORE-SCE) model was developed to create high-resolution, regionally projected land cover products to aid in predicting the effects of land use and land cover change. The model uses information about contemporary rates of land cover change, thematic categories of change, and components of landscape pattern that were adapted from the USGS Land Cover Trends project. FORE-SCE uses theoretical, statistical and deterministic modeling techniques to project future land cover change for a range of plausible scenarios. The FORE-SCE model was first applied in the Great Plains. The second application of FORE-SCE was in the southeastern United States. In this region, the dynamic timber industry was an important factor in model development. Because the age of forest stands strongly affects carbon and climate applications, FORE-SCE was augmented with data on forest cutting and regrowth provided by the Land Cover Trends project. Changes in forest were tracked through time, enabling the model to more realistically simulate the cutting and regrowth of forests in the southeast. Additional applications of FORE-SCE are planned for the mid-Atlantic region and for southern California.

Keywords: modeling, southeast U.S., land use change

Nathan F. Sayre, University of California, Berkeley. Email: nsayre@berkeley.edu; *The Western Range Goes Global: Post-World War II International Pastoral Development Projects in the "Third World"*

The post-World War II period saw the rise of international development agencies and lending institutions as mechanisms of modernization around the world and across a wide range of industries. Beginning in the 1950s, shortly after the formation of the Society for Range Management, the US model of commercially oriented, capital-intensive livestock production became hegemonic in international development projects aimed at pastoralists in "third world" countries in Asia, Africa and Latin America. This paper reports on the extent and characteristics of this hegemony, based on a review of published reports and literature from the UN, World Bank, USAID, and other development agencies and NGOs. The main features of the Western Range model?including land tenure "rationalization," fencing, water development, "improved" breeds of animals, and imposition of carrying capacities?have been consistent features of these projects both before and after the rise of neoliberalism in the 1970s, albeit with

myriad regional peculiarities and perverse outcomes. I suggest that extensive range livestock production continues to be both a frontier and an elusive target of liberal market and state formation.

Keywords: pastoralism, ranching, international development, rangelands, carrying capacity, neoliberalism

Roger Sayre, Ph.D., United States Geological Survey. Email: rsayre@usgs.gov; Jill Janene Cress, United States Geological Survey. Email: jjcress@usgs.gov; Harumi Warner, United States Geological Survey. Email: hwarner@usgs.gov; Landforms and Bioclimate in the Contiguous United States

Ecosystems are commonly conceptualized as interacting systems of biota and their physical environment. Bioclimate and landforms are two aspects of the physical environment which strongly influence the differentiation and distribution of terrestrial ecosystems. The Rocky Mountain Geographic Science Center developed national landforms and bioclimate datasets as part of a larger, U.S. Geological Survey-led effort to map the ecosystems of the nation. The landforms consist of classes derived from Dikau et al.'s (1991) method, which is a modified and automated version of Hammond's original manual classification method, along with the addition of coastal plains and river valleys. Dikau et al.'s (1991) method was translated into spatial models and applied to the 30 meter National Elevation Dataset. The coastal plains were identified by overlaying the plain classes with Omerik coastal plain ecoregions (Environmental Protection Agency, 2006). The river valley class was identified based on the slope position. It was derived by applying Weiss's (2001) method which used the Topographic Position Index to the 30 meter National Elevation Dataset. For the delineation of the bioclimate classes, Rivas-Martinez et al.'s (2006) classification system was used. This classification algorithm was executed in spatial models using the Daymet data distributed by the Numerical Terradynamic Simulation Group at the University of Montana as input. Generation of landforms and bioclimate data for the contiguous U.S. marks significant progress towards the completion of a national ecosystems map.

Keywords: national landforms, national bioclimate, national ecosystems, terrestrial ecosystems, U.S. Geological Survey, geomorphology, spatial modeling, spatial analysis, GIS

Roger G. Sayre, Ph.D., United States Geological Survey. Email: rsayre@usgs.gov; Meso-scale Mapping of Global Ecosystems for Terrestrial, Freshwater, and Marine Environments

Ecosystem-based management is a fundamental element of the sustainable development paradigm, and has been advocated by the Convention on Biological Diversity (CBD), the Millennium Assessment, the Global Earth Observation System of Systems (GEOSS) and other major protocols and collaborations. Appropriate management of ecosystems is necessary to ensure the continued delivery of ecosystem goods and services (e.g. flood control, food, fiber, and forage production, biodiversity, etc.) upon which human societies depend. An understanding of the types and distributions (maps) of ecosystems is a requisite input into the management process. Unfortunately, standardized, robust, and practical ecosystem classifications and maps are not commonly available at management-appropriate scales. While macro-scale ecoregionalizations of the planet are available (Bailey, 1998; Olson et al., 2001), these are most useful for regional analyses, and are generally too coarse for on-the-ground conservation and resource management applications. A new set of finer resolution, meso-scale, global ecosystems for terrestrial, freshwater, and marine environments is in development as a priority task of the GEOSS effort. This presentation will describe the GEOSS global ecosystem classification and mapping approach, including descriptions of sub-regional efforts for the US and South America.

Keywords: ecosystems, mapping, global

Joseph L. Scarpaci, Virginia Tech. Email: scarp@vt.edu; Land-use Change, Gentrification, and Discourse in the Southern Cone: Case Studies from San Telmo and Ciudad Vieja. Joseph L. Scarpaci and Jose' Antonio Borello

Neoliberal policy changes have etched their mark into the built landscapes of Southern Cone cities. Perhaps nowhere are these changes more evident than in the real-estate markets, particularly undercapitalized ones in historic districts. Divided into two parts, the paper begins with the results of an empirical study of land-use change of over 5,000 buildings in San Telmo (Buenos Aires) and Ciudad Vieja (Montevideo) from the 1990s and mid 2000s. Results indicate a decline in residential uses which have been offset but a rise in commercial establishments, especially in tourism and up-scale marketing outlets. The latter half of the paper draws on the local press and official statements about these rapidly changing neighborhoods. It also includes field research notes and interviews with local residents. While the pace of change has quickened in San Telmo, Ciudad Vieja's local market appears to be less attractive to investors. In both places, there appears to be little official discourse about the indirect costs of gentrification and

housing prices, despite evidence of residential displacement and the left-center leanings of both governments in power.

Keywords: gentrification, land use, built environment, Latin America, real-estate, displacement

Werner Udo Schade, Padagogische Hochschule. Email: schade_udo@web.de; The Early Development of Cover Design of Foldout-Maps

This study aims at the gap in the developing field of map history, an area which can be called the history of map design. The physical map, its production methods, its cover illustrations, its producers themselves, and the economics of its distribution methods and materials all seem to be on the fringes of map history. The front cover of a foldout-map has acknowledged influences on its readers. Its appearance owes much to the producer's expectations of his market - the purchasers and the readers of the map. The cover can be said to embody his expectations of how the map will be used, where and when it will be read, whether its readers need illustrations, etc. Thus it holds many clues about reading practices and the reader themselves. It does not yield these clues quickly, for many reasons. A survey of historical and contemporary front covers of foldout-maps has been undertaken at an international scale. The results demonstrate that the cover design depends on several factors. To read the clues about a map's intended readers, these factors need to be understood.

Keywords: map history, cover design, tourism

Melissa Schafer, Technical University of Munich - Weihenstephan. Email: melissa@schafer.net; The Development of Sustainable Food Systems in Portland, Oregon and Munich, Germany

Portland, Oregon and Munich, Germany are both cities with strong sustainable agricultural and food movements. It is hypothesized that the key actors for the success of these movements are the retailers and political institutions that are supportive of environmental and land use issues. The actors involved in both cities include: political institutions (governance), consumer and environmental organizations, retailers (natural and organic food stores), farmers involved in direct marketing and cooperative farm marketing, and restaurants serving organic and local food. Social network theory is the key methodology for identifying the actors and their relationships to each other, and to describe the network of actors in these movements. The goal of this research is to determine similarities and differences between these successful food movements by drawing conclusions about critical actors and their roles to provide insight on how such movements could be replicated in other cities. Although the manifestations of these actors take different forms, the outcomes are similar. For example, in Germany, where small retail businesses are traditional, small retail stores dominate the organic food market. Likewise, in Portland where large supermarkets are common, natural food stores mimic large supermarkets. Another example is Munich's governmental encouragement of farmers to convert to organics in a region used for the municipal drinking water and starting a marketing campaign for their products in urban retail shops. Similarly, Portland's urban growth boundary created in the 70s has kept farms close to the urban area enabling successful direct marketing.

Keywords: sustainable food and agriculture, organic food, social network theory, international comparisons, comparative methodology

Jeffrey P. Schaffer, Napa Valley College. Email: jeffreypschafer@yahoo.com; Seeing the Elephant: How Perceived Evidence in the Sierra Nevada Biased Global Geomorphology

During the 1800s, many geologists believed that the Earth was molten except for a thin crust, and that converging waves of magma collided to produce "instant" mountain ranges. Harvard's Louis Agassiz used this erroneous mechanism in 1847 to explain the instigation of the Ice Age: ranges recently rose, glaciers developed, and these carved deep canyons. Taught at Harvard and Yale, this became the late-Cenozoic major-uplift, major-glacial-erosion paradigm. Whitney and Brewer brought it to California, and in 1862 Brewer recorded a Sierran miner's fable that "confirmed" this paradigm. In 1863 they entered the Sierra Nevada and recorded contrary uplift evidence, but Whitney's 1865 report stressed the fable, which became widespread as fact. A pseudoscience was born. By the 1890s, geologists had mapped the Sierra sufficiently to refute the paradigm, but it had become dogma that expands today. Huber (1981) deleted an underlying stratum, added an imaginary canyon, and ignored contrary evidence. Harbor (1992) produced a numerical model of Yosemite Valley radically transformed by glaciers, field evidence to the contrary, and appears in geoscience texts as fact. Sawyer (2001) proved recent Sierran uplift with a geologic cross section of a "typical" (nonexistent) Sierran canyon. Caltech geoscientists (2005) used helium isotopes to reconstruct multistage uplift of the Sierra, while Stanford geoscientists (2006) used hydrogen isotopes to refute it. None know the crucial field evidence. Now, gophers (not mass wasting) are denuding California's coast ranges.

Dogma encourages the creation of imaginary “facts” that advance our pseudoscience, which is more creation science than real science.

Keywords: geomorphology, pseudoscience, creation science, Sierra Nevada

Kelsey Nicole Scheitlin, Mississippi State University. Email: kns87@msstate.edu; Grady Dixon, Mississippi State University. Email: pgd4@msstate.edu; Variations of Diurnal Temperature Range in the Southeast United States Due to Land Use/Land Cover Classification, 1995-2004

Variations in daily temperature across an area can often be ascribed to differences in surface-atmospheric interactions related to land use/land cover classifications. The study area includes over 100 weather stations located in portions of Mississippi, Tennessee, Louisiana and Arkansas, and is dominated by agriculture, urban areas, deciduous forests, coniferous forests, and mixed forests. This study area is unique in that it looks at a constantly changing landscape, and very few studies have looked at smaller scale urban areas similar to the ones found in this region. Also, an area known as “the Delta”, located in the alluvial sediment of the Mississippi River in Louisiana, Arkansas and Mississippi, is known for its agriculture and holds enormous economic influence in all three states. The diurnal temperature range of the five land use classifications in the study area will be compared between the years of 1995 - 2004 for each of the Spatial Synoptic Classification air mass types. In order to isolate land use/land cover as a variable, all days that are synoptically active are not included, as well as days where the entire area is not under the same air mass. Paired sample T tests, discriminate analyses, and multivariate analyses are employed to make comparisons of the diurnal temperature range between each of the land uses.

Keywords: Climate, Land Use, Forecasting

Nicolai Scherle, Katholische Universität Eichstätt-Ingolstadt. Email: nicolai.scherle@ku-eichstaett.de; Good-bye Humboldt, welcome McKinsey - Tourism and Leisure Geography in Germany in the context of current educational policy changes and the complex challenge of globalised educational structures

Germany's university system, rich in tradition, whose structures and values continue to be shaped by the humanist educational ideals of the famous German universal scholar Wilhelm von Humboldt, is currently undergoing the most drastic paradigm shift in its history so far. This paradigm shift is inseparably linked to the so-called Bologna Process, which primarily aims to harmonise and internationalise European university structures in the context of the complex challenges of an increasingly globalised educational landscape, and will ultimately lead to a comprehensive implementation of Anglo-Saxon educational structures. Those in favour of this paradigm shift hope that the universities will become more competitive, their teaching more efficient and that graduates will be more employable. Its critics, however, fear a drop in the quality of teaching and research, a gradual departure from the Humboldtian educational concept and, with reference to the German sociologist Beck, a sort of “McKinsey-Stalinism” which will be dominated by a network of accreditors and evaluators and which could at worst degenerate into increasing academic managerialism or academic capitalism. The planned contribution will provide an up-to-date overview of the implications of these transformation processes on Tourism and Leisure Geography in Germany from a holistic perspective, and will look at the ways in which the scientific community is addressing the complex challenges of a post-Humboldtian era of internationalisation, modularisation and evaluation.

Keywords: education in tourism, Humboldt, Bologna process

Regina Scheyvens, Massey University. Email: r.a.scheyvens@massey.ac.nz; Amy L Griffin, University of New South Wales-ADFA. Email: a.griffin@adfa.edu.au; Christine L Jocoy, California State University, Long Beach. Email: cjocoy@csulb.edu; Yan Liu, National Institute of Education, Singapore. Email: yan.liu@nie.edu.sg; Michael Bradford, University of Manchester. Email: m.bradford@manchester.ac.uk; Experimenting with Active Learning in Geography: Dispelling the Myths that Perpetuate Resistance

While some geographers have embraced active learning as a means to actively engage students in a course, many others stick to conventional teaching methods. They are often deterred by suggestions that it can be difficult to implement active learning where students have no prior knowledge of a subject, that active learning requires too much work of lecturers and students, and that there are significant institutional constraints to implementing active learning. In this article the authors draw on their experiences of utilising active learning in five different countries before dispelling myths which continue to constrain the uptake of active learning methods. Finally, we provide simple guidelines for successful integration of active learning in geography courses.

Keywords: Active learning, geography, education, teaching styles, reflection, deep learning

Paul D. Schilke, University of Wyoming. Email: schilke@uwyo.edu; Responsibility, Avidity, Club Participation, and Other Variables in Three Categories of Off Highway Motorized Recreationists.

Increasing demand for nature's resources calls for increasing responsibility regarding their use and stewardship. Motorized vehicles used for off-highway recreation represent just one facet of that demand. Travel management taking place in the Forest Service System, the Bureau of Land Management and other land management agencies seeks to address careless, motorized travel occurring off designated routes and riding areas. 193 effective letters mailed to OHV clubs and advocates throughout an eight state region, invited club members and OHV users to participate in an online survey. The purpose of the survey was to understand the relationship between OHV club participation, responsibility and eight other variables of the motorized recreation experience. Preliminary results indicate a relationship between club participation and responsible behavior. However, a percentage of respondents who report responsible and safe behavior also report having received an injury while engaged in OHV recreation.

Keywords: Off Highway Vehicle (OHV), Motorized Recreation, Responsibility, Club Participation, Public Lands Management, Web-Based Survey

Beth Schlemper, Association of American Geographers. Email: bschlemper@aag.org; Antoinette WinklerPrins, Michigan State University. Email: antoinet@msu.edu; Balancing Professional and Personal Lives

As an aspiring academic, learning to navigate the decisions you need to make regarding ‘balancing’ your career and your personal life is key to your future success and life satisfaction. Academic geography is at once an all-consuming as well as a flexible type of work. This results in both a challenge and an opportunity to craft a life that is professionally rewarding and personally fulfilling. In our profession we find a range of partnerships with different demands and expectations. At times the boundaries between various aspects of our lives intersect and can be mutually enhancing. Many successful academics have crafted lives that have brought them professional success as well as personal fulfillment. This process includes career preparation, selecting an appropriate career path, and situating yourself for changing professional and personal priorities that occur throughout the course of a career. This paper includes a guide to strategies in setting priorities, negotiating work/life balance, and recognizing and utilizing institutional policies that are in place to enhance this effort. Balancing Professional and Personal Lives is part of a larger project entitled Aspiring Academics that is associated with Enhancing Departments and Graduate Education (EDGE) in Geography funded by the National Science Foundation.

Keywords: Academic Geography, Work/Life Balance, EDGE

Gwenda J Schlomer, Department of Geography, Geology, and Planning, Missouri State University. Email: gwenda528@missouristate.edu; Dr. Robert T Pavlowsky, Department of Geography, Geology, and Planning, Missouri State University. Email: ; Dr. Scott A Lecce, Department of Geography, East Carolina University. Email: ; Using geochemical and sedimentological trends to identify pre- and post- settlement boundaries in floodplain deposits of the North Carolina Piedmont

The environmental history of a watershed can be preserved in vertically-accreted floodplain deposits, offering the potential to reconstruct major disturbances to the fluvial system. Human settlement and land clearing tend to increase sedimentation rates on valley floors, particularly during forest to agriculture conversion. Mining pollution tracers are useful to date historical floodplain units and study watershed-scale patterns of sedimentation. The upper Dutch Buffalo Watershed (253 km²) in the North Carolina Piedmont was first introduced to mining activities in 1842 by the Gold Hill Mining District located near the headwaters. Mercury released during gold ore processing, along with a well-documented mining history, enables the dating of overbank units during the mining period (1842-1915). The geochemical and sedimentological response of the basin during the pre-mining period, however, is largely unknown due to the lack of a geochemical mining signal. This study will address using geochemical and physical properties of pre/post settlement overbank units to characterize pre-mining floodplain deposits. Floodplain sediment cores were collected along three cross-valley transects downstream of the mining district in the upper, middle and lower reaches of the watershed and analyzed for 32 elements and physical properties including organic matter, pH, grain size, and color. Preliminary results indicate that geochemical profiles are sensitive to subtle changes in land use. Pre-settlement deposits are indicated by the presence of buried A-horizons and/or shifts in elemental ratios and other physical properties. This will improve on understanding the history of channel and floodplain changes caused by anthropogenic processes on the North Carolina Piedmont.

Keywords: fluvial geomorphology, sedimentation, geochemistry, Piedmont

David Schlosberg, Northern Arizona University. Email: david.schlosberg@nau.edu; *Defining Environmental Justice: Theories, Movements, and Nature*

How are we to define the conception of the “justice” of environmental justice? How do movements for environmental justice define the concept of justice? Do different groups define the concept in varied ways? Have movement groups articulated notions of justice that go beyond traditional distributive conceptions, as many political theorists have in the past two decades? Is there a major difference between the definition of environmental justice (justice on environmental issues among the human population), and ecological justice (justice between humans and the rest of the natural world)? Can the language used in environmental justice movements also be applied to conceptions of ecological justice? In this paper, I argue that movements do not have a single definition of justice; in fact, they articulate many. Justice is about distribution, but it is also about individual and community recognition, participation, and functioning. Groups emphasize different notions of justice, on different issues, in various contexts. I also explore whether it is possible to use this expanded set of justice discourses - on distribution, but also on recognition, participation, and functioning? when discussing relationships of justice between the human and non-human realms. My argument is that in both environmental and ecological justice, we can use a similar set of concepts, tools, and languages. Realizing this may help us get beyond the divide between environmental and ecological justice, and into a practice of recognition, equity, expanded decision-making, and provision of the capacities necessary for individual and community functioning to human and non-human alike.

Keywords: environmental justice, ecological justice

Kolson Lee Schlosser, Penn State University. Email: kls393@psu.edu; *The Bio-Politics of Bodies Politic: Nature and Metaphor in Classic U.S. Geopolitical Discourse*

A now robust critical geopolitics literature has achieved a number of important insights, including the role of naturalist epistemologies in traditional geopolitics, critical explorations of gender and geopolitics, and now intersections of militarism and the environment. This paper contributes to this literature by examining the discursive economy within which classic U.S. geopolitical discourse is embedded. While critical political geographers have demonstrated the role of naturalist epistemologies in classic geopolitics, I ask how naturalist metaphors of the body to describe the state and its defense have informed the geopolitical imaginary. I argue that invocations of the ‘body politic’ in 20th century geopolitical texts are a version of bio-politics informed by a proliferating biomedical discourse over a similar time period. Such body metaphors also involve gendered discourses of power iterating state practices as the rational, masculine head disciplining the wild, feminized torso. I furthermore argue that such metaphors work to create a spatial abstraction of a nationalized self often used to promote state policy. This paper, then, shows militarism as not only destructive of the environment, but as discursively produced in contradistinction to an essentialized, abstracted nature.

Keywords: bio-politics, bodies, critical geopolitics, naturalism

Christian Schmid, Swiss Federal Institute of Technology Zurich. Email: schmid@arch.ethz.ch; *Henri Lefebvre's Triadic Dialectics*

Henri Lefebvre's writings on everyday life, the urban and the production of space have attracted remarkable interest in recent years. Despite this renewed interest, a thorough analysis of Lefebvre's epistemology is still only at the beginning. Such an analysis must take into consideration that Lefebvre's thinking is rooted in the German philosophical and epistemological tradition of the 19th century as well as in the urban practice in 20th century Paris. One of the key elements of Lefebvre's epistemology is his triadic conception of dialectics which combines the dialectics of Hegel, Marx und Nietzsche in a surprising and fascinating way. This dialectics is at the basis of Lefebvre's triadic theories of language and representation and especially of his famous theory of the production of space. This contribution reconstructs some of the basic elements of Lefebvre's dialectics and presents a dialectical understanding of the three-dimensional concept of spatial practice, representation of space and spaces of representation.

Keywords: Lefebvre, space, dialectics

James A. Schmid, Ph. D., Schmid & Company Inc. Consulting Ecologists. Email: jaschmid@aol.com; *The Missing Geography of Wetlands in the United States*

There is an unnoticed disconnect between the airphoto-based wetland maps in standard sources of environmental data such as the National Wetland Inventory, US Geological Survey topographic quadrangles, and various State and local inventories on the one hand and on the other, those scattered wetlands delineated in detail and surveyed for regulatory purposes on individual tracts of land. The results of costly, labor-intensive, on-ground wetland delineation

typically serve a one-time regulatory purpose. There is no consistent effort to compile or preserve such map products in an accessible format for use by scholars, delineators, regulators, or conservationists. Wetland delineation remains a contentious undertaking, much affected by slowly improving technical methods for recognizing boundaries and rapidly swirling political currents, particularly in non-tidal, forested ecosystems. I illustrate specific examples of technically complex projects chiefly in New York, New Jersey, and Pennsylvania, and argue that the settled results of such delineation should be made publicly and permanently accessible. Geographers should serve as advocates working at the forefront of such efforts, given their expertise with maps and geographical information systems. Relatively little systematic use has been made of the numerous Environmental Impact Statements, Environmental Assessments, and similar reports that have been required by various levels of government for many kinds of development projects since the early 1970s. If the comparable opportunity is lost to utilize systematically maps of delineated wetlands, the ever-growing human population of these United States will have greater difficulty than necessary trying to adapt to and coexist with our remaining ecosystem.

Keywords: maps-wetland, wetlands-nontidal, NY-wetlands, PA-wetlands, NJ-wetlands, wetlands-MidAtlantic

Deanna H. Schmidt, University of Wisconsin-Milwaukee. Email: dbenson@uwm.edu; *The (Re)Production of 'White' Park Space, Milwaukee, Wisconsin*

This paper examines the practices (re)producing whiteness in racially-changing neighborhoods. During the 1970s and 1980s, ‘white’ residents in Milwaukee's neighborhoods faced not only racial change, but threats by neoliberal policies that reduced public spending, sent family-supporting manufacturing jobs overseas, and undermined the financial security of working and middle-class families. Residents sought to stabilize their neighborhoods through collective action. Their neighborhood organizations attempted to (re)produce neighborhood space including park space to match their conceptions of a good, ‘white’ neighborhood. This research does not find overt racism, rather the (re)production of whiteness and white privilege set within a discourse of ethnic and class diversity.

Keywords: neighborhood politics, parks, white privilege, neoliberalism

Mathew C Schmittlein, University of South Carolina. Email: schmittlein@sc.edu; *Social Vulnerability in Charleston, SC: 1970-2010*

The impacts of Hurricane Katrina on the Gulf Coast, and on New Orleans in particular, highlight the importance of differential social vulnerability on the outcomes of hazard events. Many efforts have been expended recently to develop methods for describing the spatial variations in social vulnerability across regions. These approaches are also being adapted to yield understandings of the temporal changes in these distributions. This paper furthers these spatio-temporal approaches by proposing a methodology for representing the historic spatial distribution of vulnerability in the Charleston-North Charleston Metropolitan area in South Carolina, and then extending this to 2010 and beyond. Twenty-six variables influencing social vulnerability were identified at the tract level for the study area from the decadal censuses of 1970 to 2000. Multivariate linear regression models were used to predict values for these variables for 2010. Social vulnerability indices, based on the algorithm used for the Social Vulnerability Index proposed by Cutter and others in 2003, were created for 2010 using the lower and upper prediction interval bounds for each variable and tract, resulting in a range of possible social vulnerability values for each tract in the study area. By knowing the potential spatial distribution of future vulnerability within the study area, planners and policymakers may be better able to make decisions regarding where to expend mitigation funds. They may also be able to utilize other policy tools to affect change that will decrease the likelihood that polarizing trends in vulnerability will occur.

Keywords: Social Vulnerability, Charleston, SC

Charles Schmitz, Towson University. Email: cschmitz@towson.edu; *Guantanamo's Devilish Details: the legal terrain of freedom and terror*

Military Order No. 1 of November 2001 authorizing the detention and trial of non-citizens in Guantanamo was a bold rewriting of domestic and international law to assert new presidential powers and to forcefully reshape international law to legitimize the White House's agenda in its War on Terror. The legal smokescreen used by the White House in Guantanamo attempted to strip the detainees of Habeas rights, perhaps the oldest check against tyranny. The White House's equally suspect semantic manipulations of international law tried to justify the stripping of protections of international law, and the Geneva Conventions in particular. In the summer of 2004 the Supreme Court rejected the White House's legal fictions and asserted jurisdiction over the detainees; then in the summer of 2006 the court went further, declaring that the president had no authority to write a new body of law for detainees and that Geneva Conventions did apply to the trial of detainees. In response to the Court's decision, the

Republican Congress wrote the Military Commissions Act in the fall of 2006 to achieve the same outcome the White House had intended in Military Order No. 1, but this time with Congressional authorization. Once again the Courts have been stripped of Habeas review and though paying lip service to Geneva Conventions, the Act brashly sidesteps legal difficulties in the Pentagon's War on Terror. This paper will interrogate the new MCA in order to interpret the uneven and ironic terrain of freedom and terror in Guantanamo.

Keywords: law, war on terror, guantanamo

Camille Schmoll, european university institute. Email: camilleschmoll@yahoo.fr; *The impact of trans-Mediterranean trade on regional economies. Some remarks in light of the case of Naples, Italy.*

There is little evidence in the scholarly literature about the effects of transnational activities on the regional economies of the receiving countries. This paper aims at discussing the relationship between trans-national entrepreneurship and regional development by analysing the case of Naples in the South of Italy. In recent years, the Euro-Mediterranean region has witnessed the emergence of trans-national marketplaces being mutually inter-connected through informal exchanges and circulations of people and commodities. In this context, the city of Naples has emerged as an important destination for North-African traders. The development of trans-Mediterranean informal networks has important influence on the city's regional economy in stimulating the formation of new commercial spaces and local industrial districts. These developments urge us to critically rethink some of the assumptions made within the literature dealing with local economic development in Italy, to the extent to which these studies have paid scant attention to the impact of international migration and trans-national trade on the evolution of industrial districts and other spaces of localised production and consumption. Moreover, research on these trans-national economic spaces make a contribution to the general literature dealing with transnational economies, challenging commonly held binary assumptions between transnationalism from below and transnationalism from above as well as between formal and informal economies.

Keywords: transnational trade, southern Europe, regional development, transnational networks

Phillip Schmutz, Louisiana State University. Email: phillip.schmutz@gmail.com; *Investigation of utility of Delta-T probe for obtaining surficial moisture measurements on beaches*

Recent studies have reported on the use of a new device to measure beach 'surface' moisture content, the Delta-T probe. However, a major weakness of the Delta-T probe is that the sensor rod length (about 60 mm) is too long for measurement of true 'surface' moisture conditions. This study was conducted to investigate the accuracy and reliability of the Delta-T probe as sensor rod length is reduced to approximate a 'surface' moisture measurement. Field investigations for this study were conducted at sites, in Texas, Florida and North Carolina during the summer and fall of 2006. Sites were selected to provide a range of natural sediment sizes. Surface moisture levels representative of the full range of beach conditions, from fully saturated to dry, were measured with Delta-T probes. The test sediments were sealed in airtight bags and returned to the laboratory for determination of natural gravimetric content. To assess the influence of probe length, various thicknesses of dielectric foam were used to adjust sensor rod length from 60 mm to lengths of 15 mm, 10 mm, and 5 mm. In most cases several repeats were conducted with two or more probes to allow an assessment of variability. The data are analyzed to assess the capabilities of the Delta-T probe for use in determining 'surface' moisture measurements.

Keywords: surface moisture content, beaches, moisture probe

Annamarie Schneider, Department of Geography and Institute for Computational Earth System Science, University of California, Santa Barbara. Email: aschneider_oct02@yahoo.com; Mark Friedl, Department of Geography and Center for Remote Sensing, Boston University. Email: friedl@bu.edu; Brent Hecht, Department of Geography, University of California, Santa Barbara. Email: bhecht@umail.ucsb.edu; *Mapping global urban extent, intensity and vegetation using the fusion of MODIS satellite imagery and ancillary data sources*

Despite growing recognition of the important and complex role of cities in economic, political and environmental systems, urban areas have been understudied in the analysis of global environmental change. Although only a small percentage of anthropogenic land modifications, urban areas can significantly alter climate, biogeochemistry, and hydrology at local, regional, and global scales. Our knowledge of the cumulative impacts of urbanized areas is limited, however, by a critical lack of data sources: we have very poor estimates of urban extent, and virtually no information on geographic variations such as housing density or urban vegetation. Building on our early efforts with MODIS data, our current work focuses on: (1) completing a new, validated map of global urban extent; and (2) developing methods to estimate the subpixel fraction of impervious surface,

vegetation, and other land cover types within urbanized areas using coarse resolution satellite imagery. For the first task, a technique called boosting is used to improve classification accuracy and provides a means to integrate 500 m resolution MODIS data with ancillary data sources. For the second task, we present an approach for estimating percent cover that relies on continuous training data for a full range of city types. Combined with temporal information from one year of MODIS data, these data are used as inputs to fuzzy neural network and regression tree algorithms to predict fractional amounts of land cover types with increased accuracy. Preliminary results for the US show good agreement with the expected morphology of cities in the region.

Keywords: remote sensing, urban, unmixing, fractional, land cover, MODIS

Laura C. Schneider, Rutgers University. Email: laschnei@rci.rutgers.edu; S. Hamburg, Brown University. Email: steven_hamburg@brown.edu; M. Vandecouver, Brown University. Email: matthew_vandecouver@brown.edu; J. Mustard, Brown University. Email: jack_mustard@brown.edu; *The effect of legacies on human-environment coupled systems: 200 years of land change dynamics in Grafton County, New Hampshire*

Recent syntheses of case studies are revealing an emerging broad conceptualization of land-use and land-cover change intricately linked to socio-economic changes and the ecological characteristics of the landscape. Beginning with a largely unsettled or native landscape, land-use commonly evolves from frontier clearing and resource extraction to agriculture and managed resources to urban settlements and intensive agriculture. Coupled to this linear representation are socio-economic changes that are critical drivers to the magnitude, rate and ecological impact of the land-cover and use change. With land cover changes specific impacts are observed on the coupled systems. These impacts constitute legacies or conditions that constrain subsequent land-cover and use and define the type of coupled human-environment system. Revealing and quantifying the influence of legacies on current landscape patterns and processes based on an understanding of the historical socio-economic drivers and landscape conversion is the critical first step. In Grafton, NH spatial patterns of development are closely associated with colonial road patterns, which relate to previous land-uses, forest composition and water quality. In addition these lands provide some of the highest rates of carbon sequestration, as the soils accumulate carbon at a faster rate than non-agriculturally disturbed soils and the rates of biomass accumulation do not differ from those on cutover lands. Yet these lands are the most sought after for development, as they are proximate to existing town-maintained roads. The only way to accurately predict future surface water quality and carbon sequestration in this region is to understand spatially explicit patterns of historic land-uses.

Keywords: land change, legacies, New Hampshire

Philipp Schneider, Department of Geography, University of California, Santa Barbara. Email: phil@geog.ucsb.edu; Dar A Roberts, Department of Geography, University of California, Santa Barbara. Email: dar@geog.ucsb.edu; Phaeton C Kyriakidis, Department of Geography, University of California, Santa Barbara. Email: phaeton@geog.ucsb.edu; *Evaluation of MODIS time-series for wildfire susceptibility assessment in southern California*

We evaluated Moderate Resolution Imaging Spectrometer (MODIS) data regarding its potential for wildfire susceptibility assessment in southern California. The Fire Potential Index (FPI) is the most widely used measure for remote sensing-based wildfire danger assessment. Its remote sensing component requires maps of relative greenness (RG), which have been traditionally derived from NDVI images of the spectrally limited NOAA Advanced Very High Resolution Radiometer (AVHRR) sensor. In this study, the Visible Atmospherically Resistant Index (VARI) was utilized to compute RG from a 6-year time series of 16-day MODIS composites. The RG images were validated through regression analysis with ground-sampled observations of live fuel moisture at several sites within Los Angeles County. For 12 out of 14 test sites, the MODIS/VARI-derived relative greenness showed a much stronger correlation with live fuel moisture than NDVI, with increases in R² ranging from 5% to 110%, depending on site. Based on these results, a prototype of a second generation FPI for Southern California using MODIS data was implemented. In addition to the use of VARI, advancements included spatial interpolation of meteorological information using kriging with external drift. The fire susceptibility maps derived using this system correlated closely with the operational approach, but showed slightly higher FPI values. A comparison of VARI- and NDVI-derived FPI points towards a higher seasonal sensitivity of the VARI approach to fire susceptibility. Overall, MODIS imagery appears to be a great asset for wildfire susceptibility assessment in southern California, providing improved estimates of life fuel moisture through indices such as VARI.

Keywords: wildfire, susceptibility, danger, MODIS, southern California, remote sensing

Izhak Schnell, Tel Aviv University. Email: schnell@post.tau.ac.il; A multilayered model of Segregation: The Case of Tel-Aviv-Jaffa

Abstract Urban social space is analysed in terms of a realistic model in which it is assumed that human beings actively respond to socially structured reality. It is assumed that globalization increases discrepancies between physical and social time-space frameworks decreases ethnically conform behavior. Traditional social area analysis tends to view the city as constituted of a mosaic of socially homogeneous containers. The Chicago model views the mosaic as compactly organized around one centre and as a response to geometrically deduced forces. The Los Angeles model views social areas to be socially constituted in a more dispersed geometry. Our model verified in this study shows that globalising cities may produce highly heterogeneous residential spaces, even in highly ethnic societies. We propose to start the analysis from individuals' behaviors, in respect to their actual daily life spaces and social networks. We argue that under these conditions, a multi-layered spatial model better describes the socio-spatial reality of cities that integrate people in the globalising world. These trends will be demonstrated on Arabs, migrant workers and Bucharian Jews who live in Tel-Aviv-Jaffa. We will show that the models that associate desegregation and assimilation and acculturation do not work in the case of Tel-Aviv-Jaffa and we will suggest a realist mode of explanations for the understanding of segregating trends either in residential, activity spaces or social networks. We will show that each type of segregation may be explained by different mechanisms and different individuals from the same groups may differently respond to these structural forces.

Keywords: A multi-layered model, Residential, territorial and interactive segregations, A realist approach

Tatiana Borisovna Schoenberg, SUNY At Buffalo. Email: TBS3@buffalo.edu; What do we see around us and how do we see it? Differences and similarities in perception.

What do we see around us and how do we see it? The answer will be based on the individual's visual process. One of the strategies of geographical research is to look into the environment we perceive with our senses. Problems of defining perception connect us with the long history of philosophy. One key idea is that perception is essentially subjective, and that it depends on some contribution made by the observer, and that it varies from one observer to another. People perceive the environment in different ways and see things differently in the same landscape. Each person learns the meaning of the things of the world for himself. Observers from different cultures not only might pay attention to different features, but also might understand and organize features differently. A member of a culture has his own model of psychological validity, which directly connects to subjective perception. This research is designed to test theories that are based on classic works on perception by Grano (1929), Gibson (1979), Lynch (1960), and Tuan (1974). The authors proposed a new ways of thinking about perception, and all four of them try to find the right conceptual levels for their approaches. Some empirical research, based on interviews with American-English and Spanish speakers will be presented. This study is a part of a new science, Ethnophysiography. Ethnophysiography seeks to document and compare terms and meanings from various languages and cultures.

Keywords: visual perception, landscape, toponophilia, ethnophysiography

Andrew Scholl, Pennsylvania State University. Email: aes176@psu.edu; Fire-Climate interactions at interannual to multidecadal scales in Yosemite National Park

Fire regimes are known to vary in response to variations in climate that occur on annual to century scales. We studied the influence of climate variation (i.e., drought, teleconnections, etc.) on fire events at different temporal (intra-annual to decadal) and spatial (individual to watershed) scales within the mixed conifer forests in Yosemite National Park. Fire Scars were collected within two watersheds, each covering 20 km² in order to assess size of fire and determine any synchronizing effect of climate variation. At the seasonal scale, fire events occurred primarily at the end of the growing season that coincided with the onset of the summer drought. At the annual scale, fire events were found to be more frequent and extensive during drought years that were preceded by wet years. Widespread fire occurrence was also related to phase changes in the Pacific Decadal Oscillation (PDO) from positive (warm) to negative (cold) conditions. At the multi-decadal scale, fire size was significantly negatively correlated with the Atlantic Multidecadal Oscillation. No relationship was found between fire events and the Southern Oscillation Index.

Keywords: Fire, climate, Drought, Yosemite National Park, Atlantic Multidecadal Oscillation

Bruce Scholten, 90012144, University of Durham. Email: B.A.Scholten@durham.ac.uk; bruce.scholten@btopenworld.com; Incomparable work? Organic apples & oranges in Seattle & Newcastle upon Tyne

Bruce Scholten, Durham University Geography Department (UK). Chair & co-convenor with Melissa Schafer of the session: Comparing Organic Urban Papers (COUP). www.durham.ac.uk/b.a.scholten/ bruce.scholten@btopenworld.com This talk draws on a thesis titled: 'Consumer risk reflections on local and organic food in Seattle with reference to Newcastle upon Tyne' to illustrate methodological and logistical issues inherent in international comparative research. It notes the a priori difficulty of finding 'similar' cities for quantitative comparisons, as well as the possibility of empirical and theoretical breakthroughs when superimposing the profiles of cities with different socioeconomic or municipal policy profiles. We'll discuss the notion that the quality of organic periurban food systems may differ little among different cities because, still not far from its pioneering roots, such alternative food networks are led by actors in a global movement which prioritizes some or all values such as environmental sustainability, human health and social justice. However the quantity, or depth, of organic consumption may be more variable, contingent not just on the local agricultural factors, but especially contingent upon local government policy and regulation (Shafer 2006). We will also list a number of 'knowns' - lessons learned after a decade of the organic boom. These include the multiethnic character of organic demand in the US (Hartman 2004); and the apparent preference of most people for local conventional produce over organic imports (Soil Association 2004; Scholten 2006).

Keywords: international comparative research, methodology, rural-urban organics

Yda Schreuder, University of Delaware. Email: Ydas@Udel.edu; The Corporate Greenhouse: Globalization and the Kyoto Protocol

From the ongoing debates in climate change policy and the apparent ineffectiveness of the current Kyoto regime dealing with GHG reduction schemes in order to halt/reverse climate change, it is obvious that something is wrong in the world order dealing with global environmental problems. Much debated presently, but not considered at the time when the Kyoto Protocol was signed, is the recognition that national emissions reduction commitments have little effect in a global economy that is driven by intensive competition and is organized around trans-national corporations and international production networks. Furthermore, the North-South divide proved to be much more divisive than was anticipated and the emergence on the world economic scene of, in particular China and India - has re-kindled the debate on "who is to blame, and who is to pay". That development and environment concerns are closely related is no longer in question, but how to deal with the reality of the global market place and the urgent problems associated with climate change remain a major issue of debate.

Keywords: Kyoto Protocol, GHG reduction, Global economy, North-South conflict

Jonathan P. Schroeder, Middlebury College. Email: js@middlebury.edu; Constructing Time Series of U.S. Census Tract Data to Analyze Long-Term Urban Population Trends

Historical U.S. census tract data have recently become available in a standardized digital format through the National Historical Geographic Information System (NHGIS), which provides not only summary statistics but also boundary data for historical tracts. We can now therefore easily obtain census tract data for many U.S. cities from multiple censuses stretching back to 1910 and then map and analyze these data using GIS and statistical software. There remain, however, several significant complications that we must address in order to study long-term trends in census tract data within and among multiple urban areas. This paper summarizes the major complications that arise because of two general problems? tract boundary changes and tract coverage inconsistencies? and then identifies and assesses options we have for addressing the complications. To link data through time where tract boundaries have changed, we can use areal interpolation to estimate the populations of one year's census tracts at the time of other censuses. I present a novel, relatively simple method of areal interpolation?cascading density weighting? which is uniquely appropriate for constructing time series. I then present results from an analysis of a census tract time series, exploring how long-term population trends have varied within and among major U.S. urban areas.

Keywords: population, census, interpolation, temporal, nhgis, historical gis

Kurt A. Schroeder, Plymouth State University. Email: kschroed@plymouth.edu; *Strategy and tactics in the Vietnam War, 1964-1975*

The Vietnam War (1964-1975) was a remarkable conflict with a remarkable military geography. The Vietnam War resembled the conflict which preceded it, the French War in Indochina (1946-1954), and not only because it involved war in the same nation. Both conflicts were characterized by poorly-defined theater boundaries. Both conflicts were poorly insulated from larger geo-political considerations. Just as the Tonkin Delta region was critical to French and Vietnamese strategy in the first war, the more developed areas of the Republic of Vietnam were the key to the later conflict. The North Vietnamese military leadership still demonstrated a lack of comprehension of the geographic flexibility and importance of naval power, and especially the effects of riverine craft. They also still failed to grasp the potential of the American and South Vietnamese air power and artillery. Regardless of these failings, the North Vietnamese and Viet Cong forces prevailed in the end. The poorly-defined theater boundaries, geographic sanctuaries allowed them by the United States, and an inconsistently applied air strategy all helped them to recover from the mistakes noted above. The lack of a unified command structure led to the fragmentation of strategies and tactics used by the armed forces of the United States, the Republic of Vietnam, and their allies. Ultimately, the North Vietnamese and their allies in the South were able to use one of the basic characteristics of revolutionary war, its protraction, against the limited war aims of the United States to create the conditions for their victory.

Keywords: Vietnam, Vietnam War, military geography

Richard A. Schroeder, Rutgers University. Email: rschroed@rci.rutgers.edu; *Tiffany's, Terrorists and Tanzanite: Constructing "Ethical" Routes to Market for Tanzania's National Gem*

In the aftermath of the 9/11 attacks in the United States in 2001, the Wall Street Journal published an account alleging that Tanzania's unique deposits of blue zoicyte, the precious gemstone more commonly known as tanzanite, were being used by Al Qaeda to launder funds used to support terrorism. Tiffany's and other major jewelry retailers quickly halted tanzanite sales in the US, which comprises 70% of the world market. While the alleged terrorist connections were eventually disavowed by the US State Department, the retailers refused to resume sales until steps were taken to construct an "ethical" route to market for the striking blue gems. This paper analyzes several different constructions of mining and gemstone marketing ethics that have surfaced in efforts to "sanitize" the tanzanite commodity chain. Data sources include the so-called "Tucson protocol," a detailed plan to secure the tanzanite market developed in response to the Wall Street Journal article at the annual meeting of the International Gemstone Trading Association in Tucson, Arizona in 2002; the "conflict diamond"-influenced marketing strategy of the South African-run mining firm which controls the core of the tanzanite deposit; the political and moral claims of activists representing thousands of small-scale artisanal miners whose mines ring the corporate holding; and repeated allegations of child labor violations in the small-scale mines most recently publicized in a film produced by international human rights monitors.

Keywords: mining, fair trade, commodity chain, resource access, child labor, Tanzania, South Africa

Dirk Schubert, HafenCity Universität Hamburg - C/o TU Hamburg-Harburg. Email: d.schubert@tu-harburg.de; *A new Cycle of Urban Waterfront Transformation?*

This paper focuses on projects of the new cycle of waterfront transformation and retransformation on a regional scale. Case studies of three European port cities (London, Barcelona, Rotterdam) will be presented and evaluated in a broader framework of urban and regional redevelopment and restructuring. Meanwhile much experience in transforming central urban waterfronts has been gained. But the targets of the projects are not adequately defined and it is not clear what the indicators are for best practice and success stories. Often this kind of project-based "research" is done with local studies merely comparing the situation before and after revitalisation. It is not just a matter of architectural design, but of a complex set of planning, institutional, political, client related, economical, ecological, governance, legal and financial issues. Generally, transformation began in the oldest parts of the port and the city, slowly moving to more peripheral areas which were developed later. Often this was done in a step-by-step approach, beginning with the most attractive sites, but not integrating these developments into a sustainable urban or regional development strategy. The thesis of this paper - to define this process as a new cycle? must be looked at in comparative studies, while complex problems at the macro, meso and micro levels need to be reflected. In the context of stronger competition between seaports and the challenges of globalisation, waterfront transformation is integrated into a city-wide and regional perspective of research.

Keywords: Waterfront transformation, London, Barcelona, Rotterdam

Janis L Schubert, University of Texas at Dallas. Email: janis.schubert@comcast.net; Kevin M Curtin, University of Texas at Dallas. Email: curtin@utdallas.edu; *Assignment of hazardous materials risk to transportation networks: A GIS methodology*

The danger inherent in the transport of hazardous materials through populated areas is an important public safety issue. In order to determine appropriate routes for hazardous materials, the risk of transporting the material must be determined, these values must be associated with the transportation network, and a routing analysis must be performed based on that network. We present an integrated Geographic Information Systems (GIS) method that incorporates linear referencing techniques with risk weighting and routing to determine the relative risk values of alternative hazardous materials routes.

Keywords: gis, risk, hazard, hazmat, network

Nina Schuldt, University of Marburg. Email: nina.schuldt@web.de; Harald Bathelt, University of Toronto. Email: harald.bathelt@utoronto.ca; *Temporary face-to-face contact and the ecology of global buzz*

International congresses and trade fairs bring together agents from all over the world and create temporary spaces of presentation and interaction. They have become important expressions of new geographies of circulation through which knowledge can be created and exchanged at a distance. These events produce a rich ecology of information flows about the dynamics of global production chains within a specific institutional setting, referred to as "global buzz". This buzz allows agents to act as both recipients and broadcasters of information and knowledge flows from and to other agents, respectively. Participants not only acquire knowledge in having face-to-face communication with other agents, information is also carried by observing and systematically monitoring other exhibitors and visitors. The fact that firms do not necessarily have to be in direct contact with a specific source of information makes participation in a trade fair so valuable. Since new information is constantly transmitted from one agent to another, it is repeatedly interpreted, evaluated and enriched with additional relevant information. The potential benefits of applying this knowledge become clearer as the trade fair evolves. Overall, "global buzz" and shared technological and organizational institutions support the reduction of uncertainties and help firms distinguish important from less important trends and information. This paper analyses the various aspects of "global buzz" and aims to dismantle the complexity of this phenomenon in a multidimensional way. The analysis draws from extensive empirical evidence collected during seven national and international trade fairs in Frankfurt/Main, Nürnberg and Hannover, Germany.

Keywords: International trade fairs, Global buzz, Temporary geographical proximity, Face-to-face contact, Knowledge creation, Knowledge dissemination

Rich Schultz, Elmhurst College. Email: richs@elmhurst.edu; *Demonstrating a Problem-Based Learning (PBL) Approach to Teaching Spatial Concepts*

One approach that may be successful in teaching with GIS in order to promote spatial awareness is problem based learning (PBL). In problem based learning, teachers and students integrate concepts and skills from one or more disciplines to investigate a problem (Jones, Rasmussen, and Moffitt 1997). Problem based learning with spatial concepts requires that teachers structure their teaching around a series of challenging and practical "problems". Problems are used to frame, focus, organize, and stimulate learning and align with Fink's (1999) Active Learning Model. Students, working alone or in small groups, constructed based on learning styles, investigate these problems using a variety of research tools and technologies, particularly GIS. A case study of an introductory GIS course is described in which it was transformed from a technology-laden course to an active learning experience. The preliminary results show that this kind of instruction on spatial problem solving, previously unknown (Bednarz, 1999) is an effective and enjoyable experience for students and underscores geospatial learning in an active learning environment.

Keywords: Problem-Based Learning (PBL), Geospatial concepts, GIS, Active Learning

Nadine Schuurman, Simon Fraser University. Email: nadine@sfu.ca; *Defining rational hospital catchments for non-urban areas based on travel-time*

The sustainability of a publicly funded universal healthcare system has become an increasing preoccupation of federal and provincial governments in Canada. In most provinces the rising cost of healthcare delivery has led to reform and restructuring to contain costs. Attempts at cost containment typically involve rationalizing healthcare service delivery through centralization of services to achieve economies of scale. As hospitals comprise the largest budgetary component of the public healthcare system they have been the chosen site of cost containment and rationalization. Socio-demographic and geographic characteristics make hospital service allocation more difficult in rural and remote

regions. This research presents a methodology to model rational catchments or service areas around rural hospitals - based on travel time. The tool permits modelling of alternate scenarios in which access to different baskets of services (e.g. rural maternity care or ICU) are assessed. In addition, estimates of the percentage of population that are served ? or not served ? within specified travel times are calculated. The modelling tool described is potentially valuable to policy makers and health services allocation specialists.

Keywords: GIS, catchments, medical geography, modelling

Barbara L. Schwab, Wilfrid Laurier University. Email: blschwab@shaw.ca; Barry Boots, Wilfrid Laurier University. Email: bboots@wlu.ca; Gordon B. Stenhouse, Foothills Model Forest. Email: gordon.stenhouse@gov.ab.ca; Conceptual approaches for modeling consecutive GPS data - grizzly bear movement in space and time

Satellite telemetry or global positioning systems (GPS) - based wildlife studies have allowed for considerable research advances regarding the modeling of animal movements. For grizzly bears, the process of movement is continuous in nature, yet GPS radio-collar data is recorded at discrete time intervals providing static information in two-dimensional (x, y) space. As such, researchers are left with the difficult problem of how to model or simulate a spatially continuous process based on discrete physical locations. Conceptually, moving point data can be modeled using three primary approaches: 1) as point data representing locations on the landscape, 2) as vector data representing linkages between consecutive locations, or 3) as a continuous grid or density surface representing simulated movement across landscapes. While spatial statistics, specifically point pattern analysis (PPA), have furthered our understanding of spatial patterns associated with point distributions, the spatial modeling of consecutive point data has remained limited in scope, primarily dealing with simple movement rates, direction and path delineation. As such, we explored the utility of vector and grid-based models for visualizing and quantifying spatial movement patterns between known GPS locations. Both models provided a visual approach for exploring the spatial scale and patterns related to movement. However, we found that vector-based movement trajectories best demonstrated differences between travel and potential habitat use. More research is needed to understand how spatial movement patterns are influenced by underlying landscape characteristics.

Keywords: GPS data, modeling, movement, grizzly bears, data representation

Tim Schwanen, Utrecht University. Email: T.Schwanen@geo.uu.nl; Toward Situated Quantitative Geographies of Mobility and Everyday Life

Geographical research about everyday mobility has recently been diversified now that not only spatial-analytical but also social/cultural geography has turned toward this theme. Despite partially overlapping research foci and potential complementarities, there is as yet limited interaction and communication between these two research traditions, which at least to some extent reflects important differences in epistemology and methodology. This paper seeks to connect insights and notions from these two approaches, among others by drawing on recent attempts to advance the methodologies of 'new' economic geographies and quantitatively-oriented feminist-geographical mobility studies. A processual and hermeneutical approach to theory and methodology is proposed, which comprises multiple rounds of abstraction, deconstruction, borrowing and reinterpreting notions from diverse theoretical and methodological traditions. The approach is illustrated through a research project of how parents in dual-worker parents negotiate time constraints stemming from the need to combine work and domestic responsibilities separated in space-time, that combines multiple theoretical sources and mixes qualitative and quantitative methods. The result is a form of quantitative analysis that is more reflexive and better grounded in everyday practices than conventional spatial-analytical mobility studies.

Keywords: methodology; epistemology; mobility studies

Lee R. Schwartz, U.S. Department of State. Email: schwartzLR@state.gov; Documenting Atrocities: Geographic Information Support for War Crimes Analysis

Atrocities, crimes against humanity, and war crimes occur under chaotic conditions where belligerents often come together with noncombatants, aid workers, journalists, and peacekeepers. Yet there is agreed-upon methodology for each of these distinctive groups to capture systematically - and protect appropriately - the types of information and data that can be used to identify, locate, and document atrocities and eventually provide evidence to bring accused war criminals to justice. Geographic information systems and remote sensing analysis offer what would appear to be obvious tools for capturing incident data across time and space. Nevertheless, opportunities are too often lost because those on the ground at the outset of a crisis do not have the means, the training, or the mandate to apply such tools or comprehensive rigor to their data collection efforts, being concerned primarily with protection and advocacy priorities. This paper argues that the use of coordinated GIS data collection and compilation by groups involved in immediate complex emergency response efforts would greatly

assist investigators and prosecutors in building cases against both indicted war criminals and regimes accused of genocide. Examples of the effective use of geospatial methodologies in support of war crimes analysis will be selected from the Balkans, Sudan, Rwanda, and Iraq.

Keywords: war crimes, gis, human rights

Leigh Schwartz, University of Texas at Austin. Email: leighs@mail.utexas.edu; Othering Across Time and Place in the Suikoden Video Game Series

As geographers begin investigating the imaginative geographies of media spaces, attention is drawn to the landscapes of interactive media. The virtual environments of video games continue to grow in complexity and use, and questions remain as to the experience of the users of the designed environments. Focusing specifically on messages and metaphors in written representations, this paper investigates the changing experience of gamers through time and place by examining the Suikoden fantasy series. Beginning with the adaptation of the Chinese classic Shui Hu Zhuan into Suikoden in 1996, continuing to the release of Suikoden V ten years later, the virtual environments of the Suikoden series are embedded with mythological and cultural messages about self and other. This paper utilizes visual and textual analysis to examine these changing representations over time and place in terms of the experience of these ideological messages by the players of this series.

Keywords: media, othering, virtual, cyberspace

Mark D. Schwartz, University Of Wisconsin - Milwaukee. Email: mds@uwm.edu; Liang Liang, University of Wisconsin - Milwaukee. Email: lliang@uwm.edu; Applications of Spatially Concentrated Phenological Measurements

The timing of tree leaf flush and subsequent expansion during spring, which is highly sensitive to climate change, in turn has a profound impact on lower atmospheric energy-mass exchange through differential carbon assimilation and transpiration totals across the landscape. Thus, phenological data collected in a spatially explicit manner offer considerable opportunities for gauging landscape-level variations crucial for accurate scaling-up of flux measurements to larger areas or downscaling regional-scale atmospheric circulation models. In this project, spring tree leaf phenological data from a spatially intensive sampling area (216 trees, 250m x 600m area) located in a mixed forest of northern Wisconsin will be recorded during several annual field campaigns. These data, together with concurrently collected microclimatic, soil, terrain, and biotic information, will be analyzed and characterized with spatial association methods and spatial regression models across the landscape, and compared to MODIS-scale (250m) remote sensing data. The nature of phenological variability in space and time has not been previously recorded over a large area and combined with supporting measurements to assess its impact on plant processes, especially water flux, and the subsequent impact of these changes on lower atmospheric characteristics. This paper will report results from the first (2006) field campaign, which include: 1) phenological events can vary by up to 27 days among the same species, but the primary cause of this variation appears to be non-environmental; and 2) while air temperature is a good overall predictor of spring phenological development, other factors appear more important in explaining differences between sites.

Keywords: phenology, spring, climate, remote sensing

Sarah E. Schwartz, University of South Carolina. Email: sarahelizabetschwartz@gmail.com; Selling Uniqueness and Authenticity in Columbia, South Carolina: Bohemian and World Market

Based on the descriptions appearing on their respective websites, one might anticipate similar shopping experiences from Bohemian, a boutique operating in Columbia, SC, and World Market, a chain with nearly 300 locations across the United States. However, while the stores sell a similar array of what they describe as "uncommon" products, the shopping experiences they offer are in fact markedly different. This paper uses a series of comparative images of the two stores to explore how locations, layouts, product descriptions and product displays can intersect to create distinct consumer experiences and impressions in stores that carry similar items. The paper pays particular attention to the ways in which display tactics and the use of place names in product descriptions may (or may not) signify uniqueness and authenticity. Further, the paper compares and contrasts product arrangements at Bohemian and World Market with arrangements of similar products in sub-Saharan Africa.

Keywords: cultural economy, South Carolina

Allen J. Scott, University of California - Los Angeles. Email: ajscott@ucla.edu; *Capitalism and Urbanization in a New Key? The Cognitive-Cultural Dimension*

Different regimes of capitalist accumulation engender different forms and logics of urbanization. The cognitive-cultural dimensions of contemporary capitalism are identified by reference to its leading sectors, basic technologies, labor relations systems, and market structures. Cognitive-cultural systems of production and work come to ground preeminently in large city-regions. This state of affairs is manifest in the diverse clusters of high-technology sectors, service functions, neo-artisanal manufacturing activities, and cultural-products industries that are commonly found in these regions. It is also manifest in the formation of a broad stratum of high-skill cognitive-cultural employees in urban areas. Many of these employees are engaged in distinctive forms of work-based learning, creativity, and innovation. At the same time, the cognitive-cultural economy in contemporary cities is invariably complemented by large numbers of low-wage, low-skill jobs. The ideological-cum-political ramifications of this situation are subject to analysis in the context of a critique of the currently fashionable idea of the "creative city." I advance the claim that we need to go beyond advocacies about local economic development that prescribe the deployment of packages of selected amenities as a way of attracting elite workers into given urban areas. Instead, I propose that policy-makers need to pay more attention to the dynamics of the cognitive-cultural production system as such, and that in the interests of shaping viable urban communities in contemporary capitalism we must be more resolute in attempts to rebuild social solidarity, sociability, and democratic participation.

Keywords: Capitalism, Cognitive economy, Creative cities, Cultural economy, Local economic development, Urbanization

Christopher Scott, University of Arizona. Email: cascott@email.arizona.edu; Francisco Flores-Lopez, Cornell University. Email: ff35@cornell.edu; Jesus R. Gastelum, University of Arizona. Email: jeragape@hotmail.com; *Appropriation of Río San Juan Water by Monterrey City, Mexico: Implications for Agriculture, the Environment, and Basin Water Sharing*

Monterrey's growth has resulted in water transfers from the Río San Juan basin with significant impacts for downstream water users, especially farmers in the Bajo Río San Juan (BRSJ) irrigation district. El Cuchillo dam is the centerpiece of the basin's water management infrastructure and has become the flashpoint of a multi-faceted water dispute between Nuevo León and Tamaulipas states as well as between urban and agricultural water interests in the basin. Compensation arrangements for farmers have been established, including crop loss payments on the order of US\$ 100 per hectare un-irrigable due to the diversion of water to Monterrey plus 60% of the water diverted to be returned to farmers as treated effluent, a process with its own water competition and environmental implications. The Mexican irrigation sector will continue to face intense competition for water given: a) low water productivity in agriculture, b) priority accorded to the domestic use component of municipal water supply coupled with expanding influence of urban water interests resulting from Mexico's water management decentralization, and in the BRSJ case c) the irrigation district's spatial and political "sandwiching" between Monterrey upstream and the United States downstream. Because the San Juan is a tributary to the Río Grande/ Bravo, outflow from the basin must contribute to Mexico's obligations to the water sharing treaty with the United States. This paper documents the Río San Juan water transfer process, whether compensation arrangements have been followed, the fate and environmental implications of wastewater flows, and broader irrigation-urban water dispute mediation.

Keywords: water, conflict, cooperation, river basins, urbanization, irrigation

Damon Scott, University of Texas. Email: dscott@mail.utexas.edu; *Sexual Politics and the Remaking San Francisco's Central Waterfront*

In 1958, San Franciscans got their first glimpse of city leaders' plans for modernizing the urban landscape with the opening of the double-decked Embarcadero Freeway. The first segment to be completed of a much more extensive system of freeways, this waterfront section brought cars from the Bay Bridge into the heart of downtown. The landing spot of its terminal ramps was in the center of one of the city's highest priority urban renewal projects—a nearly eighty acre section of light industrial and warehouse buildings oriented toward the waterfront and blocking the expansion of downtown office space. The freeway stood as an eyesore at the foot of Market Street and severed the downtown from the waterfront Ferry Building—once the primary gateway into peninsular city. Over the next several years, the transformation of the waterfront, however, had affects beyond aesthetic considerations. It significantly rearranged the sexual geography of city. An initial period of disinvestment and neglect corresponded with the proliferation of increasingly visible forms of gender and sexual transgression in the area. As construction of new modern residential and office towers and parking facilities neared completion, the police and city leaders

aggressively targeted and successfully eliminated a number of gay and lesbian-oriented establishments in the area. These events show how urban redevelopment both created opportunities for and incited retribution against same-sex social and political organizing in the city. This reading suggests a more complex assessment of the political culture of the city than its reputation for social tolerance implies.

Keywords: sexuality, waterfront redevelopment, urban renewal, historical geography

Dorris Scott, Kent State University. Email: dscott7@kent.edu; *No Space for Children: The Falling Birthrate And How It Relates To Women And Space In Japanese Society*

It is widely known that Japan's total fertility rate is falling every year. In the 1970s, Japan's fertility rate fell below 2.1 births per woman, the number of births required to maintain the population at its current size. There have been initiatives in the past to promote a pro-natal policy and equal employment, but the problem is that they are not enforced, not stringent enough to cause any change, or reinforce the status quo. I will discuss the spatial constructions that arose from government policy, which are main contributors to the falling birthrate. I will first examine social, economic, and cultural factors in the in the post-World War II period. I will then go on to explore the effects of the urban sprawl that occurred after World War II. Finally, I will explore how the Japanese government has limited women's space by reviewing the government policies to gender discrimination, solutions such as the two-track employment system and Japan's pro-natal policies.

Keywords: Japan, women, population

James Wesley Scott, Leibniz-Institute for Regional Development and Structural Planning. Email: jscott4636@aol.com; *Wider Europe Seen From the "Margins": Regional Transformations at the EU's External Borders*

Cross-border co-operation (CBC) at the EU's external borders will be increasingly dominated by attempts to negotiate a new quality of political community between the EU and its regional "neighbourhood". The principal instrument available for this purpose is the European Neighbourhood Programme (ENP) within which CBC ostensibly enjoys priority status. However, research carried out at the EU's external boundaries reveals numerous contradictions between security, identity and regional cooperation discourses and hence between policies of inclusion and exclusion. These contradictions manifest themselves at several different levels (European, national, local) and affect perceptions of both borders and cross-border cooperation. It also remains uncertain whether ENP will provide a sufficient opportunity structure for creating dense regional interdependencies across EU borders. Present policies, whether designed by the EU or by national governments, appear to show little consideration for border region interests. This paper will therefore discuss how the notion of a "European Neighbourhood" is being both perceived and translated at the EU'S external borders. Focusing on border regions, I will illustrate how both border confirming and border transcending attitudes and practices might contribute to an emergent sense of cross-border neighbourhood.

Keywords: Borders, border regions, crossborder cooperation, Europe

Kevin Scott, Pole To Pole Leadership Institute. Email: amanda@poletopoleleadership.com; *Pole to Pole Leadership: A Journey for Sustainable Development*

Starting in North Pole, an international team of young adults will embark on one of the most arduous and ambitious human-powered journeys ever undertaken on the planet. The Pole to Pole Journey 2 Expedition begins April 2007 and will be undertaken by two international teams of twelve young adults from countries around the globe. This never before attempted epic journey will start at the North Pole and travel south 35,000 kilometers over eighteen months by ski, foot, sail, bicycle, canoe and kayak to Antarctica. Along the route the Pole to Pole Expedition Teams will join Pole to Pole Advance Teams who will be working with local organizations on issues such as support for AIDS orphans, climate change, poverty in Africa, wildlife habitat protection, and other critical social, economic and environmental issues of our time. They will visit schools, colleges and community groups providing inspiration and leadership training to encourage youth to go out and make a positive difference in their communities. This presentation and training work will be augmented by Pole to Pole Education Teams who will travel Europe and North America presenting the inspirational Pole to Pole story and leadership training. Pole to Pole is partnering with the MyCOE program to link geographic and sustainable development experts with the activities underway. The attention of the world will be focused on this journey to generate world-wide awareness and support for the environmental, social and economic issues that local youth are addressing.

Keywords: sustainable development, education, climate change

Mark James Scott, University College Dublin. Email: mark.scott@ucd.ie; Paula Russell, University College Dublin. Email: paula.russell@ucd.ie; Declan Redmond, University College Dublin. Email: declan.redmond@ucd.ie; Alistair Fraser, University College Dublin. Email: alistair.fraser@ucd.ie; *Politics of the rural: civil society and the contested countryside in Ireland*

This paper seeks to explore the significant growth in civic engagement and activity surrounding the issue of new development in rural areas, drawing on recent experiences in Ireland. In particular, the paper will investigate the contested views of the countryside that underpin this activism and that are used to frame the debates on new development in rural areas. In particular, the paper will focus on the issue of accommodating new housing in the countryside, which in recent years has witnessed widespread civil society activism in support for rural housing development. This has developed from initial defence of individual's rights to build in local areas, to a groundswell of public support and a growing national movement. The paper argues that this 'rural housing movement' represents a form of active citizenship and development of civil society which has actively opposed the local and centre state. This movement is not merely a lobby group but represents, at least in part, a radically different understanding of the rural as compared to the local and central state and environmental groups. The paper provides an overview of the rural housing movement at a national level, before undertaking in-depth local case studies of activity and engagement in rural areas. Finally, conclusions are developed to identify wider lessons from the production of new rural social movements in the context of contested ruralities.

Keywords: Rurality, civil society, Ireland

Sam Scott, University of Sheffield. Email: s.scott@sheffield.ac.uk; Katie Walsh, University of Sussex. Email: Katie.Walsh@sussex.ac.uk; *Embodying White Migrants: An Exploratory Review*

This review paper explores the complex relationship between whiteness and migration by first mapping the extant literature, and then exploring the value of whiteness in terms of our own research into British 'expatriates' (in Paris and Dubai). Interest in 'white migration' has grown over recent years and we believe that now is an appropriate time to reflect on how whiteness has been examined by scholars, both explicitly and implicitly. A number of core issues stand out as pertinent when considering the pathways, networks, lifestyles and identities of white migrant groups. These include: the embodiment of white migrants in different national, local and transnational settings; the applicability of traditional theoretical and conceptual approaches for 'non traditional' white migrant groups; the importance of dominant migrant/ minority stereotypes in migration research; the complex relationship between whiteness, class, gender, nationality and life-stage; and, in light of this complexity, the value of 'whiteness' as an approach for guiding future migration research. To develop these issues, we will first map the existing literature and identify six areas of white migrant research: (1) 'western' mobile professionals in global cities; (2) internal EU mobility; (3) diasporic belonging; (4) migration policy; (5) minority politics; (6) colonial-settler migration. All of these literatures intersect with notions of whiteness in different ways and to differing degrees, but only some explicitly recognise this. Following our review, we then reflect on the value of critical studies of whiteness in terms of both our own research and for future studies of white migrants more generally.

Keywords: International Migration, Identity, Whiteness

Peter Scull, Colgate University. Email: pscull@mail.colgate.edu; Jennifer A Miller, West Virginia University. Email: Jennifer.Miller@mail.wvu.edu; *Using geographically weighted regression to study continental scale soil landscape variability*

The factor model of soil formation has been a dominant paradigm in soil geography for over 60 years. The model states that soil character is a function of five different factors: climate, organisms, relief, parent material, and time (Jenny, 1941). While conceptually sound, in practice the model is difficult to use because of the lack of independence among factors. Jenny recognized this and suggested that soils be studied along different factor sequences (e.g. toposquence, lithosequence, etc.) where only one of the five factors would be allowed to vary. The study of soil sequences, very much active today, has led to many valuable insights. Since it is difficult to find soil sequences that span the entire range of global factor variability the paradigm has made studying soils in the context of global change difficult. In addition, soil datasets covering large geographic areas have been slow to accumulate. The purpose of this research is to move away from soil sequences and investigate what kinds of insight can be derived from working with new statistical methods and a massive soil database. While there is no control for the five soil forming factors in the database, we believe we can put that multi-dimensional variation to work for us using geographically weighted regression models (GWR). GWR allows model coefficients to vary spatially, taking advantage of the likely nonstationarity that would obviate the use of more

traditional regression methods and enable us to begin to unravel some of the processes that control continental scale soil formation.

Keywords: Soil formation, geographically weighted regression, continental scale

William Todd Sealy. Email: wtsealy@una.edu; Michael Pretes, PhD, University of North Alabama. Email: mjpretet@una.edu; *Is There a Beer Terroir?*

Terroir is a French term that recognizes the geography of place in wine production. The concept of terroir relates directly to the physical geography of wine production but also implies the labor and history behind the vineyard. Physical geography is unique to a particular wine's production, so that even if the process of vinification were copied in a different location the quality would not be replicated. There is an ongoing discussion in the beer community concerning whether the concept of terroir can be applied to beer. This study will investigate whether the geographic concept of terroir can be applied to beer. Terroir will be tested by examining ingredients used in artisanal beers, brewing locations, and geographical aspects of ingredients (e.g., water mineral content). Standard tasting terms derived from internet and industry journal sources will be used to assess taste differences. Our conclusions suggest that many artisanal beers reflect their distinctive geographic locations and that the concept of terroir can be applied to beer.

Keywords: beer, terroir, wine, cultural geography

Anna J Secor, PhD, University of Kentucky. Email: ajseco2@uky.edu; *Violence, Desire, and the Aporia of Justice*

Keywords: geopolitics, state, law

Jorn Seemann, Jorn Seemann, Louisiana State University. Email: jseema4@lsu.edu; *Revisiting the Cartography of Reality: A cultural geographer's mapping impressions from Northeastern Brazil*

Despite a metaphorical use of cartographic terms like "maps", "mappings" and "cartographies" in cultural geography, maps are still widely overlooked in the cultural geographer's research practice and craftsmanship. The predominant image of cartography as an objective, neutral and precise science prevents many geographers from mapping the ambiguous and polyphonic nature of cultural phenomena and ideas that cannot be described in mathematical terms and in accordance to laws and models. Based on Denis Wood's humanistic approach to cartography from the late 1970s, I will present non-Cartesian representations of space in different scales drawn by school teachers and students from Northeastern Brazil. Rooted in human experience, these mental maps and spatial drawings must be considered valid sources of information for qualitative research. As cultural constructions, they reveal how people think, perceive and represent space and place and serve as a medium to express and communicate attitudes, concerns, values and emotions that cannot be transmitted through texts. This humanistic approach includes the cultural geographer in the mapping process and permits different perspectives and views of how human beings produce space and create "geographies".

Keywords: Humanistic Cartography, mappings in cultural geography, non-Cartesian maps, Northeastern Brazil

Anne-Marie Seguin, INRS-UCS. Email: anne-marie.seguin@ucs.inrs.ca; Philippe Apparicio, INRS-UCS (University of Quebec). Email: philippe.apparicio@ucs.inrs.ca; *Are residents of poor neighbourhoods in Montreal suffering of a bad accessibility to public and private services and facilities?*

The literature about neighbourhood effects has identified the lack of public and private services and facilities in the poor neighbourhoods as a factor of exacerbation and reproduction of poverty in the US metropolises. Is Montreal, as a middle size Canadian metropolis, experiencing a similar pattern? Is the spatial accessibility of services and facilities much better in middle or upper classes than in poor neighbourhoods? Our research explores the relation between concentration of low income population and accessibility to urban services and facilities grouped into several main categories (cultural, health, educational, sport, recreational and banking facilities and services). From the methodological point of view, our study is based on GIS for calculating accessibility measures and on multivariate analysis for constructing an accessibility indicator. Our results reveal that Montreal shows a clearly different pattern. The final results demonstrate that neighbourhoods of poverty have a better accessibility than neighbourhoods inhabited by better-off population. We interpret these results as partly an outcome of the architecture of our welfare system which is financed and designed mainly by the Provincial Government, and by the fact that many costly municipal infrastructures are, partly at least, financed by the Provincial Government.

Keywords: poverty, low-income, spatial accessibility, GIS, Montreal

E. Clark Knighton Seipt, The Pennsylvania State University. Email: clark.seipt@gmail.com; William E. Easterling, Ph.D., The Pennsylvania State University. Email: billeasterling@psu.edu; *Understanding Argentine farmers' perceptions of the utility of seasonal climate forecasts*

The Argentine Pampas is one of the world's most productive agricultural regions. The region's sensitivity to El Niño-Southern Oscillation-driven climate variability and changing decadal precipitation trends support growing interest in farmers' use of seasonal climate forecasts in agricultural decision-making. While progress in climate prediction has provided skilled forecasts for the Pampas, lack of understanding of users' perceptions of climate forecasts hinders optimal forecast design. I contend that understanding these perceptions ? that is, how individuals evaluate forecasts and judge their utility in decision-making ? fosters increased compatibility between forecast design and user needs. Furthermore, I argue that features of place (i.e., crop-climate suitability) distinguish farmers' forecast preferences. I examine Argentine farmers' perceptions of seasonal precipitation forecasts. First, conjoint analysis evaluation exercises determine how farmers trade off forecasts' attributes (e.g., spatial resolution, lead-time) when judging their utility in on-farm management decisions. Regression analyses of farmers' responses provide individual and group utility functions that express attribute preference structures. Next, I ask what differences exist, if any, between farmers' trade-offs and preferences in Pergamino and Pilar, locales that represent a contrast between near-optimal versus relatively marginal agricultural conditions. I investigate and characterize observed differences, emphasizing important links between place and user needs. To conclude I discuss how the adaptation of forecast design to complement users' perceptions and needs encourages greater utility in future climate forecasts.

Keywords: climate forecasts-seasonal, forecast design, agricultural decision-making, Argentina, Pampas, conjoint analysis, perceptions, user needs

William A. Selby, Santa Monica College. Email: wselby@smc.edu; *Sustainable California?*

How are California communities, businesses, schools, and residents becoming more efficient? How is a state with such a fast growing population (more than 37 million) and economy (nearly 6th largest in the world) building more sustainable industries and neighborhoods? How is it possible to clean up the environment, improve living and working conditions, and grow the economy at the same time? Learn, share and discuss how many Californians are changing the ways they are living and doing business as they look ahead into new and promising 21st Century landscapes.

Keywords: sustainable, California, environment, economic geography, efficiency, resources

David Selkowitz, SAIC/United States Geological Survey. Email: dselkowitz@usgs.gov; *Developing the National Land Cover Database for Alaska: Challenges and Solutions for Statewide Land Cover Mapping*

The National Land Cover Database (NLCD) 2001 will provide a consistent 30 meter land cover classification based on circa 2001 Landsat imagery for the 50 U.S. states and Puerto Rico. For the state of Alaska, the NLCD 2001 product will be the first 30 meter statewide land cover classification and is slated for completion by 2008. Using 12 mapping zones, the NLCD mapping effort in Alaska has faced numerous challenges not typically encountered in other state or regional land cover mapping efforts. These challenges include high costs for collecting in situ training data, limited availability of prior land cover classifications and high resolution imagery, limited availability of cloud-free and snow-free Landsat imagery, and poor quality and limited availability of ancillary data. The standard mapping protocols developed for NLCD product generation in other states have been adapted to deal as effectively as possible with these limitations in Alaska. These adaptations will be explained and highlighted using land cover classifications that have been recently completed or are currently underway in mapping zones from three distinct physiognomic areas: the Yukon Flats (central interior Alaska), Cook Inlet (South Central Alaska), and Prince William Sound (Southeast Alaska). I SAIC, contractor to the US Geological Survey (USGS) Center for Earth Resources Observation and Science, Sioux Falls, SD. Work performed under USGS contract 03CRCN0001.

Keywords: land cover classification, remote sensing, Landsat, Alaska

Christian Sellar, University of North Carolina-Chapel Hill. Email: sellar@email.unc.edu; *European Continental integration at the level of firms and institutions: the case of Italian foreign investments in Central and Eastern Europe*

In the Eastern European landscapes, there are visible manifestations, such as factories with foreign names and ads of EU sponsored programs, of the material and financial fluxes that come along with the enlargement of the EU and the growing fluxes of foreign direct investments from Western to Eastern Europe. I argue that these economic aspects of European integration entail shifts in the perception of what the 'East' and the 'West' of Europe is by the relevant actors

involved in the public and private West European investments in Eastern Europe. Investors, local partners, representatives of local institutions have to work together and establish personal relationships as part of the investment process. As consequence of this, the perception of the 'other' people and lands changes along the lines of inclusion/exclusion, understanding of geography, power relations and hegemony. This paper analyses Italian foreign investments in the textile and clothing sector and the bilateral partnerships of Italian and East European institutions. It highlights the issues of hegemony - i.e. the assumption that the Italian technology and organization is the best in the textile and clothing industries ? changing in the perception of geography ? Eastern Europe shifts from being exotic and far to being familiar and close, ? the reciprocal evaluation of personal and professional skills between Italian and local partners, the relations of power within factories brought by investments. It demonstrates that both material/financial and imaginative fluxes are part and parcel of the process of establishing foreign direct investments and institutional partnerships.

Keywords: European Union enlargement, foreign direct investment

Sylvia Sellers-Garcia, University of California, Berkeley. Email: sylvi@berkeley.edu; *Spatial and Temporal Geographies of the Postal Service in Guatemala, 1770-1850*

This paper examines the temporal and physical geography of the Bourbon-era mail system in Guatemala (an area which today includes southern Mexico and all of Central America). Through an analysis of mail itineraries and charts, the paper explores late colonial conceptions of place and space. It traces a fundamental change in how terms quantifying physical distance were understood. Early uses of these terms incorporated a temporal element, while later uses increasingly quantified distance in physical terms only. Considering this shift in the context of the late-colonial mail system makes it possible to see both how communication and broader conceptions of space evolved in this period.

Keywords: Guatemala, Latin America, Mail, Eighteenth-Century, Nineteenth-Century

Donna Senese, University British Columbia Okanagan. Email: donna.senese@ubc.ca; *Introducing National Park Reserves into Rural Tourism Industries: Assessing the potentials for integrated, sustainable tourism in the South Okanagan and Lower Similkameen areas, British Columbia, Canada.*

There are relatively few places left in Canada where rural landscapes of scenic or ecological significance are not already exploited for tourism development. Proposals to establish national parks in Canada now encounter increased opportunity costs and a concurrent increase in local resistance. The impact of park establishment in economically undeveloped areas has been documented, while little is known of the impacts of new parks where tourism industries are established. This research examines the impacts of a proposed National Park Reserve in the South Okanagan Lower Similkameen area of British Columbia Canada. The objective of the research is to better understand how national parks network within local communities and how they impact regional tourism industries. Personal interviews were conducted with local tourism stakeholders, followed by a debriefing dialogue with community tourism partners. The interview and dialogue results were synthesized with a market assessment of the regional tourism network Results indicate that while tourism markets might be expanded and key tourism resources further protected, the addition of a national park would also place additional political pressures and infrastructure demands on rural communities that could make sustainable park and regional tourism difficult to maintain. Park establishment in developed tourism areas requires a model of national parks localized to community politics and inclusive of ecological protection and existing tourism networks.

Keywords: Tourism, National Parks, Sustainability, Rural Communities

Bongman Seo, Hitotsubashi University, Japan. Email: seob@econ.hit-u.ac.jp; *Geo-Political Economy of Russian Energy Policy and Regional Development of Sakhalin*

The paper examines the ways in which three multi-scalar conflicts over energy development projects has limited future prospects for the regional economic development of Sakhalin. The first conflict is over the ways in which the profit from the energy development projects has been shared between Russian federal government and Sakhalin state government. Under the current quasi-socialist regime, federal government has determined almost every detail of energy development projects, leaving local government without much control over current developments. Second, the tension between Russian federal government/capital and Western majors over the ownership in these energy development projects has also interfered with ongoing projects, well illustrated in the recent environmental controversy over Sakhalin II project. Despite their dependence on majors regarding various aspects of oil production and sales, Russian federal government and monopoly oil capital has tried to raise their share in these development projects against foreign capital. In a way, at the national level, Russia tries to re-territorialize the energy development while

furthering de-territorialization at the regional level. Last, I investigate the extent to which current forms of development in Sakhalin has generated economic opportunities for the Sakhalin residents, focusing the types of job opportunities and business opportunities that has become available through energy development plans. This paper argues that despite the massive inflow of foreign direct investment flows, domestic and international conflicts and de-territorialized forms of struggles has limited opportunities for Sakhalin regional economy.

Keywords: Russia, energy policy, regional development, Sakhalin

Jeong Chang Seong, University of West Georgia. Email: jseong@westga.edu; *Amazon or Nile? Issues on Distance Measurement with GIS*

Most GIS packages measure distances on the projected reference ellipsoids, which causes various accuracy problems. Possible error sources are irregular scale factors, measurements on ellipsoids, ill-defined geographic features and operator/measurement errors. In this research, I developed a GIS application (GEODISTZ) which allows users to measure distances directly with a shapefile in the geographic coordinates. Specifically, the application allows users to use elevations for measuring distances. The application was tested with the two longest rivers in the world — Amazon and Nile. Rivers and elevations were delineated with the SRTM and GLCF datasets.

Keywords: Distance, Ellipsoid, Geodesic, GIS, Amazon, Nile

Tatiana N. Serebriakova, Ph.D., University of Connecticut. Email: geography160@hotmail.com; *New Maps of Chernobyl Contamination in Belarus*

The explosion at the Chernobyl nuclear power plant in the northern Ukraine in 1986 caused the release of enormous quantities of radioisotopes that were dispersed heterogeneously throughout a large geographic area with Russia, Ukraine, and Belarus most affected among the republics of the Former Soviet Union. Belarus received 70% of the total fallout. The purpose of this research is to show a series of maps of external, internal, and total sources of radiation associated with the Chernobyl disaster in Belarus. These maps were created using Geographic Information Systems (GIS) and based on measurements of ground contamination and food contamination taken at 3,326 population settlements in 1991-1992. During this period, those population centers located on the territories with cesium-137 pollution densities were investigated by the Government of Belarus. In those settlements, 31,628 specimens of milk and 35,055 specimens of potatoes were selected for the determination of the concentration of radionuclides. These measurements were converted to an Annual Effective Equivalent Dose (AEED). Unlike the published map of contamination, which was based only on ground contamination by cesium, the new maps show Annual Effective Equivalent Dose from external (ground) and internal (food) sources. . Additionally, the difference map reveals regions of the country where radiation exposure from internal sources exceeded exposure from external sources. The southern rayons of Brest oblast were more affected by Chernobyl when radiation from internal sources is taken into account than it would appear from the published map of contamination

Keywords: Maps, Chernobyl, Belarus, Contamination, Annual Effective Equivalent Dose

Roberto J. Serralles, Serralles Environmental Technologies. Email: roberto@donq.com; *Energy in the Local Tense: Competitive Advantage through Energy Sustainability*

Energy costs are a significant component of most industrial manufacturing operations in the Caribbean. In order to achieve an economic advantage in an increasingly competitive and globalized market, industrial operations in this region have been forced to look at ways to minimize energy consumption and develop energy generation mechanisms that reduce waste and maximize energy utilization. As a result, waste-to-energy technologies and efficient cogeneration applications have significantly expanded in the region over the last decade. This paper explores how a rum distilling operation in Ponce, Puerto Rico has defined and implemented an aggressive energy sustainability program as part of its efforts to maximize the competitiveness of its industrial activities. Specifically, Destileria Serrallés, Inc has implemented a wastewater-to-energy facility that yields a significant amount (1000 scfm) of Biogas. This self-generated source of energy in turn fuels a Combined Heat and Power (CHP) system that produces essentially all the electricity and steam vapor required at the distillery. Although there are some tax incentives in place at the state level that facilitate the investment structure in this type of project, in Puerto Rico the impetus for energy sustainability in industrial operations emanates from a localized economic necessity to create competitive advantages and thus achieve long-term commercial sustainability.

Keywords: energy, sustainability, cogeneration, Puerto Rico

Nathan J. Sessoms, University of Southern California. Email: sessoms@usc.edu; *Landscapes of Inclusion and Exclusion: A Multi-Faceted Analysis of the Changing Geographies of Poverty and Affluence Concentration*

Long considered an 'urban' phenomenon, the face and topography of concentrated poverty have undergone significant changes over the past 15 years. In stark contrast to its dramatic increase during the 1970s and 1980s, recent research has highlighted its substantial decrease throughout the Midwestern and Southern regions of the United States, as well as its simultaneous emergence within inner-suburbs. Such findings portray concentrated poverty as a phenomenon that carries implications for not only urban areas, but entire regions as well. Meanwhile, in light of its predominant focus on the poor, their spatial distribution, and perceived behavioral tendencies, urban scholarship has rarely discussed the notion of affluence concentration. Therefore, little is known about this particular stratum. However, in light of new developments in the spatial distribution of concentrated poverty, numerous questions remain which warrant further consideration. Who are the affluent and where are affluent concentrations located? Most importantly, what are their behavioral responses to the 'suburbanization' of concentrated poverty? These and related questions, although foundational, remain critical to the development of a greater understanding of emerging conditions of economic polarization. Employing a mixed-methodology, this research investigates emerging trends in the spatial distribution of concentrated poverty and concentrated affluence. In doing so, it (1) investigates their changing metropolitan geographies; (2) examines the factors responsible; and (3) assesses the physical and social characteristics present within their local landscapes (Los Angeles County). These research tasks are expected to aid in validating the proposed hypothesis that an interdependent relationship exists between poverty and affluence concentration.

Keywords: Concentrated Poverty, Concentrated Affluence, Globalization, Urban Underclass, Mixed Methods

Anji Seth, PhD, University of Connecticut. Email: anji.seth@uconn.edu; Jeanne Thibeault, University of Connecticut. Email: ; Magali Garcia, PhD, Universidad Mayor de San Andres, La Paz, Bolivia. Email: ; *Climate Variability and Change in the Andean Highlands*

The Altiplano region of Bolivia and Peru is vulnerable to both climate variability and climate change. Its proximity to El Nino and the Southern Oscillation (ENSO) yields substantial changes in the critical rainy season from year-to-year. In addition the region depends substantially on snowpack and glacial meltwater for its water resources during the long dry season, which are diminishing rapidly due to greenhouse warming. As part of a larger study to understand change in market forces and climate which affect highland agriculture, this research explores recent and future climate variability and change in the region. The observed 20th century climate, its year-to-year variability, and long term trends are evaluated using global gridded datasets as well as station data. This is followed by evaluation of the global climate models employed in the Intergovernmental Panel on Climate Change (IPCC) Assessment Report Four (AR4) for the recent period. We also present preliminary analysis of the multi-model ensemble 21st century climate scenarios emphasizing changes in mean and variability of temperature and precipitation, and extremes.

Keywords: Andes, Altiplano, climate, climate change, climate models

Mona Seymour, University of Southern California. Email: monaseymour@hotmail.com; Jennifer Wolch, Ph.D., University of Southern California. Email: wolch@usc.edu; *Living in Harmony with nature*

Do new communities designed around environmental sustainability goals and progressive nature-society relations meet expectations? This paper uses the case of Harmony, FL, one of the newest 'conservation communities' in the U.S., to question whether and to what degree communities designed around environmental and coexistence ideals can actualize these objectives. Harmony is located within 11,000 acres of ecologically valuable swamplands, prairies, and forests, approximately 40 miles southeast of Orlando. Harmony's founders developed this community with two main nature-related goals in mind. First, the town was to embody ecologically sensitive development - for instance, 70% of the property is to remain undeveloped. Second, Harmony's founders believed in the health benefits of human interactions with animals and the outdoors, and created the town as an environment designed for humans, companion animals, and wildlife. This qualitative study uses ethnographic and interview data to look at the ways in which nature-oriented goals have and have not been articulated in the community's code and urban design, and how residents have responded. We conclude that despite some progressive urban design elements, the community missed important opportunities to enhance sustainability, and although the community covenants and restrictions embody an impressive set of ideals for nature-society relations, residents' awareness and adherence has been mixed. This study suggests that urban political ecologists and scholars of nature and society relations should focus on both issues of urban structure, design, and governance,

but also resident perceptions, attitudes, and behavior in communities ostensibly designed to promote ecological justice, coexistence, and sustainability.

Keywords: sustainability, coexistence, new community, animal, wildlife

J. Duncan Shaeffer, Arizona State University. Email: shaeffer@asu.edu; *Europe as Setting: Evoking Feelings of "Being There" Through the Genre of Espionage Fiction*

The spy novels of Eric Ambler, Alan Furst, and Graham Greene are illustrative of the critical role that fiction can play in forming senses of place and time. All three authors, while entertaining their readers with the actions of fictional spies and espionage-driven plots, make effective use of their European settings to elucidate strong senses of place and time and give their readers strong personal connections to the European landscape. Ambler, Furst, and Greene all regard their settings as crucial elements in their books (indeed the setting often IS the story) and readers frequently feel they are in Europe "at the scene" of the events. Because fictional literature is much more widely read than non-fiction, and that novels may be educational as well as entertaining, geographers need to be aware of these important sources for understanding the European landscape.

Keywords: Literature, Landscape, Europe

Michael Donald Shambaugh-Miller, Ph.D., University of Nebraska Medical Center. Email: mdmiller@unmc.edu; *Development of a Rural Typology GIS for Policy Makers*

There is no single, universal way to define rural. The definition that one selects will affect the way in which Federal legislation works. The definition of rural used should be driven by the objective you want to achieve to insure that the intended people, places and providers receive the desired benefits. Rural, including components within rural (remote, frontier, nonadjacent to urban) can be defined using one of several ways of thinking about geography: zip codes areas, counties, census tracts, population density, distance. Most geography used to define rural do not have common boundaries. Seemingly small differences in the definition of rural can produce dramatically different results in terms of who is affected by the policy. The application of definitions will sometimes drift from intent of authors because target populations were not carefully specified or because what seemed to be a reasonable definition in concept changes because the geography used in data construction is not the same as the geography in available data. Oftentimes a definition will produce consequences not anticipated by the authors because potential implications were not considered during the development or selection of the definition. To better understand the spatial aspects of the various definitions of rural and frontier a GIS was created so as to aid the researchers in addressing the impacts of the definitions upon Federal policy. Both the GIS construction, the differences in spatial and demographic attributes of the various definitions and further research potential for the GIS will be discussed.

Keywords: Rural, GIS, Healthcare, Policy

William E. Shanahan, III, Ph.D., Fort Hays State University. Email: wshanaha@fhsu.edu; *Settler Colonialism, "Peopleless Spaces," and Geography as Biopolitics*

This paper examines the historical and ongoing biopolitical extermination of indigenous peoples in North America. Giorgio Agamben argues that Auschwitz altered Foucault's modern biopolitical formula from "make live and let die" to "make live and make die." Actually, Agamben's apparent lack of familiarity with the native North American genocide engenders a vanishing point in his own work. In order to make certain European life live, colonialist, biopolitical authority first made indigenous life die. Specifically, Agamben describes Hitler's 1937 decision to formulate the "extreme biopolitical concept" of *volkloser Raum* or "a space empty of people." Biopolitical caesuras isolated zones of indigenous lives along the biological continuum and produced these peoples as demographic populations. As happened in Auschwitz, these indigenous populations eventually were produced as an "absolute biopolitical substance" that was known in Auschwitz as *Muselmänner* and in America as Indian. All of North America became a camp in which the status of various forms of Indian bare life was decided. Most were declared to be *homo sacer* and either killed with impunity or "resettled" in new camps called reservations. Only once the European settlers' biopolitical machine was established in this "determinate geographical space" could they transform Turtle Island into an "absolute biopolitical space." Sadly, the reservations themselves became desirable again for their mineral wealth and the biopolitical process continued unabated throughout the 20th century. Today, the sovereign imperative to produce more energy in order to make its citizenry live translates into "a process of increasing *Entwürdigung* and degradation" for native North America.

Keywords: biopolitics, Giorgio Agamben, native american genocide

Zongbo Shang, Wyoming Geographic Information Science Center (WyGISC), University of Wyoming. Email: zshang1@uwyo.edu; Leonard G Pearlstine, Fort Lauderdale Research and Education Center, University of Florida. Email: pearlstn@ufl.edu; Thomas S Hctor, GeoPlan Center, University of Florida. Email: thctor@ufl.edu; Michael Duever, South Florida Water Management District, Florida. Email: mduever@sfwmd.gov; *Use a GIS model to study black bears' habitat connectivity and roadkill risk in southwest Florida, U.S.A.*

Historically (1500's to 1900's), the Florida black bear (*Ursus americanus floridanus*) population has significantly declined due to habitat loss and over-hunting. After bear hunting closed statewide in 1994, Florida black bear populations were threatened by habitat fragmentation and an increasing number of roadkills. We developed Geographic Information System (GIS) models using C# and ESRI ArcEngine to study habitat connectivity and roadkill risk to black bear in southwest Florida. A recent land use and land cover map was used to classify the whole landscape into 5 types: primary habitat, secondary habitat, traversable matrix, open water and urban. A GIS model was developed to study habitat connectivity. Model outputs showed that a large proportion of the habitats have been lost to urban or agriculture. Only 37% of the whole landscape in southwest Florida is good habitat, among which 20% is well-connected primary habitats and 17% is well-connected secondary habitats suitable for bear population. We examined road maps (basemaps, median types, average annual daily traffic and speed limit) and habitat connectivity together to study bear roadkill risk. Results showed that high roadkill risk roads have some common features: 1) no barrier or fence, 2) high traffic speed (≥ 45 miles per hour), and 3) crossing well-connected primary and secondary habitats. A final map that showed the road segments with high roadkill risk was created and proposed to the state government, which will be considered for conservation efforts.

Keywords: GIS model, habitat connectivity, habitat fragmentation, roadkill, Florida black bear, *Ursus americanus floridanus*

David Shankman, University of Alabama. Email: shankman@bama.ua.edu; *Historic Flood Control Failure in China's Poyang Lake Region.*

Poyang Lake in Jiangxi Province is the largest lake in China and is historically a region of significant floods. During the past five centuries (1500-2006) Poyang Lake experienced 54 severe floods, which is about once every 9 years. These floods occurred with some regularity throughout the period, but with greater frequency since the 1950s. In 1596 there were 827 separate, unconnected levees in the province. As the population in Jiangxi increased, new levees were built or expanded to protect areas at the lake margins. Until the past few decades, levees were poorly designed and maintained, and during severe floods there were innumerable levee failures causing great hardship and many deaths. Levee construction during the past few decades greatly limited the area for floodwater storage resulting in more frequent severe floods. The 1998 flood had the highest water levels ever recorded. However, if rainfall patterns in the future match those that occurred during earlier severe floods, Poyang Lake would experience the most destructive flood ever recorded because of the smaller area available for floodwater storage.

Keywords: China, floods, levees, Poyang Lake

Sarah Shannon, Hesperian Foundation. Email: sarahs@hesperian.org; *People's Health Movement: Health and Organizing for Social Change*

From a grassroots perspective, health is completely integrated with issues of access to food, livelihood, decent housing, class, gender and ethnic discrimination, etc. This integrated approach is what motivates people to organize and provides the spark that allows health to be a powerful motor for organizing around a wide range of interconnected issues. The disconnect between that grassroots reality and the ways in which health is talked about, taught, and professionalized in the academy disempowers movements to improve health and change its social determinants. Health is transformed into what can fit into the concept of health care delivery. Health becomes an investigation of a specific disease or set of diseases. This narrowing undermines the possibility of an integrated approach to primary health care in theory, and in practice leads to a collection of vertical programs that focus on treating specific diseases. The integrative concept of primary health care, first codified in the Alma Ata declaration in 1978, has been watered down and weakened ever since as narrower programs and health focuses were adopted by WHO under the pressure of various funding mechanisms. We will discuss the experience of the transnational People's Health Movement over the past six years in trying to break out of the narrow confines of vertical programs and reinvigorate a global movement for primary health care. Academic practice that has supported, and opposed these aims will be discussed in the context of this popular organizing strategy and movement.

Keywords: primary health care, politics of health, political organizing

Yang Shao, UNC-Chapel Hill. Email: shao@email.unc.edu; *Characterizing the Spatial Pattern of Imperviousness for Bangkok, Thailand*

A sub-pixel classification is used to derive impervious surface from time-series Landsat TM/ETM images (1993-2002). The composition and spatial structure of imperviousness are characterized using landscape pattern metrics. The pattern indices are derived across a variety of spatial, directional, and temporal scales. The size, shape, and structure of impervious patches in Bangkok positioned along defined urban-rural transects provide an effective approach to understand the spatio-temporal dynamics of urban change and the dynamic nature of pattern-process relationships as part of the evolution of urban and rural landscapes. In addition, GIS data and socio-demographic data are used to model the spatial pattern of imperviousness. A set of geographic, biophysical and socio-demographic variables are derived in a GIS and used as predictor variables for a spatial-statistical model.

Keywords: Imperviousness, pattern metrics

Elizabeth N. Shapiro, Doctoral Candidate, University of California, Berkeley. Email: eshapiro@nature.berkeley.edu; *The Discourse of Value: Payment for Environmental Services in Mexico and Beyond*

Payment for environmental service programs, which attempt to create markets for the products of ecosystem function such as green house gas sequestration, biodiversity, and water quality and quantity, are currently being promoted and implemented worldwide by governments and international conservation organizations. This paper draws on an analysis of the international discourse surrounding payment for environmental services and field work in Mexico. It discusses three distinct narratives employed by the actors involved in payment for environmental services and how these narratives directly impact program design and implementation. The first of these narratives, employed by economists, natural scientists and international conservation organizations, represents payment for environmental services as a more efficient and effective conservation mechanism than traditional command and control regulation with little emphasis on social equity. The second narrative has been generated by NGOs and think tanks based in the global south and by international advocates of community-based conservation. It views payment for environmental services as societal recognition of the inherent value of traditional natural resource management practices and as a source of income to support those practices. The third narrative has been employed by critical academics and some rural social movements and warns that these programs may foster resource privatization and loss of access by the poor. The disparate focus and intent of these narratives reflect more profound disagreements about the ability of rural inhabitants to benefit from the commodification of open-access and common resources, the role of traditional rural livelihood strategies in development, and the human/nature divide.

Keywords: environment; environmental policy; Mexico; Latin America; discourse analysis; political ecology

Madhuri Sharma, Ohio State University. Email: sharma.113@osu.edu; Lawrence A Brown, Ohio State University. Email: brown.8@osu.edu; *Residential Mixing and Neighborhood Diversity: Examining Change in Columbus, OH*

This paper examines changes in tract level diversity and residential mixing for 1990 and 2000 in Columbus, Ohio. Columbus has seen relatively fast population growth (14.45%) from 1.345 m in 1990 to 1.54m in 2000. Share of minorities has changed from 15% (1990) to 20% (2000), a gain of 25%; and its diversity scores changed from 0.51(1990) to 0.65(2000). The share of Hispanics has shown largest growth by 180%, whereas those of Asians from 1.5% to 2.7%, an increase by 80%, and for African Americans from 12% to 14%, a gain of 16.7% only. Changing ethnic structure is no longer a large-city process, but has dispersed to mid-sized and smaller metros. In particular, this study examines tract level changes while computing and mapping Theil's Entropy (H) indices to examine patterns. It also employs cartographic and statistical analyses where Theil's Index serves as a dependent variable, and independent variables include MSA size and diversity score; proportion of the population that are foreign born, below poverty level, minorities, lived elsewhere in 1985 and 1995, are in managerial and professional occupations, and have achieved various education levels; median year built for houses, median housing value, median household income, and a new-housing construction index. This analysis enables us to determine the degree to which the variables explain variation of racial/ethnic mixing across neighborhoods. Data is obtained from the 1990 and 2000 Census of Population.

Keywords: Residential mixing, neighborhood analyses, MSAs, diversity score, Theil's Entropy Index, Census, etc.

Paul John Sharman, BA (Hons), PGCE, University of Exeter. Email: p.j.sharman@exeter.ac.uk; *A Passionate Land*

English national landscape is a passionate place. It is sacred. Belden Lane in *Landscapes of the Sacred* (2001) suggests sacred places choose, they are not chosen. English national landscape is a passionate reification birthing an unholy ghost, a secular spirit of place. This ecological and self-referential Genius loci generates passionate support for itself. Humberto Maturana and Francisco Varela in *Autopoiesis and Cognition: The Realization of the Living* (1980) suggest living units modify their environment in their own interest. In this paper I will consider how Exmoor as an ecological unity has become a national passion and how the Exmoor landscape sustains itself through such passion. David Matless in *Landscape and Englishness* (1998) describes pilgrims of scenery taking part in a sacred performance. Appropriately attired, they undergo penance. As outcasts from Eden, they wipe away their 'sins' of urban life by collaborating in industry built on a national desire to return to the Garden. The ghost is not in the machine, the machine is in the ghost needing energies of passion to keep it in perpetual (e)motion. Passions that can overheat and become political when Genius loci meets the Zeitgeist. In the face of social and climate change, quasi-religious zealotry of The Free Church of Country Sports and impassioned resistance to wind turbines in the toposphere are but two examples of this phenomenon. Through photographic analysis I will attempt a dispassionate demonstration of how current passions to determine the landscape of Exmoor are themselves determined by passion.

Keywords: England national landscape genius loci religion passion determinism

John I. Sharp, PhD., SUNY-New Paltz. Email: sharpj@newpaltz.edu; J. Ryo Kiyan, SUNY-New Paltz. Email: kiyan58@newpaltz.edu; *Reporting on Iraq: A Discourse Analysis of Truth Claims*

In the recent U.S. led invasion of Iraq, serious questions have arisen over truth claims made to justify the war. These include allegations about weapons of mass destruction in Iraq and possible links between Saddam Hussein's regime and terrorist groups like Al Qaeda. Prior to the invasion of Iraq there was some debate over the legitimacy of these claims and subsequent information from Iraq reveals that there were serious inadequacies in the reporting of such connections. This paper explores truth claims in the media prior to the U.S. led invasion of Iraq in 2003 at both the national and international scale. The paper examines the extent to which American newspapers and their counterparts in Canada, India and the United Kingdom accurately presented information on Iraq to their readers as the build-up to the invasion was taking place and consent was being manufactured. A content analysis of the specific claims was performed on articles during the period between 9/11 and the invasion of Iraq. Results were compared between American papers and their international counterparts, including a discussion of how language was carefully crafted to justify certain ends in the discourse

Keywords: Iraq, mass media, truth claims, discourse analysis

Kathryn Sharpe, University of Minnesota. Email: shar0056@umn.edu; *Between the Ivory Tower and the Street: Activist Explorations in Academia*

The activist geographer who simultaneously participates in activism and conducts research related to that activism is engaged in a constant dance of negotiation. This entails navigating between the rigorous nuances of critical geography and the complex demands of participating in a grassroots social change movement. In particular, it raises the question whether the academic can truly maintain a full engagement in the movement, or whether academic "detachment" is necessary in order to produce meaningful critical research. Particularly in movements of marginalized populations, such as the current immigrants' rights movement, the question of trust is fundamental, and detachment would violate that trust from the perspective of many participants. Yet if a researcher commits her research entirely to being "of use" for the movement, she can lose the sophisticated critical analysis which academia could offer social movements. As a geographer invested in social change, one must bridge the often contradictory tendencies within these realms. Yet unique synergies also emerge from this interaction, yielding powerful hybrid benefits. Drawing on lessons learned through experience, this paper will explore the interfaces between academia and activism, illuminating both the tensions and the mutually enriching potentials that lie within these tensions.

Keywords: Activism, civic engagement, social movements

Ian Shaw, University of Arizona. Email: ishaw@email.arizona.edu; Barney Warf, Florida State University. Email: bwarf@css.fsu.edu; *Warped Dioramas: The Rhizomatic Spatialities of Videogames*

From the manic mazes of Ms Pacman to the epic sieges of Age of Empires, video games have evolved from simplistic constructions to multi-million dollar productions. They continue to whet our appetites with radically alternate universes, imaginations, and spatialities. The spaces and places animated within

the videogame thus present the critical geographer with a unique horizon of investigation. Drawing from both Lefebvre and Deleuze and Guattari, we cast the videogame as a landscape of possibility in which the everyday laws and constructions of the material world are inverted and warped into virtual terrains of becomings, imaginations and radical perversions of history. Moreover, we argue that rather than being a closed object of production, the video game is an open site in which meanings are produced through the interactions of producers and users. We conclude by stressing the rhizomatic territorialization embodied in the discursively manufactured videogame.

Keywords: video games, communications

Jerad L. Shaw, U.S. Geological Survey Center for Earth Resources Observation and Science (EROS). Email: jshaw@usgs.gov; Pamela J. Van Zee, U.S. Geological Survey Center for Earth Resources Observation and Science (EROS). Email: pvanzee@usgs.gov; Level 1Gst Data Product Availability from Earth Observing-1 (EO-1)

As part of an effort to enhance the quality and usability of image data from the Earth Observing-1 (EO-1) satellite, the U.S. Geological Survey (USGS) Center for Earth Resources Observation and Science (EROS) has developed a systematic terrain-corrected (Level 1Gst) data product for both the Advanced Land Imager (ALI) multispectral and Hyperion hyperspectral sensors. Processing ALI and Hyperion data to Level 1Gst improves image quality and geometric accuracy, and represents an important milestone in the evolution of the EO-1 mission from technology validation to operational image acquisition. Previously, ALI and Hyperion images were processed to either Level 1R, radiometric correction (both ALI and Hyperion), or to Level 1Gs, radiometric and geometric correction with georeferencing (ALI only). The new Level 1Gst product has automated terrain correction based on a digital elevation model (DEM), which corrects parallax error caused by local elevation and topographic relief. This processing also includes radiometric calibration and geometric correction using satellite ephemeris data. In addition, ALI processing stitches image data from each of the four individual sensor chip assemblies into a single file. The Level 1Gst product can be ordered in either Hierarchical Data Format (HDF) or GeoTIFF format. Image data from the existing EO-1 archive, located at USGS EROS, may be searched and ordered on Earth Explorer (<http://earthexplorer.usgs.gov>) and GloVis (<http://glovis.usgs.gov>).

Keywords: EO-1, ALI, Hyperion, Terrain-Corrected

Jon Shaw, University of Plymouth. Email: jon.shaw@plymouth.ac.uk; Iain Docherty, University of Glasgow. Email: i.docherty@mgt.gla.ac.uk; Changing Spaces of Transport Governance in the United Kingdom: the Scottish Experience

This paper critically reviews how the Scottish Executive's approach to transport has developed since devolution. Although there is much to commend, a number of concerns can be identified, including the possibility that a number of strategic infrastructure schemes appear to have been approved on political rather than on technical grounds. It is difficult to know whether the current set of transport infrastructure investment plans represents good value for public money.

Keywords: Scotland, transport, governance, devolution, regions

Kate Shaw, PhD, University of Melbourne. Email: kates@unimelb.edu.au; Ruth Fincher, Professor, University of Melbourne. Email: r.fletcher@unimelb.edu.au; The place of international students in Melbourne

The northern fringe of central Melbourne?the location of the University of Melbourne and RMIT University?has a student resident population of 50 percent. Most of these students are from overseas, and are clustered in purpose-built, high-security student housing which has been aggressively promoted in Southeast Asia, the primary source of Australia's international students. Much of this housing is more expensive than the broader private rental market, unlike in many European cities where student housing is significantly cheaper than private rental. As fewer Australians travel to another state or town for tertiary study than their European and North American counterparts, the market for this purpose-built housing is also highly defined. Local students are more likely to find alternative, cheaper accommodation further away from the university, if they are not living with their families. The result is a segregated and artificially-inflated housing stock with discernible impacts on international students' experience of Melbourne. This paper discusses the ways in which cross-cultural interactions are limited by this largely supply-driven housing phenomenon, considers its effect on notions of Melbourne as a 'creative city', and explores student responses to lower-cost, lower-security housing options rarely made available to them at the commencement of their studies.

Keywords: student housing, transnationalism, creative cities

Shih-Lung Shaw, University of Tennessee. Email: sshaw@utk.edu; Hongbo Yu, Oklahoma State University. Email: hongbo.yu@okstate.edu; An Extended Time-Geographic Framework for Studying Human Activities in Physical and Virtual Spaces

Human activities interact and intertwine to create a complex social system to fulfill our physiological, economic, and social needs. Hägerstrand's time geography suggests a useful conceptual framework for studying human activities in a space-time context under different types of constraints. Recent developments in information and communications technologies (ICT), such as the Internet and cell phones, have offered people with an environment to expand their activities from physical space to virtual space and are expected to lead to important changes in human activity patterns. The classical time-geographic framework, however, does not offer adequate methods of representing and analyzing virtual activities and virtual interactions. For example, concepts such as space-time path, space-time prism, activity space, bundle and station in the classical time geography require modifications when we deal with activities and interactions in virtual space. Furthermore, the classic time geography does not offer analytical functions for examining interrelationships among various activities in an individual's space-time path or interrelationships between space-time paths of different individuals. Lack of an analytical framework significantly limits the usefulness of time-geographic concepts in research and real world applications. This paper presents an extended time-geographic framework of concepts to address the needs of representing and analyzing virtual activities and their interactions with physical activities. In addition, this paper places an emphasis on the design of a space-time geographic information system (GIS) to support the extended time-geographic framework.

Keywords: time geography, space-time GIS, information and communications technologies, virtual activity

Tony B Shaw, Ph.D, Brock University. Email: tshaw@brocku.ca; A Climatic Characterisation of Sub-Appellations in the Niagara Peninsula Wine Region

This study used climatic and topographic data to characterize the sub-appellations that have been recently delineated in the Niagara Peninsula viticulture area and assessed their potential for ripening early to late season Vitis vinifera varieties. To determine whether each sub-appellation possesses a unique set of climatic characteristics that are likely to influence grape quality, the study analysed such factors as the length of the growing season with a threshold temperature >10°C, the mean daily temperature distribution, the diurnal temperature range and fluctuation, distribution of heat units, and frequency of occurrences of maximum temperature.

Keywords: Niagara Peninsula, climate, sub-appellations

Mykola Shcherbaniuk, GIS/RS, Department of Geography, Southern Illinois University. Email: mykola2000@gmail.com; Raja Sengupta, Department of Geography, McGill University. Email: sengupta@geog.mcgill.ca; Wanxiao Sun, Department of Geography and Planning, Grand Valley State University. Email: sunwa@gvsu.edu; Jeffrey Beaulieu, Department of Agribusiness Economics, Southern Illinois University. Email: jbeau@siu.edu; Modeling Land Use and Cover Change: Predicting Re-Enrollment in the Conservation Reserve Program Using GIS and Data Mining Procedures

The aim of the study was to develop models for predicting the probability of farmers' re-enrollment in the Conservation Reserve Program (CRP) in the Cache River Watershed, in Southern Illinois. In this research, the concept of the CRP lands being re-enrolled or returned to crop production was considered as a part of a larger conceptual domain of land use and cover change (LUCC). The results of these analyses showed that the probability of the CRP re-enrollment is a function of a number of factors including both the economic incentives to farmers as well as the spatial and non-spatial characteristics of the farms and the CRP land parcels. Both logistical regressions and decision tree models confirmed the importance of seven individual variables. It was found that the probability of CRP re-enrollment was higher for parcels located closer to a stream, the national forest, a road and a town. Also higher re-enrollment was indicated for predominant farm location adjacent to the national forest and within a floodplain and on dry soils, higher proportion of farmland in pasture and higher elevation and population density. Overall, the results of this study indicate that the spatial heterogeneity of farms and land parcels (as accounted by spatial variables that were found to be relevant) should be taken into account while making the plans for the CRP re-enrollment for the 2007 farm bill.

Keywords: land use, GIS, data mining, spatial heterogeneity, predicting CRP re-enrollment, Conservation Reserve Program

Richard G. Shearmur, INRS-UCS. Email: richard.shearmur@ucs.inrs.ca; William Coffey, Université de Montréal. Email: william.coffey@umontreal.ca; Christian Dubé, INRS-UCS. Email: ; Rémy Barbonne, INRS-UCS. Email: ; *Intrametropolitan Employment Structure: Polycentricity, Scattering, Dispersal and Chaos*

There is little consensus on where and how employment is decentralizing in metropolitan areas. However, a number of key processes have been brought to light, and different cities have tended to display different processes: strong CBDs, suburban polynucleation, job dispersal, scattering, edgeless cities, and perhaps 'keno capitalism'. In this paper we explore the distribution and growth of employment at a fine spatial scale. We show that, at this scale, there are very dynamic processes of growth and decline throughout metropolitan areas, but that these processes are organised at a wider scale by stable employment centres and by links between these centres. The structures and processes thus revealed suggest that the spatial economy of metropolitan areas should be approached as a chaotic system. From an empirical perspective this means that, depending on the scale of analysis and the way data are considered, polynucleation, dispersal and chaos are all observed: this may partly explain the lack of consensus in the literature. The only process not evident within Canadian cities is scattering, but this process may in fact be occurring within some areas identified as suburban employment zones.

Keywords: Intra-metropolitan; employment; polynucleation; scattering; chaos theory

Andrew B Shears, Kent State University. Email: ashears1@kent.edu; Indiana and the War on Terror: An Examination of Scaled Discourse

Residents of Indiana seem to be quite isolated from the War on Terror. No terrorist activity has been recorded in Indiana, nor does the state supply a significantly different number of soldiers or materiel to the effort, yet support for the War continues to remain higher than the national average. Meanwhile, discourse used by Indiana's Congressional delegation remains strongly focused on support of the war, thus far successfully used to retain power. An examination of the speeches of these representatives reveals a discursive transformation of scale, adjusting the role of an distant international conflict to one relevant to Hoosier voters.

Keywords: Indiana, war, terror, scale, discourse

Rebecca A. Sheehan, Oklahoma State University. Email: rebecca.sheehan@okstate.edu; "Stray animals to be kept at the stables of the City Hall": Urban Refinement and Rural Rudiment in New Orleans' Jackson Square

In this paper, I discuss how tensions between cultivated and unrefined spaces and processes pattern Jackson Square in New Orleans' French Quarter. Specifically drawing from both archival and ethnographic work, I show how animals then and now are integral to meanings and contestation over the Square, linking normative understandings and histories of parks, public spaces, and the urban landscape. My study also draws on post-Katrina research to show how animals and uncultivated processes work in the rebuilding of lives in New Orleans.

Keywords: animals, city, public space, order/disorder, New Orleans

Mimi Sheller, Swarthmore College. Email: MimiSheller@msn.com; Re-thinking Smart Mobilities: Agency and Creativity in the Appropriation of Space

Software is restructuring and reconfiguring spaces of movement, transport, and mobility in many ways. The field of mobilities research has highlighted emergent "movement-spaces" in relation to three main arenas: a) new forms of personal mobility enabled by mobile communications devices, mobile computing, and wireless connectivity; b) new forms of transportation mobility enabled by "smart" cars, intelligent transport infrastructures, and user-responsive public transport systems; and c) new "scapes" enabling the automated sorting of mobilities, including software-enriched urban architectures, airport and road surveillance systems, and the design and building of digital cities. This paper reviews developments in each area, highlighting the tensions between issues of control versus agency, and empowerment versus social exclusion. Although the application of software to mobility space is often connected to new modes of surveillance, governance, and capitalist spatial restructuring, there are also ways in which agents and actors exceed and escape systems of control through forms of imaginative play, subversive communication, reflexivity, and counter-surveillance. The second half of the paper focuses on new forms of agency, play, and creativity in the spatial practices of various software-enhanced mobilities. Examples are drawn from geolocated mobile gaming; computer-aided design in the fields of architecture and landscape; and a range of recent artistic explorations of software, space and mobility. The conclusion addresses the emergence of alternative counterpublics that are using agencies of mobile connectivity to navigate, disrupt, and possibly subvert the logics of automated control and surveillance that are governing emergent movement spaces, especially in urban contexts.

Keywords: mobility, movement-space, counter-surveillance, counterpublics, automation

Fred M. Shelley, University of Oklahoma. Email: fshelley@ou.edu; Adrienne M Proffer, University of Oklahoma. Email: amproffer8@yahoo.com; Academic Advising in Geography

Faculty members and graduate students in geography often overlook the importance of academic advising. Effective advising can and often does make a considerable difference in the lives of students. In this paper, we examine the geographer's role in the academic advising process. Linking our analysis with the academic advising literature, we discuss best practices for those charged with academic advising. We discuss how geography's unique heritage as an integrative discipline poses special challenges, but great opportunities, for the geographer as academic advisor. Finally, we present several scenarios intended to generate discussion about how a geographer can advise particular students effectively.

Keywords: academic advising, geographic education, mentoring

Bradley A. Shellito, Youngstown State University. Email: bashellito@ysu.edu; Using 3D Visualization, Google Earth, and GIS for University Planning

This project details the use of GIS and 3D visualization techniques to create an interactive three-dimensional model of Youngstown State University (YSU)'s campus and surrounding area. Campus buildings and objects are designed using the ArcGIS and SketchUp software packages and the full model can be utilized through Google Earth. SketchUp allows for the creation of highly detailed replications of the campus buildings and can be used in conjunction with ArcGIS and Google Earth to deliver fully-rendered representations of YSU's campus areas. Details such as building design, the design of unique campus objects, texturing issues, and correct terrain placement and modeling are examined, along with delivery platform specifications (including interactive web versions and graphical presentations). The final campus model is available via the web in a format compatible with Google Earth.

Keywords: 3D, Geovisualization, Google Earth, GIS, three-dimensional

Xiaoping Shen, Central Connecticut State University. Email: shenx@ccsu.edu; Shangyi Zhou, Beijing Normal University. Email: ; Women faculty in China's higher education

There is a saying in Chinese that women can hold half of the sky. Do women faculty today really hold half of the sky in China's higher education? Based on interviews, survey and statistical data, this paper will study women faculty's role and status in China's higher education from the following aspects: China's position in the world, promotion and rank, administrative positions, regional differences, changes during the past 50 years, and future development. This research also attempts to identify regional characteristics, as well as social, economic, culture, and political changes that influence women faculty's position in China's higher education.

Keywords: women faculty, higher education, China

Jingfen Sheng, Department of Geography, University of Southern California. Email: sheng@usc.edu; John Wilson, Department of Geography, University of Southern California. Email: jpwilson@usc.edu; Simulating changes in surface runoff behavior in two small Mediterranean catchments

Geographic Information System (GIS) processing of spatial information is now commonly used in parameterizing and simulating rainfall-runoff processes. In the present study, two models, TOPMODEL and MIKE-BASIN, were implemented and compared in simulating changing rainfall-runoff characteristics due to urbanization in two catchments in southern California. Both models were calibrated using the observed data at a daily time step for the time period of 1940-1945. Recent surface runoff at the outlet for the time periods of 1967-1969 and 1997-1999 was simulated using both calibrated models, and the simulation results were evaluated against the corresponding observed stream flow data. The model performance in runoff simulation varied with watershed land uses; the latter was developed using GIS linked tax map data and recent land use/land cover data. The calibrated TOPMODEL produced stream runoff with high model efficiency for the calibration period and effectively predicted runoff in the natural watershed for the validation period. However, the model efficiency in simulating stream flow in TOPMODEL was insensitive to changes in surface runoff processes due to land use/land cover changes; as such, TOPMODEL is more appropriate for estimating base conditions of water flow and water quality in a catchment-wide scale. On the other hand, the MIKE-BASIN model performs better at incorporating land surface change over time and predicts the increasing flood magnitude and base flow in the urban watershed based on its empirical components of Soil Conservation Service Curve Number, runoff coefficients, and infiltration laws in a non-linear basin model.

Keywords: GIS, hydrologic modelling, surface runoff simulation

Yongwei Sheng, UCLA. Email: ysheng@geog.ucla.edu; Chintan A. Shah, UCLA. Email: cashah@ucla.edu; Laurence C. Smith, UCLA. Email: lsmith@geog.ucla.edu; Chuck N. Kroll, SUNY-ESF. Email: cknroll@esf.edu; Tandong Yao, Institute of Tibetan Plateau Research. Email: tdyao@itpcas.ac.cn; Yongxiang Wu, Nanjing Hydraulic Research Institute. Email: yxwu@njhri.edu.cn; Xin Li, CAREERI. Email: lixin@lzb.ac.cn; *Shrinkage of Paleo Tibetan Lakes Identified from High-Resolution Satellite Imagery*

Tibetan lakes serve as a sensitive indicator of global climate and water cycle variability. Tibetan lakes have shrunk greatly since the Greatest Lake Period (GLP, between ~40 and 25 ka BP). It is crucial to determine how much the Tibetan lakes have shrunk since then. We address the problem using high-resolution Landsat ETM+ imagery and digital elevation models (DEMs). Abandoned paleo shorelines of paleo lakes typically appear in high-resolution imagery as concentric rings surrounding the contemporary lakes. The GLP shorelines at the highest elevations are normally preserved, provided water levels have not subsequently risen, and therefore represent the maximum GLP lake extent. Therefore, through data fusion of ETM+ imagery and DEMs, both paleo lake extents and corresponding bench elevations can be obtained. The paleo shorelines or coastal features can be identified in high-resolution imagery, and their corresponding elevations of the paleo lake water level can be determined from the DEM data. Paleo lake extent can thus be recovered from the DEM data by tracing the contour line at the highest paleo shoreline elevation. We developed a user-friendly interactive mapping environment that allows paleo-lake mapping in an efficient manner. With the mapping environment, we recover the spatial extent and volume during the GLP period for hundreds of Tibetan lakes with visible paleo shorelines. The spatial pattern of lake shrinkage throughout the plateau is analyzed. The effectiveness of this approach in various tectonic zones is also evaluated.

Keywords: Paleo, Lakes, Tibet, Remote Sensing, DEM, Mapping, Global Change

Michael James Shepherd, University of Wisconsin-Madison. Email: mshepherd@wisc.edu; *Enclosing the Oasis: Metabolic Rift, Cyclical Nature and the Modern Relationship to Water*

This paper proposes a re-conceptualization of the modern dialectical relationship between humans and the hydrologic cycle. Employing a political ecology approach, the paper addresses the interwoven connections between waste, pollution, and water, under the acting influences of culture, commodification and capitalist market forces. Water increasingly exhibits characteristics of extractive economies, including extractive economies' fundamental tendency to promote further extraction. Furthermore, through market pressure for simplification, development of the hydrologic cycle increasingly resembles the process by which monoculture became the norm for industrial farms. Instead of serving multiple functions simultaneously, today water more often serves one function, beyond which it becomes a waste product requiring disposal. Any conception of waste in relation to water use is determined by our cultural construction of the relationship, and the subsequent design choices. This, in turn, leads us to a rethinking of the relationship between pollution and water. Water Pollution generally brings to mind pollution of water. For example, raw sewage infiltrating drinking water. But in relation to the salinization of some irrigated farm fields another process becomes visible: pollution by water. Currently we discover staggering amounts of pollution along waters' guided path through society. To understand this phenomenon, the paper draws on Marx, and re-conceptualizes his theory of metabolic rift in relation to the hydrologic cycle. Pollution, both of and by water, is not coincidental but follows from a fundamental disconnection between human society and the hydrologic cycle; water is not only polluted, in the hands of capital, it is also polluting.

Keywords: Water, Hydrologic Cycle, Pollution, Political Ecology, Marx

Eric S. Sheppard, University of Minnesota - Minneapolis. Email: sheppard@atlas.socsci.umn.edu; Paul S Plummer, School of Geographical Sciences, University of Bristol. Email: Paul.Plummer@bristol.ac.uk; Luke Bergmann, Department of Geography, University of Minnesota. Email: berg1388@umn.edu; *Mathematical dialectics: Exploring the spatial dynamics of capitalism*

Emergent computational methods, drawing on qualitative econometrics, complex systems theory and agent based modeling, are making it possible to systematically examine the out-of-equilibrium properties of spatio-temporal systems. Paradigmatically, such systems exhibit non-linearity, path-dependence, context-sensitivity and often unpredictable dynamics. Marxian theories of accumulation and competition in a capitalist space economy exemplify such dynamics. Marxian models characterize capitalism as conflict-ridden, evolutionary, unpredictable, often far from equilibrium, and incapable of self-regulation. Such complexity is compounded when space is introduced. Analysis of the out-of-

equilibrium dynamics of such systems has been dominated by non-mathematical reasoning, fueling the split between political economy and mathematical and statistical analysis that has dominated economic geography for the last two decades. We argue that these new tools enable an approach that is simultaneously mathematical and suggestively dialectical. In general, the ontologies of these new mathematical and computational forms are considerably more resonant with much of contemporary social theory in human geography than were past 'positivist' and statistical methodologies. In this paper, we review the methodological challenges of characterizing the complex out-of-equilibrium dynamics of such systems, in order to make generalizations about their behavior; and of analyzing whether the theoretical properties of such systems are consistent with empirical observations. Drawing on mathematical characterizations of the out-of-equilibrium dynamics of Marxian spatial competition, and on different strategies for analyzing such systems, we explore the potential insights to be gained from the application of computationally-based reasoning for understanding the contradictory spatial dynamics of capitalism.

Keywords: disequilibrium, dialectics, mathematics, Marx

Scott Sheridan, Ph.D., Kent State University. Email: ssherid1@kent.edu; Helen C Power, Ph.D., University of Otago. Email: hcp@geography.otago.ac.nz; Jason C Senkbeil, Kent State University. Email: jsekbeil@kent.edu; *A further evaluation of the spatial and temporal variability of aerosols across North America: influence of lower tropospheric flow*

In previous work, we performed the first large-scale analysis of the role of the atmosphere in explaining the observed temporal and spatial variability in aerosols. In that research, the atmosphere's influence upon aerosol variability across North America was evaluated via the Spatial Synoptic Classification (SSC), which groups surface weather conditions into one of several 'weather types'. We further our analysis by utilizing the 850-hPa geopotential height field. Whereas the SSC classification is based upon surface weather at each individual location, the 850-hPa field on each day was classified into one of nine 'flow types' for the entire eastern two thirds of North America. The 850-hPa field was normalized for interseasonal variability before classification (via Principal Component Analysis and Cluster Analysis) occurred. Aerosol data from 27 stations have been analyzed, with a period of record averaging 7.3 years. Both the aerosol optical depth (τ), a measure of the total amount of aerosols in the atmosphere, and Ångström's wavelength exponent (α), a measure of size distribution of aerosols, have been compared to the flow types. Results show that, as with the SSC classification, the 850-hPa flow types differentiate days with statistically significant differences in τ more than differences in α . However, with both variables, the 850-hPa flow types are associated with fewer statistically significant differences than with the SSC. Further, these differences are less consistent from place to place and season to season, as a particular flow pattern may be associated with higher values in one location and lower values in another.

Keywords: atmospheric flow, aerosols, synoptic climatology

Thomas E Sheridan, Professor of Anthropology, University of Arizona, University of Arizona. Email: tes@email.arizona.edu; *Beyond Research: Environmental Anthropology and Environmental Politics*

Environmental anthropologists are citizens as well as scholars who can and should engage in environmental politics as well as research. Success in politics, like success in fieldwork, depends upon understanding the cultural logic and economic motivations of diverse interest groups, the agency/agenda of individuals, and the hierarchical/overlapping bureaucracies of government. Unlike fieldwork, however, political engagement involves taking sides, forming alliances, and making compromises. Using Pima County, Arizona's Sonoran Desert Conservation Plan as an example, I explore how the insights of environmental anthropology inform the construction/contestation of space through the following issues: pristine vs. anthropogenic nature, biodiversity and working landscapes, biocentrism and urbanization, science and the discourse of science. I also analyze three major discursive strategies—economic, ecological, and aesthetic—and argue that all three are shaped by and help generate the capitalist restructuring of the American West.

Keywords: political ecology, environmentalism, biodiversity, working landscapes

Douglas J. Sherman, Texas A&M University. Email: sherman@geog.tamu.edu; Helena Granja, University of Minho. Email: ; Jean Ellis, Texas A&M University. Email: ; Eugene Farrell, Texas A&M University. Email: ; Bailiang Li, Texas A&M University. Email: ; *Vertical Mass-Flux Gradients in Aeolian Saltation*

The purpose of this research was to obtain measurements of the distribution of saltating grains above a movable bed. Field work was conducted in a coastal dune system at Esposende, Portugal, in May and June, 2006. Mass-flux gradients were measured with vertical stacks of 4-7 hose traps with vertical openings ranging in size from 25 to 100 mm. Wind speed was measured with a vertical

arrays of 4 Gill-type anemometers (at $z = 0.25, 0.50, 0.75$, and 1.00 m) sampled at 10 Hz. Twenty-one sets of mass-flux measurements were collected. Grain sizes ranged from 0.25 to 0.40 mm, with a mean of 0.30 mm. We evaluate appropriate curve fitting functions and test the maximum and mean saltation height models of Zingg (1953) and Owen (1964). We also compare logarithmic, power, and exponential functions for best descriptor of the flux gradient (Namikas 2003), plot the data as Rouse-type profiles for normalization, and calculate Rouse Numbers so that the behavior of the aeolian system can be compared to that of hydrodynamical systems. Preliminary analysis for normalized mass-flux gradients indicates that the exponential function best represents the measured distribution.

Keywords: geomorphology, Rouse Profile, coastal, Portugal

Jill E. Sherman, MPH, UNC-Chapel Hill. Email: jes@email.unc.edu; The AKC's Canine Good Citizen ®: Risk, responsibility, and the moral geographies of more-than-human citizenship

In this paper I will examine the emergence of "canine citizenship" as a kind of hybrid citizenship, through the theoretical frames of risk and moral geography. Conflicts over the place of dogs in human society have resulted in an increasing number of anti-dog movements, restrictive regulations, and pro-dog countermovements. Much discourse on the "pro-dog" side blames a small minority of "irresponsible" dog owners for causing problems for the majority of "responsible" dog owners. The Canine Good Citizen (CGC) program, developed over the past decade and administered by the American Kennel Club (AKC), can be seen as a risk management technology to distinguish "good/responsible" dogs and owners from "bad/irresponsible" dogs and owners and offers an alternative to blanket anti-dog regulation. The CGC ultimately seeks to shift blame for (potential) harm from dogs (in the collective) to individual humans; the irresponsible dog owner functions as Matless' "anti-citizen" who can be punished with the justifiable revocation of citizenship rights to space and place. The CGC promotes an ideal of good citizenship that is a hybrid of behavioral norms for the human-dog dyad, with important socio-spatial implications for both species. Importantly, the AKC is controversial within the diverse collective of animal movements; it is viewed as an elitist organization with strong ideological and financial interests in maintaining dogs' legal status as property. Thus despite a common discursive strategy focusing on responsibility among many groups, how responsibility is defined and by whom remains problematic and contested among other pro-dog groups.

Keywords: human-animal relations, dogs, risk, responsibility, citizenship, moral geography

Kathleen Sherman-Morris, PhD, Mississippi State University. Email: kms5@geosci.msstate.edu; Hurricane Fatigue: A Media Myth?

Evacuation fatigue has occasionally been used by public officials to explain decreasing evacuation rates in seasons with multiple storms. One such season was the 2004 hurricane season in Florida, although a study examining why residents chose not to evacuate did not support the claim of fatigue. If hurricane fatigue did not cause decreased evacuation rates in the later part of the 2004 hurricane season in Florida, then who is responsible for this explanation? One possibility is the local media. This paper provides a closer look at media coverage of the 2004 hurricane season. Specifically, it will discuss the frequency of coverage, and residents' quotations in local newspapers as the season progressed to determine whether reports of hurricane fatigue increased between August and September, 2004.

Keywords: hurricane evacuation, Florida, mass media

Kathy Sherrell, University of British Columbia. Email: kathy_s@interchange.ubc.ca; In Search of Home: negotiating the legal and economic barriers to housing

The cost of housing has been rising in Canada, relative to household income levels, especially over the past decade (Moore and Skaburbskis 2004, Murdie 2004, Bunting et al. 2004). The proclivity of newcomers to concentrate in large urban centres - which are the "most expensive and competitive urban housing markets" in the country (Ray 2004, 45) ? means that immigrants are particularly exposed to housing affordability problems. Recent research in Canada has documented something of the scale of this issue, showing that, upon arrival, many immigrants experience economic disadvantage, marked by lower incomes and higher poverty levels (Picot 2004, Picot and Hou 2003, Ley and Smith 2001, Smith 2004). In other words, recent immigrants face the difficult situation of reconciling below-average incomes with above-average housing prices. But the category of 'immigrant' is too broad, and contains many sub-groups. Those who have entered Canada as refugees, through government or private sponsorship, or as refugee claimants, face the greatest challenges in acquiring sufficient income for adequate housing. This paper will present preliminary results from an ongoing study on the housing trajectories of government-assisted refugees and refugee

claimants in three Canadian cities: Winnipeg, Toronto and Vancouver. Through consideration of the housing trajectories of government-assisted refugees and refugee claimants this research considers what effect legal status ? and by extension the rights and services to which people have access ? have on their ability to obtain adequate and affordable housing.

Keywords: government-assisted refugees, refugee claimants, housing, barriers, Canada, homelessness

Rosemary L. Sherriff, University of Hawaii at Hilo. Email: sherriff@hawaii.edu; Thomas T. Veblen, Department of Geography, University of Colorado, Boulder. Email: Veblen@colorado.edu; Variability in fire-climate relationships along an elevation gradient in ponderosa pine forests in the Colorado Front Range

Understanding the interactions of climate variability and wildfire has been a primary objective of recent fire history research. This study characterizes the influence of ENSO, PDO and AMO on fire occurrence using fire-scar evidence from 58 sites from the lower ecotone to the upper elevational limits of ponderosa pine in northern Colorado. A major finding is that at low versus high elevations within the montane zone climatic patterns conducive to years of widespread fire are different. Differences in fire-climate relationships are manifested primarily in antecedent year climate. Below ca. 2200m, major fire years follow moister antecedent conditions by two years that favored fine fuel accumulation prior to dry fire years. In the upper montane zone, fires were dependent primarily on drought rather than an increase in fine fuels. Fire is strongly linked to variations in moisture availability that in turn are linked to climate influences of ENSO, PDO and AMO. Fire occurrence is greater than expected during the phases of each index associated with drought. Regionally widespread fire years are associated with specific two-phase and three-phase combinations of ENSO, PDO and AMO. In particular, the combination of La Niña, negative PDO, and positive AMO is highly conducive to widespread fire.

Keywords: fire history, climate variability, Colorado Front Range, ponderosa pine

Ira M. Sheskin, University of Miami. Email: isheskin@miami.edu; Jewish Immigrant Groups in Miami

Consistent with the general growth in Florida's population, Florida has seen significant growth in its Jewish population over the past decades, particularly in Broward and Palm Beach Counties. In contrast, from 1994-2004, the number of persons in Jewish households in Miami-Dade County decreased by 18%, from 147,000 persons in Jewish households to 121,000 persons in Jewish households. Some of this decrease is due to migration to Broward and Palm Beach Counties and some to a negative rate of natural increase. The rate of decrease in the Jewish population of Miami-Dade County has decreased in recent years in part due to an influx of Jews from Middle and South America. The number of Hispanic Jewish adults in Miami Dade County increased by over 80% in the past decade and show an increasingly diverse set of origins. This paper examines this growth and some of the differences between Hispanic and non-Hispanic Jewish households in Miami-Dade County. In addition the paper looks at Jewish immigrants from Israel and the former Soviet Union

Keywords: Jews, Hispanics, Israelis, former Soviet Union, Miami

Alpen Sheth, University of Miami. Email: alpen@umiami.edu; The Predicaments of Precariousness: Housing and Labor struggles from Miami to Mumbai

Mobilizations around the workplace have been fundamentally challenged by recent economic and political forces, many of which have fractured the very structure of class. These forces include the dissolution of work security and spread of casualization in Euro-America, in addition to rapid divestment ("capital flight") and the enforcement of inhumane labor conditions throughout the rest of the world. Under these conditions, social movements at the urban scale have begun to focus more intently on organizing around the home. Indeed, some of the most vibrant and effective social movements in the past few years have been formed through neighborhood-based organizing rather than through any strictly labor-based strategy. Examples from Mumbai and Miami illustrate how organized housing struggles have emerged successfully, forming a basis for broader social justice agendas in the wake of "neoliberal discipline." In Mumbai, India, the SPARC organization has gained global acknowledgment for its ability to successfully negotiate with the state and a multiplicity of non-state actors around issues of land rights, provision of water and electricity and political participation for slum-dwellers. Their examples highlights how even the precariousness of squatters can be overcome through neighborhood-level organizing and strategizing. Similarly, in Miami, organizations like the Miami Workers Center have organized residents in low-income neighborhoods, largely victims welfare reform, to fight urban renewal and displacement. They have even gone further to form coalitions amongst other community-based organizations to assert a "right

to the city” ultimately working towards “urban land reform.”

Keywords: Miami, Mumbai, social movements, labor informality, affordable housing

Sujata Shetty, University of Toledo. Email: sujata.shetty@utoledo.edu; Jane Morgan, JFM Consulting. Email: jfmorgan@gte.net; Planning for Regional Equity in Detroit

Historically, the Detroit metro region has seen city-suburb inequities in access to resources and basic services. More recently, there appears to be some convergence in the planning issues faced by some Detroit neighborhoods and the inner-ring suburbs that are their neighbors (Orfield and Lusk, 2003), among them, increasing proportions of minority populations, increasing unemployment and poverty, declining housing stock, troubled public schools, and declining tax bases. This is consistent with findings in other mid-western cities (Puentes and Warren, 2006). Metropolitan Detroit is the site of an important pilot project that seeks to implement the idea of community-based collaborative planning to achieve regional equity (reducing social and economic disparities within a metropolitan region). This paper employs a mixed methods- surveys, focus groups and interviews - to critically examine the process and outcomes so far, providing the opportunity both to refine theories of regional equity and find specific lessons for practice. References Orfield, M. and T. Lusk (2003) Michigan Metropatterns: A Regional Agenda for Community and Prosperity in Michigan, Minneapolis, MN: Amerigis. Puentes, R. and D. Warren (2006) One-Fifth of America: A Comprehensive Guide to America's First Suburbs, Washington, D.C.: Brookings.

Keywords: regional equity, Detroit, planning, urban, suburbs

Xuan Shi, West Virginia University. Email: Xuan.Shi@mail.wvu.edu; OSRR - The New Paradigm for Geospatial Semantic Web Services

The presenter will discuss the problems in the main approaches for (semantic) Web services development and why/how Ontology-enhanced Semantic Request and Response (OSRR) approach could be a new paradigm for geographers and GIS community to develop semantic Web services in the following days.

Keywords: Web Services, OSRR, GIS

Xun Shi, Dartmouth College. Email: xun.shi@dartmouth.edu; A GeoComputational Procedure for Characterizing the Spatial Pattern of Lung Cancer Incidence in New Hampshire

Some innovative methods were applied to demographically and spatially detailed data to characterize the spatial pattern of lung cancer incidence in New Hampshire. The lung cancer incidence data were from the NH Cancer Registry, containing information about the patient address, age, and sex. The population-at-risk data were created by integrating the LandScan data and the US Census data. The local density of disease was estimated using the widely-used kernel method, but the bandwidth was adaptive and varies according to the local density of population at risk. The density of population at risk was measured around the disease case location rather than around the site for which the disease density was estimated. Restricted Monte Carlo simulation was used to handle some special addresses such as PO Box numbers. The restricted randomization maximizes the utilization of the imprecise spatial information contained in those addresses and meanwhile evaluates the uncertainty caused by that utilization. Probability of the disease at a location was calculated for each age-sex category. The probabilities for all the categories were then integrated to obtain the overall probability at that location. This whole procedure is highly computationally intensive and is an example of employing geocomputational methodology to take advantage of detailed data in health study.

Keywords: GeoComputation, Spatial Pattern, Health, Cancer, GIS

Rob Shields, University of Alberta. Email: rshields@ualberta.ca; The Liminality of Delta Cities

New Orleans is unusual amongst American cities but typical of ‘delta cities’ around the world. Challenges of physical geography, hydrology and geology undermine stability, solidity and a sense of permanence. Delta cities occupy thresholds between land and sea, riverine and ocean systems and as ports are thresholds to foreign cultures. These are in a perpetual state of between-ness: they are both physical, economic and cultural liminal zones. Hurricane Katrina and the post-hurricane reconstruction expose the liminality of New Orleans in time as well as space: the city was not quite reduced to nature but has struggled to demonstrate continuity with local memory, New Orleans’ urban culture and history.

Keywords: New Orleans, Katrina, liminality, delta cities, spatialization, memory

Mi Shih, Rutgers University. Email: swmbfy@eden.rutgers.edu; Legal Development and Inner City Renewal Practices in Shanghai: An Analysis of Disputed Relocation in Property Development, 1990 - 2005

This paper uses “disputed relocation” to understand the large-scale community displacement arising from the real estate development process in Shanghai since the city government initiated its first 10-year inner city renewal project in 1991. China’s acceleration of urban growth means that displacement due to city renewal and land-use change is a significant source of local-scale migration and social conflict in contemporary China. Situating the analysis of disputed relocation in the context of legal development, this research approaches the relevant texts as reflective of underlying state-society relations in China’s transformation to a capitalist society. The paper aims to critically analyze the evolving discourses of the relevant statutory texts promulgated to address disputed relocation between 1990 and 2005 in Shanghai. Using data collected in the official archives and interviews during two research periods in Shanghai, including statutes, judicial decisions and residents’ experience, this analysis focuses on how these statutory texts are implemented by the government in regulating, adjudicating and shaping conflicts over disputed relocation. Building on theoretical debates in two areas of literature - the relation between property law and society and the social construction of law - this research examines the instrumental use of laws which has greatly realized Shanghai’s rapid inner city renewal process. The paper challenges the conventional view of conflicts over disputed relocation as economically determined and thus resolvable by correcting the currently impaired compensation methods. This research also argues that the current regulations hold back residents’ resistance actions to disputed relocation and increase the social exclusion associated with it.

Keywords: disputed relocation, legal regulations, city renewal, Shanghai

Nikolay Shiklomanov, Department of Geography University of Delaware. Email: shiklom@udel.edu; Frederick E Nelson, Department of Geography, University of Delaware. Email: fnelson@udel.edu; James G. Bockheim, Department of Soil Science, University of Wisconsin. Email: ; Temporal and Spatial Variability of Active-Layer Thickness in Characteristic Landscapes of Northern Alaska.

Data from 12 years (1995-2006) of extensive, spatially oriented field observations at several 1000 m x 1000 m CALM (Circumpolar Active Layer Monitoring) sites in northern Alaska were used to examine the spatial and temporal variability of the active layer, and its relation to such landscape-specific parameters as landforms, land cover, and organic-layer thickness (OLT). Observational records indicate that active-layer thickness (ALT) exhibited pronounced interannual variability with a decreasing trend over the study period at all sites. Each landscape unit is, however, characterized by distinct sensitivity of the active layer to climatic forcing. Significant differences exist in ALT between land cover and landform categories. The close correspondence between spatial ALT variability and land cover at all sites indicates that the spatial variation of vegetation can be used as a good indicator of that for active-layer thickness over large areas. Although traditional bivariate analysis indicates that OLT and ALT are not closely correlated, directional geostatistical methods demonstrate spatial correspondence between these parameters along the main landform units. This result indicates that other factors, such as soil texture and soil moisture, contribute to the poor overall correspondence between active layer and organic layer obtained from traditional measures of statistical correlation. Although landscape-specific regularities found in the active layer of northern Alaska may not be present in other areas, the methodology presented here can facilitate geographically oriented CALM investigations throughout the Arctic.

Keywords: Permafrost, active layer, Alaska, spatial analysis, spatial variability

Laura J Shillington, York University. Email: lshillin@yorku.ca; Producing Habitable Spaces: Everyday Socio-ecologies, Gender and Patio Politics in Managua, Nicaragua

Just as in rural areas, everyday urban life requires dealing with the complexities and changes of both social and ecological factors. Urban residents rely on, adapt to and (co)produce their ‘natural’ environments and socio-natural spaces. The ways in which urbanites attempt to cope with social and ecological changes shapes urban spaces, struggles and identities, and the ways people cope are as diverse as the spaces and identities produced in cities. This is just as true in the Global North as in the Global South. This paper examines the everyday natures of patios in a poor, marginalised community in Managua, Nicaragua. It looks at ways in which backyard ecologies, or rather socio-ecologies, are used in the quotidian to assist in producing habitable places and spaces in Managua, how such practices are gendered, aged, classed, and racialised, and how these socio-ecologies are critical in dealing with livelihood challenges not just economically but also socially and personally. The paper concludes by exploring what this means for larger social-ecological and economic-political struggles in the production of

Managua as urban space in Nicaragua.

Keywords: gender, political ecology, urban, Nicaragua

Jacqueline J. Shinker, University of Wyoming. Email: jshinker@uwyo.edu; Patrick J. Bartlein, University of Oregon. Email: bartlein@uoregon.edu; *Spatial and Temporal Variability of Western North American Climate during ENSO Events*

The superimposition of different scales of spatial variability in western North America leads to steep gradients and in some regions considerable spatial heterogeneity in the seasonal cycles of precipitation and surface water- and energy-balance variables. To understand large-scale climatic controls and surface feedbacks related to modes of variability (e.g. El Niño Southern Oscillation), composite-anomaly maps of strong positive and negative phase ENSO events are used to illustrate how climate variations associated with such modes of variability are propagated through the climate system. Data from the NCEP North American Regional Reanalysis (NARR) are analyzed to determine interactions among atmospheric circulation and surface energy- and water-balance components of the climate system at a 32-km grid spatial resolution to represent the spatial heterogeneity of western North America. The translation of anomalies from the equatorial eastern Pacific to North America during El Niño events appears to be consistent over time. For example, positive temperature anomalies in the equatorial eastern Pacific during the peak of El Niño years leads to positive 500mb height anomalies in the region, allowing moisture to be advected into the southwestern region of North America. This in turn causes both positive moisture anomalies (wetter-than-normal conditions) as well as negative temperature anomalies (lower-than-normal temperatures resulting from increased clouds associated with the precipitation). However, the strength and coherency of this relationship is reduced in the interior intermountain west, with weak or inconsistent moisture anomalies occurring during both positive and negative phase of ENSO.

Keywords: Climate Variability, Western North America, El Niño, La Niña, ENSO

Shino Shiode, University of Tokyo. Email: shino@ua.t.u-tokyo.ac.jp; Narushige Shiode, Department of Geography, University at Buffalo, SUNY. Email: nshiode@buffalo.edu; *Spatial-Temporal Agglomeration of Shock Points and Survival Points*

This study proposes a conceptual framework for analyzing distribution patterns of spatial-temporal agglomeration of socio-economic phenomena. Most of the events around us, including the agglomeration of retail facilities occasionally extend over a certain period of time, affecting and triggering other events in the surrounding space and in the subsequent time points. Existing literature on spatial-temporal analysis stems from either a standard spatial method, or non-spatial temporal analysis, and their methods tend to treat the spatial and the temporal dimensions discretely from one another. In order to simultaneously capture the distribution of events over space and time, we propose a spatial analytical method for estimating the spatial-temporal density distribution of point events. Points representing the spatial-temporal coordinates of events are fitted in a hypothetical standardized cube. The density distribution of spatial-temporal points is then measured in terms of the spatial-temporal proximity among them. In addition to the analysis of shock points (i.e. events that occur and complete in an instance without having their own temporal duration), this method is also applicable to the interpretation of the spatial-temporal relationship among survival points, i.e. events that have temporal duration themselves. The duration of such spatial-temporal events is represented with a set of spatial-temporal bars in the standardized cube, and the distribution pattern and the overlap among these line segments are also considered.

Keywords: spatial-temporal analysis, density estimation, shock points, survival points

David Shively, Ph.D., University of Montana. Email: david.shively@umontana.edu; *The McKenzie River Driftboat: a Co-opted Icon of Regional Identity*

The McKenzie River drift boat, an element of Oregon and Pacific Northwest folk culture, is examined as a symbol or icon of regional identity. The craft which has its origins on the turbulent rivers of the Oregon Cascade and Coastal Ranges, underwent a long period of evolution in design and utilization, much of it in response to its growing role as a vehicle for commercial recreation. In keeping with this new charge, the drift boat has diffused across the North American Landscape, and is now poised for diffusion to other world regions. Nowhere, though, has this diffusion and commercial use of the boat been as strong as in the Rocky Mountains. The drift boat has come to be largely associated with the sport and business of flyfishing in this region, to the point at which it has become symbolic of the Rocky Mountain lifestyle, along with skiing and log construction. This paper will review the origins, evolution, and diffusion of the McKenzie River drift boat, and will present preliminary findings from a

qualitative study designed to measure knowledge of the craft and its history by undergraduate and graduate students at The University of Montana. Specifically, the research seeks to assess the degree to which the drift boat is identified as a symbol corresponding to both regions, the mechanisms by which this symbol has been appropriated in the Rocky Mountains, and the implications for these regions in terms of economic activity and infrastructure.

Keywords: McKenzie River drift boat, flyfishing, recreation, rural economic development

Fred L. Shore, PhD, Mississippi Department of Agriculture and Commerce. Email: fred_shore@nass.usda.gov; Thomas L. Gregory, USDA-NASS. Email: Tommy_Gregory@nass.usda.gov; Rick Mueller, USDA-NASS. Email: Rick_Mueller@nass.usda.gov; *Multiyear Data From The Mississippi Cropland Data Layer*

The USDA-NASS has developed a system to use medium resolution (Landsat TM) satellite imagery and Agency collected field data to annually produce the Cropland Data Layer, a classified image showing the spatial range and extent of each major crop type. The resulting data is a cohesive spatial-temporal database of agricultural production across Mississippi. This study describes the preparation of a searchable database using ENVI® and SAS® and uses queries to extract quantitative information for the Mississippi Cropland Data Layer from 1999-2005. For example, in Bolivar County, pixel counts for 11 categories of classification for 7 years for 15,203 individual field polygons were examined. A SAS query of fields that classified as > 50 percent cotton showed that 56 percent of the single year land use for cotton for the 7 year period occurred in 2001. It is likely that the 2001 expiration of the 1996 Farm Bill led to an increase in cotton planting on marginal land for that year. In addition, multiyear ArcGIS® crop overlays provide a visual representation of the data and allow for change detection and crop rotational analysis.

Keywords: Mississippi, remote sensing, agriculture, spatial-temporal database, crop rotation

Ryan L Short, U.S. Bureau Of the Census. Email: Ryan.L.Short@census.gov; *Enhancing Urban Definitions in Response to Evolving Spatial and Demographic Datasets*

The Census Bureau is investigating several possible enhancements to the way in which it defines urban areas, based upon the review of the major methodological changes made for Census 2000. One area of investigation is the use of census tracts to facilitate a more streamlined approach to automating urban area delineation. Comparability of census tract definitions from one census to another and the wide variety of demographic data available for census tracts makes them attractive as building blocks for urban areas. Availability of commuting data at the census tract level from the American Community Survey shortly after Census 2010 will permit the use of place of work and census tract-level commuting flow data when delineating, splitting, and classifying urban area cores. The Census Bureau also is researching the use of USGS National Elevation Datasets to identify and create steep slope features. Identification of steep slopes will enable the Census Bureau to connect densely settled territory separated by mountain passes that may provide a barrier to development, but not to functional ties between urban areas. The Census Bureau is also investigating designation of other landuse features (e.g., flood plains) as potential exempted territory used to link densely settled areas.

Keywords: Census 2010, urban areas, GIS

Michael Shouse. Email: michael.lee.shouse@gmail.com; *Urban Sprawl Threatens the Floyd's Fork Watershed in the Louisville Metropolitan Area*

Urban sprawl continues to threaten environmental resources in the Midwest. The Floyd's Fork watershed is currently being impacted by increased development in the Louisville metropolitan area. The Floyd's Fork watershed is 62 miles long, beginning in Henry County and emptying into the Salt River in Bullitt County, after draining water from Shelby, Spencer, and Jefferson Counties. In Jefferson County alone, it services 122 square miles of land, making it the largest watershed in the county. Currently, there is very limited land use information on this rapidly growing area, which is making it very difficult for the Louisville Metro Planning & Design Services Department to manage this growth and for the Louisville/Jefferson County Metropolitan Sewer District to provide services to this area. The size and location of this watershed, along with increased human activity, have created a need to determine the land-use patterns in order to quantify the demand on this natural resource. It is also important to determine if these patterns include attributes that will indicate the direction of growth. This study uses remotely sensed data to identify the land use change patterns and determine if there are attributes that will indicate the direction of growth in the Floyd's Fork watershed by creating an unsupervised land classification using the ERDA IMAGINE software.

Keywords: remote sensing, biogeography, supervised land use classification, gis, urban sprawl, hydrology, urban planning

Namrata Shrestha, University of Toronto at Mississauga. Email: namrata.shrestha@utoronto.ca; Tenley Conway, University of Toronto at Mississauga. Email: tenley.conway@utoronto.ca; *Alternative geomatic approaches to developing spatially disaggregate data on exurban development*

Exurban development is one of the leading anthropogenic causes of land conversion in North America. The unprecedented pace of such growth, attributed mainly to improvements in information technology and changing demographics, is impacting previously undisturbed areas including those with high conservation value. Though the significance of exurban development and its potential ecological consequences are recognized by many in the literature, there are limited studies pertaining to it. One of the major hindrances to such studies is the lack of spatially disaggregate data on exurban development that is indispensable for ecological inferences. In this study, we compared three specific geomatic approaches that have high potential to map exurban developments in our study area (Central Ontario, Canada). First, a remote sensing approach using relatively high resolution (10m) multispectral SPOT/HRVIR imagery was employed to extract exurban buildings (with and without ancillary data). Second, a less direct approach of using the road network as the surrogate of exurban intensity in the landscape was explored. Third, we incorporated census housing data and road data in a dasymetric mapping approach to capture exurban development in the landscape. An accuracy assessment was completed based on digital property parcel data and air photos, and the results of the three approaches are compared. The implications of this analysis for the study of exurban development will be presented.

Keywords: Exurban mapping, gis, remote sensing, SPOT, Ontario

Avrum J. Shriar, Ph.D., Virginia Commonwealth University. Email: ajshriar@vcu.edu; *Using Political Ecology to Investigate Unsustainable Development: A Case Study from Cochabamba, Bolivia*

Numerous infrastructure projects in developing countries have led to negative environmental and socioeconomic impacts, either through poor planning and/or a failure to fully consider and address the potential for such impacts. This study sought to examine the environmental and socioeconomic outcomes of an irrigation project in Cochabamba Department, Bolivia, and gain insights into how and why the design and planning of the project was so clearly flawed. The research relied on a combination of project and other literature review, as well as fieldwork conducted in the mid-1990s and again in 2005. The fieldwork involved discussions with project technical staff and other professionals familiar with the project, as well as informal conversations and interviews with farmers and other householders in the project area. The research revealed that this \$8 million irrigation project, completed in the late 1990s, has served to destroy a traditional irrigation system that had been used for thousands of years, and has replaced it with a system fraught with numerous problems. The new system provides insufficient and diminishing quantities of water to fewer people within a smaller overall area, appears to be causing land degradation, and has led to deep socioeconomic divisions and, in some cases, conflicts, within and among the area's communities. The study raises compelling questions about the pressures and incentives that seemingly compel the staff of international and local development agencies to charge ahead with projects even when they have obvious potential for significant, negative impact.

Keywords: rural development, irrigation, land degradation, social conflict

John Shroder, Ph.D., University of Nebraska at Omaha. Email: jshroder@mail.unomaha.edu; Yeong Seong, M.S., University of Cincinnati. Email: ybseong@hotmail.com; Michael Bishop, Ph.D., University of Nebraska at Omaha. Email: ; Lewis Owen, University of Cincinnati. Email: ; Robert Finkle, Ph.D., Lawrence Livermore National Laboratory. Email: ; Jeff Olsenholler, M.S., University of Nebraska at Omaha. Email: ; *Mass-movement timing and landscape evolution in the Karakoram Himalaya, Pakistan*

New 10Be terrestrial cosmogenic nuclide (TCN), surface-exposure dating in Shigar and Braldu valleys, coupled with areal lithologic assessment of supraglacial moraines of Baltoro Glacier enable elucidation of glacially-eroded, frost-stressed and debuttressed slope-failure mechanics in Karakoram Himalaya. TCN dates define young glacial stages at ~16 ka and 13-11 ka (Mungo stage); and 5.7 ka, 4.4 ka, and 0.8 ka (Askole stage). Direct ice and melt-water erosion undercut and debuttressed valley walls leading to failure with minor to moderate time lags. The Ghoru Cho, Busper, Gomboro, and Urdokas slope-failure complexes have different causes, mechanics, and timings. Withdrawal of buttressing ice from Shigar valley produced the Ghoru Cho rock-avalanche complex from the southwest side. Rapid emplacement in Holocene time may have forced Shigar River to undercut the opposite valley wall that was already itself similarly debuttressed, resulting in the unusual Busper sackung at the Dassu gneiss dome apex forming Busper ridge. The massive Gomboro rockslide complex blocked the Braldu River to produce lake beds upstream and breakout floods downstream, with boulders producing mean TCN dates of ~0.8 ka. The Late Holocene Urdokas

rockslide complex on the south valley wall of the Baltoro Glacier was caused by north-dipping joints in granite, coupled with debuttressing by downwasting of adjacent glacial ice. The supraglacial moraine composition of the Baltoro and Godwin Austen Glacier from K2 Mountain show that they result from dominant mass-movement of weaker metasedimentary rocks, whereas many higher peaks (K2, Masherbrum) are the more glacier-erosion- and mass-movement-resistant gneisses.

Keywords: : Karakoram Himalaya, slope failure, rockslide, cosmogenic radionuclide dating, glacier stage, breakout flood

Sergei Shubin, University of Aberdeen. Email: s.shubin@abdn.ac.uk; *Lost in translation: articulating Russian poverty stories*

The paper deals with the theoretical and practical issues related to understanding and articulating poverty and difference. It goes beyond material definitions of social malaise trying to understand its different constructions in social, cultural and political domains. It reconsiders the "problematic" nature of poverty and attempts to escape the logic of existing ways of codifying diverse poverty. The paper achieves this by means of articulating the simultaneity of differences, complex practices and experiences of poverty in a study of different Russian poverty episodes. It allows uncertain connections between the elements of poverty (memories, symbols, artefacts, practices) to unfold and emerge through the stories of people which construct heterogeneous poverty spaces. This fluid approach to articulating social malaise accommodates the messiness of the every day realities of life of needy people and challenges homogeneous and exclusively rational interpretations of poverty. This leads to critical re-evaluation of the links between the poverty-related experiences of different people in various places and policy-making organizations responsible for dealing with poverty issues. The paper demonstrates how innovative approaches to understanding social malaise can prevent "exclusion of the excluded" poor and open up new opportunities to ameliorate their living conditions.

Keywords: difference, poverty, networks, rural, Russia

Benjamin J. Shultz, Indiana University Department of Geography. Email: bshultz@indiana.edu; *The Latino Immigrant Experience in Rural Central Kentucky*

Kentucky is demographically an aging state with persistently low natural increase rates and has historically experienced substantial rural out-migration of young individuals. However, the effects of this phenomenon have been mitigated by recent Latino in-migration responding to labor needs, especially in agriculture. Despite this rapid growth rate, very little research has been done to understand the adaptation process in rural destinations in the state. In a qualitative study that took place in a high-growth, rural county located in the "tobacco belt," semi-structured interviews were conducted to pursue information about Latino immigrants' choice of rural destinations, the nature and extent of the social networks involved, their living and working conditions and their social relations with the host societies. The study sample included thirty-one male, Latino immigrants. Most migrants came directly to Kentucky or to other non-traditional gateways in the Southeast, were making their first trip to the US, and had been in the community at least 2 years. Participants universally reported that they were very content with the community and frequently commented on its peacefulness, safety, low cost of living, mild weather, openness to new people and lack of racist or ethnic discrimination. These attributes were in contrast to other places they had lived in the Southeast and cited by many as a reason they chose to work and settle in Kentucky. Results suggest that the hospitality and abundant job opportunities that Latino immigrants encounter in rural, high-growth counties influence their decision to settle rather than move on.

Keywords: Immigration, Latino, Rural, Kentucky

Bryan Shuman, University of Minnesota - Minneapolis. Email: bshuman@umn.edu; Jeffrey P. Donnelly, Woods Hole Oceanographic Institute. Email: jdonnelly@whoi.edu; *Repeated multi-century droughts in the Northeast U.S. since 5600 years before present.*

Strong correlation of sedimentary variation in three lakes up to 240 km apart in Massachusetts document multi-century, regional climate variation since the mid-Holocene. Lake sediments track repeated ~700-yr long episodes of low lake levels in the past 5600 yrs. Evidence for five low paleoshorelines within each lake derives from ground-penetrating radar (GPR) profiles and sediment cores. Loss-on-ignition and scanning XRF data from near-shore cores within the three lakes reveal repeated sand layers that correlate with paleoshoreline features in GPR profiles. The sand layers date between 5600 and 600 cal yr BP. Ages for the events are highly consistent among lakes. For example, the calibrated ages for the beginning of the first low stand are 5340-5730 cal yr BP at New Long Pond, 5570-5690 cal yr BP at Round Pond, and 5655-5605 cal yr BP at Davis Pond; ages for the end of the fourth low stand are 2000-2110 cal yr BP at New Long Pond, 2270-2390 cal yr BP at Round Pond, and 2325-2350 cal yr BP at Davis Pond. The fifth event dates between ca. 1400 and 600 cal yr BP. Sparse

dendroclimatic data indicate that this most recent event coincided with a high frequency (>6 per century) of droughts like the historically-unique AD 1964 drought, which severally reduced water supplies in Boston and New York City. Regional replication of the results supports the interpretation of the lake level changes as having a climatic origin. Therefore, the humid Northeast may be prone to exceptionally dry centuries unlike experienced historically.

Keywords: Drought, lakes, northeast U.S., paleoclimate, Holocene

Ian George Shuttleworth, QUB. Email: i.shuttleworth@qub.ac.uk; Employment, Spatial Accessibility and Fear in Northern Ireland: A Spatial Interaction Modelling Approach

The labour market has traditionally been an arena in which the implicit (and explicit) political tensions between the two main communities in Northern Ireland (NI) have been expressed. Economic inequalities have been seen by some as a contributory cause of communal conflict. As a consequence, various governments have envisaged labour market reforms through the promotion of communal equality and the creation of greater material prosperity for all through 'peace dividends' as a way in which conflict can be reduced or even done away with altogether. Some important labour market debates concern the spatial accessibility of employment for both communities and the 'chill factor' - the fear of working in or travelling through an area dominated by the 'other' community. These issues are explored using ward-level flow data from the 2001 NI Census of Population to examine where workers move from and go to on a daily basis as they commute between their places of residence and work. A spatial interaction model is used to estimate the various factors that shape daily commuting flows and the magnitude of the 'chill factor' is discussed. The limits of quantitative approaches are explored as far as they relate to providing evidence for policymakers in a divided society. The general conclusion is that there is good evidence that the 'chill factor' exists but that it is difficult to give satisfactory proof to all the people all the time especially in a communally-divided society.

Keywords: Census, Spatial Interaction, Policy. Communal Division

Jason Sibold, Bad Dog Ranch. Email: Jason@baddogranch.org; Thomas Veblen, Dept. of Geography, University of Colorado, Boulder. Email: thomas.veblen@colorado.edu; Kathryn Chipko, . Email: ; Lauren Lawson, . Email: ; Emily Mathis, . Email: ; Jared Scott, University of Northern Arizona. Email: ; Influences of surface fire, mountain pine beetle, and blowdown on lodgepole pine stand development in the northern Colorado Front Range

Although high-severity fire is the primary type of disturbance shaping the structure of lodgepole pine (*Pinus contorta*) stands in the southern Rocky Mountains, many post-fire stands are also affected by blowdown, low-severity surface fires, and/or outbreaks of mountain pine beetle (MPB; *Dendroctonus ponderosae*). The ecological effects of these secondary disturbances are poorly understood but are potentially important in the context of managing for ecological restoration and fire hazard mitigation. We investigated the effects of blowdown, surface fires, and MPB outbreaks on demographic processes in lodgepole pine stands in Rocky Mountain National Park, Colorado, USA. We used dendroecological methods to reconstruct stand characteristics prior to and following secondary disturbances for paired stands with and without secondary disturbances. Surface fire events do not kill canopy trees or trigger pulses of recruitment, and as such do not have detectable influences on stand development. In contrast, both MPB and blowdown kill canopy trees and trigger pulses of tree regeneration of lodgepole pine and subalpine fir (*Abies lasiocarpa*). The amount and species composition of post-disturbance regeneration is dependent on the severity of the disturbance and on the time since stand initiation. The results of this study demonstrate that the high tree densities characteristic of lodgepole pine stands in the southern Rockies are the result of dense regeneration following stand-replacing fires and that surface fires had little or no thinning effect on tree densities. Thus, current high stand densities in the study area are not the result of suppression of surface fires.

Keywords: *Abies lasiocarpa*, blowdown, *Dendroctonus ponderosae*, mountain pine beetle, *Picea engelmannii*, *Pinus contorta*, secondary disturbance, subalpine forest, surface fire

Amy Siciliano, University of Toronto. Email: amy.siciliano@utoronto.ca; Stigma and security in the suburbs: The 'Year of the Gun' discourse in Toronto

A year of fatal shootings and gun-related violence in Toronto led popular media to label 2005 as the 'Year of the Gun'. While 'gun violence' in Toronto in particular, and Canada in general is certainly not a 'new' phenomenon, the disproportionate amount of media attention it has received suggests that it is being harnessed for broader practices of neoliberal restructuring, with the role of the state increasingly being framed through a discourse of 'security' rather than 'welfare'. This paper examines how this 'event' was discursively constructed through popular media, valorizing certain citizens and spaces while

problematising others. Such discourses relied on stigmatising images of social and spatial forms of poverty in the city's inner suburbs, while promoting protective images of the gentrified inner city. Accordingly, I document the sites where 'problems' came to be defined, and the modes of description at work to perceive them; how both images and words were selectively arranged to construct and support this narrative. I also document how this heavily mediated event 'jumped scales' from a localized arena to become a national election issue, when the 'Year of the Gun' was deployed by three of the main federal political parties to help legitimate the introduction of severe 'law and order' platforms into each of their campaigns.

Keywords: discourse, Toronto, media

James Derrick Sidaway, University of Plymouth. Email: james.sidaway@plymouth.ac.uk; Enclaved space: a new metageography of development?

Notwithstanding crisis and critique, 'Development' remains an enduring frame within which much social and economic transformation is interpreted and envisaged. In the context of arguments about the need for a nuanced spatial vantage point on 'development', this paper asks what this means in the context of new conjunctures and constellations of uneven development? In particular, it argues that a new configuration of and structure of development is increasingly evident: one in which intensified processes and patterns of uneven development are expressed in enclaves. The paper makes this case with reference to examples drawn from Southeast Asia, sub-Saharan Africa and the Gulf.

Keywords: Development, Enclaves, Post-development, primitive accumulation

Ravinder Sidhu, Dr, University of Queensland. Email: r.sidhu@uq.edu.au; Gloria Dall'alba, Dr, University of Queensland. Email: g.dallalba@uq.edu.au; Transnational education & (dis)embodied cosmopolitanisms

The state looms large in any consideration of transnational education - it is engaged in developing policies that support education export industries and in regulating the entry and exit of foreign education providers and students. Transnational education is also used strategically as a solution to the problems of providing educational opportunities and securing a trained professional workforce with the right mix of cosmopolitan sensibilities for a globalised economy. Although often portrayed as discreet autonomous institutions that are the central locus of power, states are constituted by everyday practices and representations. Feminists have long argued for studying the 'embodied state'. This paper takes as its focal point the sphere of transnational education to investigate how the embodied state creates hierarchies of belonging and of otherness. State instrumentalities use branding strategies to attract the desired international student 'customer', holding out the promise of a desirable cosmopolitanism. At the same time, issues of mobility, migration and ethnicity are constituted in terms of otherness. We show that transnational education practices are premised on the notion of a disembodied learner, even though relations between insiders and outsiders are strongly mediated by the embodiments of 'race', colour and gender. We suggest that the disjunctures between disembodied conceptualisations of transnational education, and the embodied experiences of international students present significant challenges for developing cosmopolitan sensibilities. In their current forms, transnational education initiatives are more likely to sponsor an instrumental form of cosmopolitanism inflected by neoliberal and nationalist values.

Keywords: transnational education; education brands, embodiment, cosmopolitanism

Loren Siebert, PhD, University of Akron. Email: siebert@uakron.edu; Historical GIS of Japan's Kanto Region

This presentation will give an update on the historical spatial database I have been creating of the greater Tokyo area using a geographic information system (GIS). Initial work on the project, done in the 1990s as my dissertation (Creating a GIS Spatial History of Tokyo), included mapping and initial interpretation of (1) shoreline changes and land reclamation in Tokyo Bay as well as rerouting of rivers flowing into Tokyo Bay, (2) conversion of administrative units from village to town to city to ward, (3) population changes, and (4) development of the Kanto region's railway network. Subsequent additions to the project pushed its time frame back into the 1800s by incorporating information on the distribution and characteristics of villages and towns in the 1830s and in the 1870s, using historical provincial maps, gazetteers, and military conscription surveys. After a gap in work due to my health, the project is now being revived to expand its geographic scope to include more of the Kanto region rather than just the greater Tokyo area. Additionally, plans are to expand the historical rail database well beyond the Kanto area, with the ultimate goal of covering the entire country.

Keywords: GIS-historical, Historical-GIS, Japan-Edo, Japan-Tokyo

Thomas Sikor, Humboldt University, Berlin. Email: thomas.sikor@rz.hu-berlin.de; Johannes Stahl, Humboldt University, Berlin. Email: johastahl@yahoo.de; Stefan Dorondel, Humboldt University, Berlin. Email: dorondel@yahoo.com; Property, access, and state legitimacy: Emergent political orders in Albanian and Romanian forests

Property reforms have been cornerstones in the efforts by postsocialist states to create new foundations for economic production and exchange, correct the wrongs of socialism, and provide people with new rights signifying their participation in the new democratic order. The legitimacy of postsocialist states, therefore, rests to a significant extent on the property reforms, the local dynamics associated with them, and the effects of those dynamics on access to productive resources. This paper examines the relations between property, access, and state legitimacy by way of four case studies on forest relations in Albania and Romania. Insights from the case studies suggest that small numbers of powerful actors were able to gain most of the benefits derived from timber logging and firewood extraction in all four sites. The concrete relations of property and access varied among the four sites, however, as they were closely intertwined with local political orders. In addition, they indicated distinct differences between Romania and Albania. Forest restitution allowed the Romanian state to maintain not only its control over access to forests but also its legitimacy in the eyes of rural people despite - or perhaps because of? the predatory actions of local state officials. In contrast, the lack of property reform in the forest sector and inability to enforce the state's legal control over access to forests weakened the legitimacy of the Albanian state.

Keywords: forest politics, property, access, state, Central and Eastern Europe

Erin Sills, NC State University. Email: sills@ncsu.edu; Jill Caviglia-Harris, Salisbury University. Email: jlcaviglia-harris@salisbury.edu; Subhrendu Pattanayak, RTI International. Email: subhrendu@rti.org; Dan Harris, Salisbury University. Email: ; Shubhayu Saha, NC State University. Email: ; Luke Jones, University of Tennessee. Email: ; Suzanne McArde, Salisbury University. Email: ; Marcos Pedlowski, Universidade Estadual do Norte Fluminense. Email: ; Deforestation and Development on an old Amazonian Frontier: Spatial and Temporal Patterns in Land Use and Welfare

The frontier development process in the Brazilian Amazon is widely believed to result in increasing inequality and poverty. The apocryphal description of regional settlement is that migrants clear forest and plant crops for a few years and later sell out to ranchers who consolidate large expanses of pasture. As a result, small farmers migrate further into the frontier and continue the cycle of deforestation while large ranchers prosper. However, some researchers argue that with appropriate public services and production choices, smallholders also prosper. In this paper, we analyze welfare and land use of households within six municipalities in a heavily deforested frontier region. Using a three-period spatial panel including survey and satellite data and spanning nearly a decade, we evaluate how levels and the distribution of land use and welfare have evolved, examining whether there is convergence or divergence both across and within municipalities. In the most recent survey round, households generally self-report improved quality of life, but objective measures of income and wealth widely vary. We calculate gini coefficients (to examine the changing distribution of income and wealth) and order statistics (to examine social mobility). We find that levels of welfare (as measured by capital assets and income) have increased at rates that exceed national averages in all municipalities but are persistently higher in municipalities with better market access. The initial distribution of wealth largely determines relative improvements in welfare across households. Land use is generally converging towards cattle pasture, regardless of initial household or municipal conditions.

Keywords: Amazon-Brazilian, deforestation, economic development

Carolina PC Silva, Student. Email: cps161@psu.edu; Sustainability and transportation: a contribution to social equity in South America

Transportation systems constitute one of the main structures of urban geography in developed and developing countries. Places of human activity are spatially defined by transportation structures that allow movement, and facilitate interrelationships amongst users and activities. That being so, transportation has major impacts on the landscape, as much in the social dimension as the physical. Because of these strong relationships, planners, architects and designers can further the planning and design of built environment by minimizing the negative impacts of inaccessibility and exclusion to achieve truly sustainable transportation systems. There is major acknowledgement that transportation systems based on private automobiles are not sustainable, although they are increasing globally. Most developed and developing countries face increasing automobile ownership rates with consequential decreases in public transportation ridership, bicycling, and walking. While the disconnection between transportation planning and sustainability affects most countries, it is more devastating in cities of developing

countries, exacerbating issues of access to urban centers and equality of opportunities. This presentation explores the impacts of transportation in the social landscape of developing countries in South America. It defines the spatial dimensions of social exclusion in transportation; and presents a typological framework of transportation systems in South America that are successfully addressing these issues. The research uses comparative analysis among 4 South American cities - Curitiba and Porto Alegre in Brazil, Santiago in Chile, and Bogotá in Colombia - to search for policies and practices that foster social sustainability in transportation systems.

Keywords: sustainability, transportation, social exclusion, developing countries, South America

Julie Silva, University of Florida. Email: silva@geog.ufl.edu; Neoliberalization and inequality in Mozambique: A case study in the use of iterative mixed methods

This study uses an iterative, mixed methodology to investigate the effects of agricultural trade on inequality in Mozambique, a country that adopted a neoliberal development program in 1987. The data collection and empirical research were conducted sequentially so that findings at each phase of the analysis could influence the design of later phases. At the regional level, regression results indicate a complex relationship between inequality and agricultural trade. Vegetable trade is associated with higher inequality in southern Mozambique, while cash cropping is associated with lower inequality in the north. Intraregional differences between households may influence trade's impacts on inequality. Qualitative results indicate that the context of agriculture trade and the social status of traders varies greatly across the two regions. In the north, where there are fewer economic opportunities, agricultural trade is perceived as a high status activity and dominated by men. However, in the south, where people have more exposure to other types of employment, the marketing of agricultural goods is seen as an undignified and generally feminine activity. These results suggest that trade increases inequality in rural areas of Mozambique where trading has a low social status, but does not increase inequality in those areas where it has a high social status. Taken together, these findings indicate that social factors are working together with economic ones to generate new landscapes of inequality. Therefore an understanding of the social drivers of inequality is necessary for the Mozambican government to mitigate any inequality-increasing effects of neoliberal policies.

Keywords: Africa, international trade, development

Jose Silvan, Texas State University - San Marcos. Email: js1536@txstate.edu; Sub-pixel confusion-uncertainty matrix for the accuracy assessment of soft classifications

The prevailing concerns on ecological and environmental issues, especially at regional to global scales, have prompted significant advances on the use of remote sensing data for the estimation of land cover information at sub-pixel level. However, the quality of such classification products, as well as the performance of the classification protocol employed, are difficult to quantify. Because of this, and despite the increasing need for sub-pixel and super-pixel assessment of classification products, a standardized assessment procedure has not been established yet for soft classifications. In this paper I review the alternatives for producing cross-comparison matrices when the pixel-class relationship is defined through the proportion of sub-pixel class coverage, and the agreement-disagreement is quantified as the proportion of area overlap among the classes at sub-pixel level. It is shown that, in general, there is no unique solution for the actual proportions of agreement-disagreement at sub-pixel level between the reference and assessed datasets, and the necessary conditions under which a unique solution can be admitted are determined. For a more general case, a new cross-comparison matrix that reports the confusion interval in the form of a center value plus-minus maximum deviation is proposed. The new matrix is referred to as sub-pixel confusion-uncertainty matrix (SCM). The use of the new cross-comparison matrix for assessing the separability among the fuzzy classes is illustrated with a case study of invasive species detection through hyperspectral remote sensing.

Keywords: fuzzy classification, accuracy assessment, error matrix

Jennifer J. Silver, M.A., Ph.D Student, School of Environmental and Resource Management, Simon Fraser University. Email: jsilver@sfu.ca; Kira Furman, . Email: kfurman@sfu.ca; Evelyn Pinkerton, Ph.D, . Email: ; Robyn Heaslip, B.Sc, . Email: ; Jason Nephin, B.A., . Email: ; Ian Williamson, B.Sc, . Email: ; Co-management as adaptive resistance to the neoliberal governance paradigm

The current neoliberal paradigm in resource management may seem in opposition to the principles of resource co-management. In many ways this is the case. However, both ultimately rest on the tenets of decentralization. Under a regime of neoliberalized resource management, co-managing communities face the dilemma of satisfying the needs of their own members along with the modus

operandi of governing agencies, a task that may involve reconciling divergent visions. Various authors in the co-management literature have in fact emphasized the incompatibility that often occurs between the vision of the state and that of the community. However, communities can combat this by using adaptive strategies to balance their vision for the resource with the expectations of the state. Our paper focuses on this proposition and its implications for prospects for co-management both within, and as a challenge to the neoliberal management paradigm in resource management. We will begin by defining common government-community co-management arrangements in the Western context. Our central examination will rest on the presentation of characteristics from successful co-management case studies, and more specifically, strategies utilized by communities to adapt to, accommodate, or resist the dominant governance paradigm.

Keywords: Governance paradigm, Neo-liberalism, Co-management, Resource Management

Sun Hui Sim, Florida State University. Email: ss06j@fsu.edu; Spatio-temporal dynamics in Seoul Metropolitan Area: Linking Bayesian approach into land use/cover change

The research is concerned with the relationship between land use/cover change and socio-economic information using a Bayesian prediction model based on a likelihood ratio function in the Seoul Metropolitan Area (SMA). Since economic development and the following rapid urbanization of the 1960s in Seoul, the growth and formation of secondary cities in the SMA have been basically centered on the development of Seoul itself. Although land use/cover change seems to have no specific direction and pattern regionally, it has regular direction and pattern when it is seen as a whole of the SMA. The purpose of this study is to analyze the general pattern in terms of land use/cover change with socio-economic information, and to forecast future change with a Bayesian approach in secondary cities, SMA. Here I first classify 4 Landsat satellite images from 1972 to 2000 for time series analysis. Then, extract the changing area using post-classification comparison by time. Thirdly, socio-economic data (population density, road networks, the number of establishments and land regulation) are combined in GIS environment. Fourthly, I produce maps of future land use/cover change with Bayesian approach using a likelihood ratio function. Finally, discussion of the potential of the Bayesian approach for land use/cover change forecasting within remote sensing, GIS and Spatial Modeling.

Keywords: Bayesian Approach, Land use/cover change, Seoul Metropolitan Area

Dragos Simandan, PhD, Brock University. Email: simandan@brocku.ca; Jeffrey S. Boggs, Brock University. Email: jeff.boggs@brocku.ca; The world needs more Canada, or the other way around? A g theory perspective on Canadian immigration policy

The purpose of the paper is to demonstrate that: a) current Canadian immigration policy is biased against individuals of low intelligence, b) this bias may be unintended, and c) this bias is highly consequential for Canada's social and economic geography. The demonstration is informed by g theory and is based on the dissection of the criteria for assessing requests for immigration. We conclude by speculating on the possible extensions of g theory to other areas of economic geography.

Keywords: immigration, intelligence, brain drain, globalisation, economic geography

Cynthia S. Simmons, Michigan State University. Email: simmo108@msu.edu; Agrarian reform in the wake of Latin America's political shift to the left: A case study of social and environmental impacts in the Brazilian Amazon.

Populist demand for agrarian reform that reverberated across the developing world in the second half of the 20th c. has once again become a top concern for a growing international landless movement. From countries as geographically diverse as Zimbabwe, Indonesia, Bolivia, and Brazil, peasants are demanding their rights to land, and many leaders are responding. In this paper, I examine agrarian reform efforts in Brazil within the context of the larger populist agenda being pursued in Latin America in the wake of a radical shift to the political left. I next present a case study that focuses on the social and environmental impacts of land reform in the Brazilian Amazon. I conclude the paper by drawing out potential policy implications for both Brazil, and other nations pursuing agrarian reform.

Keywords: Agrarian Reform, Populism, Brazil, Deforestation

Terry Simmons, Ph.D., Centre for Global Policy Studies. Email: terry@environment-lawyer.com; Multidimensional transboundary environmental challenges and choice of laws across the Washington-British Columbia border

Transboundary environmental dispute resolution between Canada and the United States assume bilateral political and institutional relationships within and among the two federal nation-states. Ultimately, comity is essential between the upstream and downstream or upwind and downwind parties. Canada and the United States have a rich history of transboundary environmental relationships beginning with the Boundary Waters Treaty of 1909 and with the establishment of the International Joint Commission. Indeed, the landmark Trail Smelter Arbitration is among the earliest international environmental law cases, where the downwind farmers in Washington were compensated eventually for crops destroyed by transboundary air pollution from the Cominco lead zinc smelter in Trail, British Columbia. Several unilateral, bilateral and multilateral perspectives and allegiances have been applied at local, regional, national and international scales among relevant rival corporate, non-profit and governmental entities in recent years. Thus, a government agency in Seattle issues a unilateral order to a Canadian corporation. Later, the two parties sign a complex, subnational working agreement that avoids jurisdictional issues. Another government agency demands compliance with the extraterritorial application of NEPA much to the displeasure of British Columbian entities that opt to follow domestic laws. Another major transboundary dispute was resolved with an innovative, subnational agreement between the Province of British Columbia and the City of Seattle, ratified by a bilateral treaty. Regional questions of sovereignty, jurisdiction, choice of laws and conflict of laws highlight or obscure traditional federal and bilateral relationships. However, national or bilateral federalism maintains legal and formal supremacy in transboundary environmental disputes.

Keywords: law and geography, political geography, international environmental dispute resolution, water, sovereignty, jurisdiction, British Columbia, Washington, transboundary relations, Canada, United States

Gregory Simon, University of Washington. Email: glsimon@u.washington.edu; Brokering Development: The Commercialization of Household Energy Devices in Rural Maharashtra, India

This paper explores neoliberal development policies designed to establish commercial markets for improved/modern household energy devices in rural Maharashtra, India. I examine patterns of intermediary action, or forms of 'brokering', used strategically by different community groups in four villages - including female head-of-households, village artisans, and employees of local non-governmental organizations. Here, I pay particular attention to the way creative community governance frameworks emerge as a mechanism for translating, integrating and overcoming the primacy of supply-side management strategies and discursive framings of "the healthy home".

Keywords: Development, Household Energy, Neoliberalism, India, Brokers

Laurence R. Simon, Ph.D., Brandeis University. Email: lrsimon@brandeis.edu; A Pedagogy of the Oppressed in the Mississippi Delta

The Delta counties of Mississippi have one of the highest concentrations of poverty and ill health in the United States. A defining characteristic of this population is low-level adult literacy and numeracy with significant functional illiteracy. More than a lack of preparedness for employment opportunities, illiteracy has kept generations of descendants of slaves isolated both physically and psychologically. This paper explores concepts of place among low literacy inhabitants of one of the poorest parts of America and poses the question of what a "pedagogy of the oppressed" based on the seminal work of Paulo Freire might achieve. Reference will be made to Freire's basic concepts and early work in the northeast of Brazil.

Keywords: Mississippi, literacy, place, poverty, Paulo Freire

Stephanie J Simon, University of Kentucky. Email: stephaniesimon@uky.edu; "The well-told and uplifting lie": the 'culture of fear' and the security imperative

The end of the twentieth century saw the proliferation of 'Culture of fear' discourses and theories of the 'risk society' that propose a vision of modernity gone awry. Here, risk has become the banal emphasis of everyday life where anxiety exists everywhere and nowhere. The 'culture of fear' proliferates through 'non-events' and potentials, such as possibilities for identity theft, plane crashes, tainted spinach, flu pandemics, stranger danger, and so on. This paper draws the risk society and culture of fear discourses into the so-called 'post 9/11' world ("forever changed") where an Event provided the basis for security as the paradigm and imperative of government. In the U.S., homeland security has itself indefinitely extended potential risk (and the then concomitant idea of preparedness) infinitely and in all directions. This paper traces some of the geographical approaches to fears and proposes some new directions for thinking fear and space

in the climate of 'homeland security'.

Keywords: homeland security, risk, fear

Richard Simpson, PhD Candidate, Modern Thought and Literature, Stanford University. Email: mordenti@stanford.edu; *The University City as Genred Space*

My paper examines the means by which the North American campus seeks to embody national educational values through local forms of architectural representations and landscape planning. Thus, I argue that the campus and its surrounding community, or university city, asserts a unique spatial semiology. Beginning with Frederick Law Olmsted's land-grant colleges, I track questions of campus formations and the construction of American education values through shifting geographies of power relations between the university and the city. Today this nexus is widely articulated in the rhetoric of service learning pedagogies. Increasing racial, class, and gender conflicts in the contemporary university city, I argue, have origins in nineteenth century American educational values, as well as the way in which these values have been thoroughly redefined by their own spatial and pedagogical practices. Using post-structural cultural theory arising from Saussurean linguistics, I analyze the genealogical transformation of this spatial language through a heuristic I call genred space. Derived from the way in which the campus body engages with nationally shared education ideals, while simultaneously registering the desires and influence of its unique historical context, genred space enables an organic methodology from which to allocate differences in regional pedagogical formations across geographies and histories of the American university city.

Keywords: universities, campuses, education, knowledge production, pedagogy, semiology

Frank Michael Sims, Florida State University. Email: fms03c@fsu.edu; *Utilization of Ancillary Data in Object-Based Classification of High Resolution Satellite Imagery*

The purpose of this paper is to establish the benefit in utilizing object based image classification in combination with ancillary data such as a Digital Line Graph to classify land cover types associated with urban land use versus object based image classification that relies solely on the native image. Specifically, this paper will focus on the classification of roads from multi-spectral IKONOS satellite imagery that has a spatial resolution of 4 meters using the object base classification software eCognition Professional 4.0 by Definiens Imaging Co. and a rasterized Digital Line Graph (DLG) from the United States Geological Survey (USGS). The hypothesis presented in this paper is that the USGS' DLGs can be used to improve object-based classification of high-resolution satellite imagery by improving the creation of image objects in eCognition. A mask of pixels that were known to be representing physical roads in the raw image was used to assess accuracy. The two classified images were then compared with the mask and the accuracies were calculated using the TTA Mask Error method. The Overall Accuracy of the classification of roads from the IKONOS multi-spectral image rose from 0.7989 in the unclassified image to 0.9578. This is an increase of 0.1589 or nearly 15.1%, and is a substantial increase of accuracy that would lead us to the conclusion that the inclusion of ancillary data in the process of object based image classification would increase the classification accuracy of roads.

Keywords: Remote Sensing, object based image classification, eCognition, GIS, DLG

Audrey Singer, Brookings Institution. Email: asinger@brookings.edu; Jill Huttar Wilson, The Brookings Institution. Email: jwilson@brookings.edu; *Refugee Resettlement in Metropolitan America*

Though comprising only 10 percent of annual immigration to the U.S., refugees are a distinct component of the foreign-born population in many metropolitan areas. While the refugee experience reflects the interplay between international, national, and local actors, in practice it is influenced by the availability and efforts of distinctly local resources and institutions. Prior descriptions of refugee settlement patterns in the U.S. have been based on widely available state-level data. Using a special data tabulation from the U.S. Office of Refugee Resettlement, this paper is the first to report on the metropolitan destinations of refugees resettled between 1983 and 2004. This paper examines where refugees come from?documenting significant region-specific flows tied to various overseas conflicts?and where they land, finding that refugee destinations are shifting away from typical immigrant gateways housing large foreign-born populations to newer, often smaller, places. By linking refugee resettlement to metropolitan areas, this paper highlights differences across places and addresses the implications for service provision and demographic change within receiving areas.

Keywords: immigration, refugees, population geography, urban geography, metropolitan areas

Michael B Singer, PhD, University Of California Santa Barbara. Email: bliss@bren.ucsb.edu; *Flood Risk in the Sacramento Valley: The Status of a Creaky, yet Functional, Flood Control System*

The Sacramento River's flood control system was conceived as a system of weirs and bypasses that would shunt floods out of the leveed main channel into engineered floodways that drain directly into the Sacramento Delta. The system was later augmented with several large dams that heavily influence hydrographs directly downstream, but that have had modest influence on flows in the downstream portions of the basin. The system still relies on the weir and bypass system to keep low-lying communities dry during floods. However, the Sacramento Valley bypass system exhibits widespread evidence of impairment by erosion and sedimentation. Episodic flooding in the basin delivers large volumes of sediment to flood bypasses that probably originates from legacy tailings fans from the hydraulic mining era. These deposits, in addition to decreasing flow capacity, promote colonization of vegetation, which increases roughness and thereby decreases flood conveyance. Deposits forming at the entrance to bypasses increase stage thresholds for floods entering the floodway, increasing flood risk in the main channel downstream of the entrance. These deposits promote lateral channel migration away from the bypass entrance and/or erosion of the bed in the vicinity of the entrance, both of which apply additional pressure to the flood control levees along the main channel downstream of the entrance. These factors and fallout from the Katrina disaster have precipitated bypass sediment removal and levee repair along main channels, but it is unclear how effective these measures will be in the coming decades, especially within the context of regional climate change.

Keywords: floods, sedimentation, flood control

Ashbindu Singh, UNEP DEWA North America. Email: as@rona.unep.org; Hua Shi, UNEP GRID Sioux Falls. Email: hshi@usgs.gov; H. Gyde Lund, . Email: gyde@comcast.net; Tejaswi Giri, UNEP GRID Sioux Falls. Email: tgiri@usgs.gov; Bruce W Pengra, USGS EROS - UNEP GRID Sioux Falls. Email: bpengra@usgs.gov; Kim Giese, UNEP GRID Sioux Falls. Email: giese@usgs.gov; Jane S. Smith, UNEP GRID Sioux Falls. Email: jssmith@usgs.gov; *An Analysis of Trans-boundary Lakes in Africa*

This paper highlights the findings of an analysis of 15 trans-boundary lakes in Africa. Time-sequential satellite images of these 15 lakes were used to show areas of environmental change, including altered hydrology (dams, river diversions, water levels, and drained wetlands) and loss of valuable habitat. The images show the progressive impact of climate change and human activities on these shrinking water bodies. One example of significant change is Lake Victoria, the largest of all African lakes and the second largest freshwater body in the world, whose boundary is shared by three countries: Uganda, Tanzania, and Kenya. The population within 100 km of Lake Victoria is growing at an annual rate of about three percent, outpacing the continental average. Population density (persons per square kilometer) around Lake Victoria is much higher than the continental average (45 vs. 9 in the 1960s, 84 vs. 16 in the 1980s, 218 vs. 32 in 2000, and 246 vs. 36 [projected] in 2010, respectively), increasing human dependence and environmental pressure on the lake's resources. Satellite measurements taken since 1961 confirm the changing water levels of Lake Victoria, which is now about a meter lower than it was in the early 1990s. The lower water level is a growing concern for the population around the lake, because of the accelerated degradation of the entire lake ecosystem.

Keywords: Africa, trans-boundary lakes, Lake Victoria, Population

Nagendra Singh, Oak Ridge National Laboratory, GIST. Email: singhn@ornl.gov; Tristram O. West, Oak Ridge National Laboratory, ESD. Email: westto@ornl.gov; Gregg H. Marland, Oak Ridge National Laboratory, ESD. Email: marlandgh@ornl.gov; Budhendra L. Bhaduri, Oak Ridge National Laboratory, GIST. Email: bhaduribl@ornl.gov; *Mapping the Distribution of Carbon Exchange by Humans in the US*

A primary goal of the North American carbon program (NACP) is to improve our understanding and ability to estimate regional carbon fluxes. A potentially significant component of the regional carbon budget is the lateral displacement of carbon by the human population. In developed countries such as the US food is grown in spatially concentrated areas and then transported to different regions for consumption by humans and livestock. This displacement creates sources and sinks of carbon that are distinct over space and time. In addition, the consumption and release of carbon by humans is dependent on sex and age amongst other factors. The main objective of this study is to estimate carbon expiration and other carbon releases from humans in the US. Having balanced the human carbon budget, we can use food intake as a proxy for carbon expiration from humans. Using demographic and food consumption data, released by the US Census and US EPA respectively, carbon consumption for different age and sex groups were determined. These results were then integrated with Oak Ridge National Laboratory's Landscan population model to produce a fine scale spatial database for human carbon exchange in the US. This database will be

useful in completing land-based carbon flux estimates and for estimating the ultimate fate of agricultural products in the US.

Keywords: Carbon, Mapping, Population, Landscan

Binita Sinha, Diablo Valley College. Email: bsinha@dvc.edu; *The Impact of School Quality on Real Estate*

Since early 1990s, several reports have indicated that school quality significantly affects residential location choice as well as residential property value. School districts can act as 'pull' or 'push' factor in residential relocation. Case studies have revealed that houses in a top school district sell for several thousand dollars more than the ones in a less desirable school district. Also, the appreciation of residential real estate has a spatial variation that seems to follow the pattern of school district quality. Using GIS as a tool, this paper presents spatial analysis of school quality and residential real estate within the Santa Clara county, CA. This region, centered around the Silicon Valley and the city of San Jose has one of the most expensive housing markets in the nation. With the median cost of above \$600,000 for single family homes, the home ownership is less than 30% in this region. This paper examines whether quality of public school district - as measured by the most common indicators, has any significant impact on the housing price and if there is a pattern across the county of Santa Clara, CA.

Keywords: housing, school, district, real-estate

Gaurav Sinha, University at Buffalo, The State University of New York. Email: gsinha@buffalo.edu; David M. Mark, Professor, University at Buffalo, The State University of New York. Email: dmark@buffalo.edu; *Extraction, Characterization, and Classification of Topographic Eminences*

Terrain classification systems are usually based on the continuous field-based model of topography. While this has served geoscientific research well, people's naive mental models of terrain are better matched by objects that have boundaries and can possess characteristic properties such as sizes and shapes. An information system for helping people find information about landforms will require methods to extract landform objects from continuous terrain data, assign characteristic properties to the objects, and then classify the objects into types. We report research on the extraction and classification of landforms in a case study of topographic eminences, which we define as landform features that stand above their immediate surroundings, and thus dominate people's visual fields. We extract the maximal extent of an eminence using a reversed drainage accumulation algorithm. We also extract a minimal region, representing the summit of the eminence, using geomorphometric parameters. The maximal and minimal regions of the eminences are then characterized in terms of their shape, size, relief, viewshed, and spatial relationships with other eminences. Using these measures, we investigate whether eminences in a region tend to cluster together in groups based on similar parameter values, which would imply the existence of "natural kinds" of topographic eminences. Because the recognition and classification of landform objects has been shown to vary across linguistic and cultural categories, our results could be useful in estimating the universality of perception eminence types across languages and cultural groups, and in providing language-specific geographic objects from a common environmental database.

Keywords: topography, feature extraction, terrain, GIS, ethnophysiology, terrain classification, landscape

Maureen Sioh, DePaul University. Email: msioh@depaul.edu; *Citizenscapes: Performing the Nation-State*

This paper traces Malaysia's postcolonial landscape to its roots in the British counter-insurgency campaign against the forest-based Malayan Communist Party (MCP) after WWII. Colonial reterritorialization of Malaya required both physical reconfiguration and imaginative recuperation of the landscape. The ultimate success of the counter-insurgency rested on two ambitious policies: the New Villages and later, the FELDA agricultural scheme. I explore how the two policies constructed moral 'citizenscapes' based on ethnicity that reflected the state's anxieties of control. The New Villages comprised a punitive landscape designed to contain 20% of the population suspected of supporting the MCP. Curfews and a geometric architecture combined in the New Villages to immobilize its population as well as render them visible to, and manageable by, the state. But I contend that an equally urgent task of the reterritorialization project for the Malaysian post-colonial government who sided with the British in the decolonization struggle, was the creation of a positive moral scopic politics of an essentialized national space inhabited by loyal subject-citizens in place of the anarchic rainforest and its insurgent population. Invoking contemporary scholarship on performativity, I analyze the state-sponsored agricultural FELDA schemes through the concept of biosettlements as theatrical stages for performing national identity embodied in the icon of the male bumiputera settler. The FELDA schemes accomplished two significant projects for producing state power: accumulating agricultural revenue and imaginatively recuperating the space of the nation through the thousandfold enactment of citizenship in the

settlers' quotidian agricultural rituals.

Keywords: counter-insurgency, performativity

Neil G Sipe, Griffith University. Email: n.sipe@griffith.edu.au; Jago Dodson, Griffith University Urban Research Program. Email: j.dodson@griffith.edu.au; *Oil and Mortgage Vulnerability in U.S. and Australian Cities*

Global oil prices have doubled in the past three years. While the impacts on cities of rising transport costs have so far been modest, the longer term strategic petroleum outlook suggests significant cause for concern. Urbanists need to begin comprehending how the impacts of rising fuel prices may impact upon cities and how these impacts will interact with urban social and economic processes. This paper will further this necessary debate about urban petroleum futures by examining the prospects of US and Australian cities. The research presented will extend previous Australian analysis by the authors to the US context. The paper will review the global petroleum context including projected supply constraints and timelines, examine alternative energy opportunities, and consider the likely impacts on US and Australian cities of energy supply constraint scenarios. The paper will present novel empirical research that assesses the likely distribution of socio-economic impacts due to rising fuel cost by incorporating a spatial 'oil vulnerability' assessment methodology constructed by the authors which is able to operate at a very fine level of geographic detail. This methodology is capable of identifying which socio-economic groups will be most impacted by rising fuel costs, and their location within US and Australian cities. The findings from this analysis will then be used to identify likely urban scenarios arising from future energy constraints. The paper will conclude by identifying spatially sensitive urban transport and planning policies that can assist to reduce the socio-economic impacts of urban oil vulnerability.

Keywords: transport, energy, urban geography, housing debt

Robert A. Sirk, Austin Peay State University. Email: sirkr@apsu.edu; Jedidiah R. Sirk, Northwestern University. Email: j-sirk@northwestern.edu; *Policies to Sustain and Protect the Species or the Market: Resource Policy for the Caribbean Queen Conch*

Environmentalists would argue that a resource is not a commodity. But, short of abolishing natural resource markets, separating policies protecting and sustaining resources from those insuring resource economic viability is uncertain at best. This is particularly true for marine species. The paper examines this dichotomy of purpose in the management of the queen conch (*Strombus gigas*), a univalve marine gastropod of the Caribbean Sea, southeastern Florida, and Bermuda. Accessible, edible and decorative, it is synonymous with the south Florida-Caribbean region, and has served for millennia as food, decoration, utensil, and ceremonial tool. Mid-20th Century capture technology and growing demand led to unsustainable harvest. Coupled with often unreported population data and inability to police illegal trade, commercial harvest threatens species viability. In response, regional and international policies of regulation, protection, and population replacement are being attempted. The U.S. is at the center of the international conch trade controversy. It dominates world import of conch products, leads in formulation of regulatory guidelines, and fosters research into species sustainability. Utilizing descriptive history and available recent catch and trade data, the paper discusses species exploitation. Drawing on recent management policies and practices, it speculates on economic and environmental implications of frequently dichotomous policy meant to both satisfy demand and maintain sustainable population levels.

Keywords: Caribbean, management, natural resources, policy

Chona E. Sister, Univ. Of Southern California. Email: sister@usc.edu; John P Wilson, University Of Southern California. Email: jpwilson@usc.edu; Jennifer Wolch, University Of Southern California. Email: wolch@usc.edu; Jennifer Swift, University Of Southern California. Email: jsswift@usc.edu; Parisa Ghaemi, University Of Southern California. Email: ghaemi@usc.edu; *Visualizing Fairness: Using A Continuous Surface for Equity Maps*

The equitable distribution of public services is a growing concern in today's increasingly diverse society. Utilizing parks in Southern California as a case study, this paper demonstrates an approach that allows for the representation of accessibility using a continuous surface. If we assume that everyone uses the nearest park at some uniform rate, we can conceivably assign each person in the region to a park and thereby delineate a service area for each park. We accomplished this by generating Thiessen polygons around each park, assuming that everyone within the bounds of any one polygon uses the park at its center. For each park service area (i.e., Thiessen polygon), we assigned the corresponding population count from LandScan's population grid, thus providing an estimate of the potential number of people each park is serving; that is, an approximation of "park congestion" per park. Patterns in park congestion were examined as they relate to the socio-economic characteristics of each service area. Results of our

analysis show a compelling picture of the disparities between the location of park resources and the locations of populations that are disadvantaged and in most need. On one hand are smaller parks mostly located in densely populated neighborhoods, while on the other hand are large tracts of open spaces in areas that are sparsely populated. Areas that have high people to park area ratio, are mostly low-income communities comprised of racial and ethnic minorities. Areas that have lower people to park ratio, tended to be predominantly white and affluent.

Keywords: Parks, Open Space, Equity, GIS, Thiessen Polygons, Los Angeles

Henry Sivak, UCLA. Email: henrysivak@gmail.com; *The Times and Spaces of the Exception: Law, Empire and Sovereignty*

In a recent article, the colonial historian Ann Laura Stoler argues that “that the formation and redistribution of zones of ambiguity [...] accurately describes a long history of imperial contest and expansion” (2006: 141). Taking this claim seriously, this paper analyzes French efforts to define and codify the legal status of “native” Algerian populations under colonial rule. In particular, it focuses on the special criminal penalties (the “régime de l’indigénat”) developed from 1874 and implemented until the end of WWII. It explores how debates over these laws, and over the legal status of Muslim Algerians in general, were bracketed both (i) by multiple and often contradictory visions for Algeria’s place within the broader framework of republican legal norms; and, (ii) by efforts to define France as a territorially expansive state-form. Against this backdrop, the paper turns to Agamben’s (2005) efforts to define the state of exception as a historically transcendent political form located at the metaphysical roots of human life, an approach that dislodges the concept from the particular times and spaces in which “exceptional” laws are crafted. This approach, I argue, marginalizes questions of statecraft, sovereignty and power and fails to capture the spatial and temporal visions that framed French colonial understandings of exceptional legal jurisdiction. I conclude by suggesting that the state of exception and the biopolitical powers it portends can be grasped at historically and geographically specific registers, putting into focus how specific legal orders are crafted and their limit conditions defined.

Keywords: political geography, state of exception, Agamben, French Algeria, France

Jenny Sjöholm, Uppsala University. Email: jenny.sjoholm@kultgeog.uu.se; *Conceptualizing absorptive capacity and observation in economic geography*

In economic geography the importance of knowledge, learning and innovation are now commonly emphasized in our explanations of firms’ and regions’ development. Innovation is looked upon as an interactive and social learning process, which also is territorially embedded. However, there remain a series of interesting questions about how individuals take in new information and how we in fact learn from one another. In many situations we learn through observation, seeing things, or experiencing things; rather than through direct conversations or through working together in concrete situations. The presentation focuses on the absorption of knowledge through observation. It suggests we should focus on how people ‘simply’ absorb knowledge, information and inspirations, and that this form of absorption and observation is an important factor in explaining agglomeration and spatial patterning in a range of industries. It is argued that it could be useful for economic geographers to study how and where knowledge is absorbed, for example: from the street; from working in projects; from interaction in networks; and from involvement in the everyday workings of clusters. These processes can be both passive and active and therefore it is important for us to better understand how economic actors strategically use observation and their milieu in forming their innovative capacity. The presentation draws upon research on knowledge based industries - esp. the cultural industries ? to show how observation and absorption is vital for how individuals become innovative and why they are drawn to certain spaces.

Keywords: economic geography; knowledge absorption; innovation; cultural industries

Tracey Skelton, Dr., Loughborough University. Email: t.l.skelton@lboro.ac.uk; Gill Valentine, Prof., University of Leeds. Email: g.valentine@leeds.ac.uk; Philippa Levy, Dr., University of Sheffield. Email: p.levy@sheffield.ac.uk; *Identity, Space and Language: D/deaf People’s Use and Non-Use of the Internet*

This paper is based on an Arts and Humanities Research Council (UK) award held jointly by myself, Prof. Gill Valentine (Leeds University) and Dr. Philippa Levy (Sheffield University). The project was designed to assess the access and use issues D/deaf people face in being part of Information Society, with particular reference to their use and non-use of the Internet. The paper presented here draws upon an analysis of the qualitative interviews with users and non-users who utilise British Sign Language as their first and preferred language. The paper examines the ways in which BSL users connect or disconnect with the Internet

and how this affects their sense of space, language and identity. The paper examines the emotions of fear, excitement, dread and fascination expressed by Deaf people in their discussions of the Internet. It also considers the ways in which new technologies and capabilities of the Internet can enhance or detract from Deaf people’s communication practices and senses of shared community

Keywords: identity, language, D/deafness, Internet

Beth Ann Skermont, . Email: ; *Is it hot enough? A physical overview of the Imperial Valley*

One hundred and twenty degrees in the shade, cactus, sand dunes . . . is this what people think about the Imperial Valley? While it may be true, there is much more to this locale. This poster will explore the physical aspects of this Southern California desert landscape.

Keywords: physical geography, student poster

Mark Skinner, Trent University. Email: markskinner@trentu.ca; Alun Joseph, University of Guelph. Email: ajoseph@uoguelph.ca; *Health and Social Care in Ageing Rural Communities: The Evolving Role of Voluntarism*

This paper introduces a framework for conceptualising voluntarism as a critical process at the intersection of the sometimes complementary but often conflicting cycles of change affecting rural communities and health and social care services. We concentrate on the impacts of longer-term socio-demographic changes affecting the availability of volunteers and informal caregivers in rural communities and shorter-term structural changes in health and social care systems that assume volunteers and voluntary organisations have the capacity to play increasingly active roles in meeting the needs of people ageing in place. Using the framework, we analyse key findings from published case studies of ageing rural communities in Ontario, Canada and Waikato, New Zealand to illustrate how to interpret voluntary sector activities as a ‘barometer of change’, a ‘mechanism of adjustment’ to change, and an emerging ‘space of resistance’ to change underway in contemporary health and social care and rural sectors. We argue that developing a more nuanced understanding of the evolving role of voluntarism is a prerequisite for informed policy on rural ageing and care provisioning in Canada and New Zealand and elsewhere.

Keywords: aging; Canada; health care; New Zealand; rural; restructuring; voluntarism

Emily H. Skop, The University Of Texas at Austin. Email: eskop@prc.utexas.edu; *São Paulo: Historic Immigrant Gateway to Contemporary Emigrant Outpost*

Since the 1960s, São Paulo has changed from a net importer to a net exporter of international migrants. Thus, it is an excellent exemplar of a former immigrant gateway that has become a contemporary emigrant outpost. This paper provides evidence of the key role of former gateways in (re) creating both old and new transnational links. On the one hand, connections from the past have prompted new emigration flows generations later. On the other, contemporary global economic linkages provide a context that promotes the creation of alternative transnational linkages and additional flows of emigration. The paper begins with an exploration of the historical role of immigration to São Paulo in the late nineteenth and early twentieth centuries. Then, we jump ahead nearly one hundred years and describe the ways in which those small numbers of foreign-born that do live in São Paulo today make their mark on the cultural landscape. But subsequently we contend that despite the nearly 200,000 immigrants living in São Paulo, mostly from Europe, Asia, and South America, the metropolis should be considered a former immigrant gateway, since it continues to lose migrants (both foreign- and native-born) every year. We examine the contemporary role of emigration from São Paulo in the late twentieth and early twenty-first centuries to suggest that this former immigrant gateway is now an emigrant outpost. Guiding the paper is the theoretical principle of social networks and transnational theory, which helps to make clear how this process happens.

Keywords: São Paulo, Emigration, Transnationalism, former immigrant gateway, social networks

Maya A Skowron, University of Illinois at Urbana-Champaign. Email: skowron2@uiuc.edu; Monika Stodolska, University of Illinois at Urbana-Champaign. Email: stodolsk@uiuc.edu; Kimberly J Shinew, University of Illinois at Urbana-Champaign. Email: shinew@uiuc.edu; *Attitudes, Constraints, and Social Support for Physical Activity Participation among Latina Women*

Leisure time physical activity (LTPA) has been shown to have many health benefits, including controlling diabetes mellitus, reducing hypertension, and cardiovascular disease. Clinical studies have consistently reported high rates of these diseases, linked to obesity, among Latino Americans. As the same time, Latinos, and Latina women in particular, constitute one of the fastest growing and least active minority groups in the U.S. Thus, the objectives of this study were to: determine LTPA participation rates and attitudes toward LTPA among

Latina women; establish the levels of social support Latina women receive for participation in LTPA; and examine their constraints on LTPA participation. The study consisted of two phases. First, 269 questionnaires were collected at two community parks in Elgin, IL and at the Stuart Sports Complex in Aurora, IL. Subsequently, 16 in-depth telephone interviews were conducted. The results of both the survey and the interviews show that although LTPA participation rates among Latina women remain relatively low, women have positive attitudes toward LTPA and a strong support from their friends and families for involvement in LTPA. The most often reported constraints were related to women's family roles and to the necessity to take care of their children. Other constraints included lack of money, cold weather, and problems with transportation. None of the women reported any constraints related to negative cultural attitudes toward PA. These results contradict common beliefs that Latina women devalue LTPA and that they are constrained by the Latino culture that does not approve of women's involvement in LTPA.

Keywords: physical activity, women, Latinos, attitudes

Pamela Skraastad-Jurney, . Email: pamela.jurney@okstate.edu; *RAISE-ing the Standard of Education in Oklahoma*

This presentation tracks the progress of R.A.I.S.E., a three-year NSF GK-12 grant program. R.A.I.S.E. (Rural Alliance for Improving Science Education) pairs ten Oklahoma State University graduate students with teachers from three surrounding rural districts. Scientists, as the graduate students are called, work closely with their assigned teacher to design lessons that incorporate spatial technology into their respective subject matter. An overview of the inception of RAISE will present the potential opportunities that higher level education institutions can have in relating to public education. Classroom activities and lesson plans will demonstrate the effort of graduate students as they introduce students to GIS and GPS technology. Actual student work will illustrate the impact that R.A.I.S.E. has had for improving education in three rural Oklahoma schools.

Keywords: NSF GK-12, RAISE, GIS, Public Education, Oklahoma State Univ.

Yelizaveta Skryzhevskaya, Doctoral Candidate, University of Idaho. Email: elizaveta_s@hotmail.com; *Foreign Direct Investments as a Factor of Regional Development in Ukraine*

During the last decade Foreign Direct Investments (FDI) became an important factor of regional development in the countries with transition economies. Ukraine is becoming more attractive for foreign investors because of its strong position in some external and domestic markets. There is a spatial pattern in the distribution of FDI among the Ukrainian regions. FDI tend to be more attracted to the Industrial East and the capital region of Kyiv. Also, there are areas of cross-border collaboration that affect FDI decisions. This research aims to define factors of FDI attractiveness and to estimate importance of these factors in different regions. To test the hypothesis about importance of FDI attractiveness factors, an assumption was made that economic development in Ukraine has a selective nature that is associated with urban and metropolitan areas and with cross-border proximity to FDI source countries. Also, the research provides some insights on the concept of Free Economic Zones (FEZ) and Territories of Priority Development (TPD) in Ukraine and the evolution of its development. We use statistical and cartographic analysis to draw conclusions that highlight spatial differences in FDI distribution in Ukraine.

Keywords: Foreign Direct Investments, Regional development, Ukraine

Brian Slack, Concordia University. Email: slack@alcor.concordia.ca; Antoine Frémont, INRETS, Paris. Email: antoine.fremont@inrets.fr; *Coming full circle? 50 years of change in the organisation of container shipping*

Spectacular growth has marked the industry initiated by Malcolm MacLean with the sailing of the Ideal-X in 1956. While the growth of container shipping has been typically seen in terms of increasing vessel capacity, traffic growth, financial performance and competitiveness, it has been shaped also by organizational transformations. This paper provides an overview of the major companies that make up the container shipping industry, tracing the rapid adoption of containerization by American carriers to its diffusion to Europe and then Asia. During the last 10 years there has taken place a concentration of ownership, principally through mergers and acquisitions, to the extent that today a growing percentage of capacity is controlled by a handful of carriers. While such a concentration is typical of business sectors requiring large capital investments, the shipping industry has resisted complete corporatization. We demonstrate that over the last few years growth and innovation are being driven by firms that are led by individuals and families. At a time when major North American involvement in container shipping operations has come to an end, the spirit of innovation began 50 years ago by an American visionary is still evident in the entrepreneurial dynamism of many of the industry leaders.

Keywords: Container shipping, history, industry structure

David Slater, BA, PhD, Loughborough University. Email: d.slater@lboro.ac.uk; *Rethinking the Imperial Relation: mutations and resistances*

In a context formed by the re-assertion of imperial geopolitics, this paper considers three interwoven elements of the imperial relation. First, one encounters a politics of invasiveness that is expressed through strategies for the appropriation of resources and/or securing sites for military bases which are accompanied by the laying down of new patterns of infrastructure and governmental regulation. Such invasiveness can be appropriately seen as being cultural, psychological and political as well as being economic since the violation of sovereignty entails a negation of the will and dignity of another people. Second, there follows an imposition of the dominant values, modes of thinking and institutional practices of the imperial power on to the society that has been subjected to imperial penetration. Whilst the violation of sovereignty can be considered under the heading of invasiveness, the related imposition of cultural norms constitutes an effect of that violation where the process of geopolitical guidance can be interpreted in a context of imperial governmentality. Third, the imperial relation carries within it a lack of respect and recognition for the imperialized society. Hence the processes of penetration and imposition are viewed as being beneficial to the societies being brought into the orbit of imperial power. These three facets of imperial power are intimately interrelated and their mutations are affected by the nature of resistance emanating from within the imperialized society as well as by the possibility of anti-imperial opposition within the imperializing society.

Keywords: imperial geopolitics, power relations

Tom Slater, University of Bristol. Email: tom.slater@bristol.ac.uk; *From fighting to managing gentrification: a commentary and critique*

The role of public/urban policy has been a concern of gentrification researchers as far back as 1973, but very little work has examined the huge literature on the process to see how academics have interpreted the policy-gentrification link over time. This paper offers an historical and international lens on the awkward relationship between gentrification, public policy, and academic research. Throughout the 1980s, anti-gentrification activism and several publications were concerned with fighting the erosion of affordable housing and working-class displacement (Hartman et al, 1982). Indeed, Peter Marcuse (1985) argued very convincingly that a "variety of public policies", particularly those concerned with gentrification, foster such displacement. But in recent years, accompanying the 'third-wave' of gentrification, we have seen the 'eviction' of critical perspectives on the process, and an associated move away from fighting the process towards a policy discourse of 'managing' it, most recently endorsed by Lance Freeman (2006) in his book *There Goes The 'Hood'*. I offer a critique of what I have elsewhere called 'municipally-managed gentrification', and argue first, that we should not accept this management as the future of many cities, and second, that thinking about how to manage gentrification will serve no purpose other than to fuel the fires of neoliberalization.

Keywords: gentrification, urban policy, revanchism, displacement

Michael C Slattery, Ph.D., Texas Christian University. Email: m.slattery@tcu.edu; *Forensic fluvial geomorphology: lessons learned from being an expert witness in geomorphic litigation*

This paper presents the results of a field study on potential sediment source areas, soil erosion, and sediment delivery in a 93 ha basin in Gregg County, Texas. The work was conducted as part of litigation pertaining to sedimentation of three water bodies located on properties owned by the plaintiffs. In the case, the plaintiffs contended that the three ponds had been significantly impacted by accelerated erosion from property owned by the defendant, who had constructed a storage facility that had (a) caused significant disturbance of the topsoil, and (b) increased runoff from the impermeable surfaces, thereby eroding and transporting sand into the ponds. While geologists and engineers frequently testify as expert witnesses in geomorphic-type forensic activity, here I argue that geomorphologists should become far more involved in such cases in which they clearly could contribute to an appropriate outcome.

Keywords: fluvial geomorphology, sediment transport, litigation

Benjamin Sleeter, United States Geological Survey. Email: bsleeter@usgs.gov; *Dynamics of Land-Cover Change in the California Central Valley Ecoregion*

The California Central Valley is among the world's most valued agricultural lands. Rich soils, a favorable climate, and availability of water resources, located in proximity to major economic markets, contribute to making the (eco)region a leader in numerous agricultural goods. This research estimates the rates and dynamics of late-20th century land-cover change using Landsat TM and MSS data for five dates and four temporal periods. A random sampling was conducted and images were manually classified using a modified Anderson Level I scheme.

Postclassification comparison is used to provide a complete matrix of changes between 10 distinct land-cover/use types across the five analysis dates. Our results estimate that on average 0.6 percent of the ecoregion changed each year between 1973 and 2000. The highest period of change was between 1973 and 1980 at 3.27 percent. The most common conversions were grassland/shrubs to agriculture (2,175 km²), agriculture to grassland/shrubs (820 km²), agriculture to developed (552 km²), followed by grassland/shrubs to developed (306 km²). The estimated overall spatial change in the ecoregion was 10 percent. Population growth in the San Francisco Bay Area and Los Angeles have contributed to significant amounts of agricultural land converting to various forms of development. Grasslands found at the edge of the ecoregion, traditionally used for livestock grazing, are being converted to grow high-risk, high-value crops such as almonds and grapes. Natural marshes, grasslands, and wetlands are also facing pressures brought about by the changing landscape of the ecoregion.

Keywords: land-cover, land-use, change, landsat, ecoregions

Rachel Sleeter, United States Geological Survey. Email: rsleeter@usgs.gov; *Dasymetric Mapping for Estimating Populations Exposed to Natural Disasters*

The mission of the United States Geological Survey includes responsibilities to provide reliable scientific information to minimize loss of life and property from natural disasters. A critical first step in planning for natural disasters is to determine where people are located during different hours of the day, to gauge who is at risk at any given time. Communities require information on a scale and accuracy beyond what currently exists in order to prepare meaningful risk-response strategies. Our research outlines a methodology for estimating daytime and nighttime population density at a 10-meter pixel resolution through dasymetric mapping and areal interpolation. For nighttime estimates, parcel-level land use data provide highly detailed attribute descriptions used to delineate 3 residential density classes (high, medium, and low). Source population data from census block groups are interpolated across a 10-meter surface grid based on proportional area and weighted density from the parcel-derived land use data. Daytime population estimates are calculated with a combination of spatial layers including business/employee data, parcel data, and socio-economic attributes from the census block group level. Daytime and nighttime estimates have been measured and compared for 5 coastal cities in Clatsop County, Oregon. The most significant fluctuations in population between day and night are in Seaside and Astoria, where nearly half the population leave those cities during the primary daytime work hours.

Keywords: dasymetric mapping, areal interpolation, daytime population

Bjorn Sletto, PhD, University of Texas at Austin. Email: bjornsletto@mail.utexas.edu; *Miseducating the Pemon: Hegemony, Science and Common Sense in the Gran Sabana, Venezuela*

Conflicts surrounding natural resource management, as in the case of fire control and parks management in Venezuela, are enacted in cultural, linguistic domains, but also intimately linked with structures of political and economic domination. In the Gran Sabana, a mixed forest-grassland mosaic in eastern Venezuela, state environmental management interventions are in part attributable to political, strategic and economic imperatives and structures of unequal growth and development. The principal state agency in the Gran Sabana, the CVG, is charged with fire management in the Rio Caroni watershed, which is of strategic, national economic importance because of hydroelectric production. But everyday state fire management strategies are also contingent on and driven by scientific narratives and inventive histories, which work to depoliticize state fire management practice, forge the education of the indigenous Pemon, and, in Gramscian terminology, eradicate Pemon "folkloric knowledge" and establish state hegemony through a new "common sense" of fire management. However, a Gramscian perspective on the cultural dimensions of power also serves to illuminate Pemon counter-hegemonic practices. The CVG's attempts to investigate and eliminate indigenous fire culture have facilitated Pemon's ability to conceptualize the symbolic value of "burning," and to incorporate this once purely practical practice into their set of counter-hegemonic activities. This analysis suggests that a Gramscian approach to political ecology has the potential to make visible forms of resistance to structural inequalities operating in linguistic, symbolic domains.

Keywords: Fire management, Gramsci, indigenous people, Venezuela, Pemon

Vanessa Slinger, Ph.D. Assistant Professor of Geography, Kennesaw State University. Email: vslinger@kennesaw.edu; *Community-based ecotourism in Ghana*

Lately, well-planned and managed ecotourism has been identified as a means of aiding in regional development while helping to preserve local traditions and biodiversity. In Africa, Ghana is one country where tourism has suddenly moved to the center stage of socio-economic strategies. In this interactive poster presentation I will outline Ghana's ecotourism development strategy, and

highlight the workings of two community-based eco-tourism projects in graph and pictorial format. Though Ghana's tourism industry is at its infancy, there are some indications of its capacity for generating and sustaining foreign exchange income while encouraging the conservation of local eco-systems and cultures. However, the situation in Ghana also shows that without careful consideration of local communities, the anticipated benefits of ecotourism can go unrealized and negative impacts can be produced instead. Further study of the use of ecotourism and the community based ecotourism projects in Ghana will add to our understanding of one such alternative of natural resource management.

Keywords: Ghana, ecotourism, development

Sean Sloan, McGill University; Smithsonian Tropical Research Institute. Email: seanpatrickslloan@mac.com; *Tropical Forest Transitions and the Hollow Frontier in the Bayano Region, Panama: Potential for Simultaneity and Succession?*

The forest-transition thesis observes off-farm employment, rural emigration and land abandonment as drivers of afforestation. Yet, at the landscape scale, few examples confirm the significance of such variables or illustrate how a transition might arise out of earlier patterns of land-cover change. The hollow-frontier model of land-cover change, characteristic of Latin American colonization frontiers, observes similar drivers as having contrary forest-cover outcomes and suggests land abandonment to be unlikely. Nonetheless, both models appear complementary: emigration or off-farm work may promote afforestation as well as pasture's predominance, and land consolidation typical of the hollow-frontier may herald forest plantations. Through interviews with colonist households in Panama's Bayano frontier I reconstructed land-cover histories and utilized regression analysis to associate land-cover change with emigration, off-farm income, and other household variables. At the regional-scale, I combined satellite imagery, GPS-based ground surveys and aerial photographs to produce land-cover change maps (1990-2000) illustrating the spatial dynamic of reforestation amidst pasture expansion and deforestation. Findings highlight the parallel nature of deforestation and afforestation processes respective of each model of land-cover change. Emigration and off-farm employment do not necessarily herald the afforestation expected by the forest transition, but may associate more with deforestation, as per the hollow frontier. Interestingly, reforestation in Bayano depends on land consolidation processes particular to the hollow frontier. Results recommend the refinement of the forest-transition thesis' assumptions as well as variation in the thesis in accordance with the contexts that precede a transition, so producing an array of context-specific forest-transition theses.

Keywords: land-use land-cover change, Panama-Bayano, forest transition, hollow frontier, deforestation, afforestation

Rachel Slocum, St. Cloud State University. Email: rachel_slocum@hotmail.com; *Race at the market*

The Minneapolis Farmers' Market mobilizes practices in support of 'the local' but also lives with a reputation that its goods 'fell off the truck' en route from California. It provides a market for smaller scale predominantly Euro and Hmong-American growers who tend to grow quite different things. The market mingles white, coffee-toting, suburban tourists and East Africans seeking bitter greens; alternative food consumers looking for 'home grown' and Latino families purchasing fruit. All this makes it a place to consider what race is and how to practice anti-racism. Feminist theories of embodiment offer productive analytic paths for this question. Moira Gatens, for instance, suggests understanding bodies as nodes of interconnections in constant interchange with environments. Elizabeth Grosz proposes that a focus on bodily practices, rather than identity, might prove a useful approach to politics. Elspeth Probyn invites a re-consideration of the offspring of contact. The world distribution of racisms, to use Meaghan Morris' term, needs to be confronted in ever more creative ways as old hierarchies persist and new configurations of inequality develop. Anti-racist theory and practice and studies of food spaces might gain creative energy from feminist ideas on embodiment.

Keywords: race, feminist theory, farmers' market

Andrew Sluyter, The Louisiana State University. Email: asluyter@lsu.edu; *Environment, Capital, and Ranching on the Argentine Pampas, 1800s-1900s*

The rapid expansion of ranching and agriculture across the Argentine Pampas in the late nineteenth and early twentieth centuries dramatically transformed the grassland environment and closely related to the growth of the metropolis of Buenos Aires and to foreign investment, immigrant labor, consolidation of national territory, and other features of the emergence of the capitalist nation-state. The economic, political, and social processes involved have generated a substantial and sophisticated literature. The environmental, and in some regards the technological, processes remain relatively unknown, however. This paper presents results of ongoing research into the environmental history of the rapid expansion of cattle ranching across the Pampas. A focus on

water-lifting technology provides one entry into the complex natural/social processes involved. Data include field observations of relict, artisanal water-lifting devices that antedate import of mass-produced windmills from the US, early patents, and cadastral records that span the original land grants to soldiers who fought the war against the former native population of the Pampas and their subsequent assembly into large estates by capitalists. Results are interim but provide a basis for comparison with other, better understood cases such as the US Midwest and Great Plains and for understanding such cases in relation to one another: for example, in relation to commodity markets and technology diffusion.

Keywords: Argentina, environmental history, ranching, technology

Lukas Smas, Department of Human Geography, Stockholm University. Email: lukas.smas@humangeo.su.se; *Consumption and Property Development in the CBD*

This paper highlights that urban consumption and property development are interrelated in multiple ways and that these intersections are important for city formation processes generally, but particularly apparent in CBD reconfigurations, as well as for the practices of the new global cultural economy. The real-estate sector is significantly dependent upon global linkages but also much entangled with local institutions and other actors such as retail firms. The public sector still play an important role in the CBD encouraging particular projects based on a certain type of politics. A global urban politics where the built environment and representations of the city are seen as essential for attracting investments and putting the city on the global map, thus much dependent on property development and the real estate sector, and underpinned by assumptions of interurban competitiveness and specific forms of urban consumption. These different types of intersections and relations are explored through examples from Stockholm, but in a global perspective with Sydney as a particular referent. The paper argues firstly that new spatial configurations of consumer service spaces emerging in and around CBDs are especially important intersections, critical for both local urban development and the global economy as well as for social everyday life in the city. Secondly, that in order to appreciate the value of these spaces it is necessary to populate city formation processes and global urban politics with people and things, i.e. with producers and consumers of the spaces and the service practices and the product transactions constituting them.

Keywords: consumption, property development, real estate, city formation, global urban politics, CBD, planning, Stockholm

Sarah Smiley, University of Kansas. Email: ssmiley@ku.edu; *Colonial Urban Planning and Racial Segregation in Dar es Salaam, Tanzania*

Colonial urban planning schemes implemented in Dar es Salaam produced a racially segregated city. Tanganyika was both a German colony and a British Mandate and both administrations applied Building Ordinances that established construction standards for three zones in the city. These standards segregated the city into European, Asian, and African zones by dictating the type of home that could be built in each area. By requiring certain levels of sanitation, both administrations successfully segregated the city without enacting any formal segregation legislation. Using documents from the Tanzania National Archives, this paper discusses the evolution of racial segregation in Dar es Salaam. Particular emphasis is given to how the British administration justified racial segregation and how it used informal policies to achieve this ideal. Interviews with Europeans, Asians, and Africans living in contemporary Dar es Salaam demonstrate that these colonial patterns of racial segregation have persisted so that the city is still divided into three zones.

Keywords: Tanzania, urban planning, segregation

Olga V. Smirnova, Ph.D. Student, University of North Carolina Charlotte. Email: ovsmirno@unc.edu; Gerald L. Ingalls, Univ of North Carolina Charlotte. Email: gingalls@email.unc.edu; *The Impact of Annexation Policy on the Growth of Central Cities*

This paper reports the results of an ongoing investigation of the relationship between annexation policy and growth of central cities, metropolitan statistical areas, number of municipalities, total number of governments, and number of special districts. Our overarching goal is to see if annexation policies, normally set by state legislatures, have an impact on the health of central cities of metropolitan areas. To test these linkages we employ a classic typology of state annexation laws, which gauges the range of options for public involvement in the decision to annex. All MSAs in the US and their primary central cities are the observations for the analysis. We test the ability of the selected variables to classify MSAs in annexation types by employing Discriminant Analysis. We test the significance of relationships between classification variables using one-way ANOVA. We also examine the misclassified cases, mapping the results of the analysis. We found that annexation policy impacts the growth of central cities and the increase in the number of special districts in MSAs. Those states that encourage annexation see relatively higher population growth in central cities

and lower levels of increase in special districts compared to that of the MSA. Our analysis suggests that flexible annexation procedures (more than one alternative way of annexation) also encourage growth of central cities and discourage in special districts.

Keywords: annexation, central city growth, MSA growth, discriminant analysis

Adrian Smith, University of Wales, Aberystwyth. Email: aas00@aber.ac.uk; *New Methodologies for New Economic Geographies*

Current research into 'soft' capitalism has shifted away from traditional political economy, and has sought to embed the economic in a series of academic and professional discourses and practices. Consultants, think tanks, management gurus and the media, for example, have all laid claim to a descriptive and normative ability regarding the present and future of capitalism. While a number of geographers have sketched out a broad outline for research into this circuit of knowledge, it is arguable that an emphasis on the manner in which sameness, in the form of relational subjects, networks, and embeddedness has been established at the expense of the simultaneous production of difference through which information is generated and dispersed. My research attempts to use ethnographic approaches to engage with cultural circuit of capitalism, and to deal with the difference and diversity of everyday capitalism. One of the major difficulties in researching reflexive in capitalism is in selecting a methodology which is suitable for excavating something so fluid and nebulous as reflexive capitalism is. I have used ethnography extensively to try and engage with reflexive capitalism, by attempting to take a series of 'snapshots' around the circuit, at sites such as professional conferences, within firms, and with the media. This paper illustrates one such ethnographical 'snapshot' with The Leadership Trust, a specialist provider of personal management development services relating to leadership.

Keywords: Reflexive, Ethnography, Relational, Capitalism,

Alexander J Smith, University of Manitoba. Email: alexsmith100@gmail.com; Steven H Ferguson, PhD, Fisheries and Oceans Canada. Email: fergusonh@dfo-mpo.gc.ca; Pierre Richard, Fisheries and Oceans Canada. Email: richardp@dfo-mpo.gc.ca; *Why do beluga whales (Delphinapterus leucas) use estuaries? A case study in the Nelson River estuary, Hudson Bay*

Marine mammals in arctic ecosystems, including beluga whales (Delphinapterus leucas), often face seasonally scarce resources. Here, small environmental changes can have substantial affects on health and fecundity. Global oceanographic, climate, and general circulation models predict that the most extreme and acute effects of global warming will occur in the Arctic. Most of the current conservation concerns in the Arctic are centered on these effects. Belugas may be vulnerable to changes in their environment for many reasons including their strong philopatry to certain sites of summer aggregation. This research describes aspects of beluga whale summer ecology. We studied the effects of inter-annual water level variations on locations of belugas (Delphinapterus leucas) in the Nelson River estuary, Manitoba, a hydrologically pulsed ecosystem. Radio-telemetry and aerial survey data for belugas collected over the summers of 2002-2005 were used to test the hypothesis that belugas remain farther offshore during a summer with more river outflow. Model variables included tide level, depth, year, Julian day, day quartile, and age-sex class. Belugas were farther offshore during wet years (2005) within the study area. Results are discussed in relation to hypotheses on beluga summer estuary use. Understanding how changes in the estuarine environment affects belugas will help answer the over-arching question of why most belugas use estuaries every summer, and contribute to the knowledge on beluga ecology and management of its habitat.

Keywords: white whale, marine mammal, arctic, radio-tracking, aerial surveys

Barbara Ellen Smith, Virginia Tech. Email: smithbe@vt.edu; Jamie Winders, Syracuse University. Email: jwinders@maxwell.syr.edu; *"We're Here to Stay": Employment Casualization and the Social Reproduction of Immigrant Workers in the U.S. South*

Employment casualization may reach its apex with new Latino immigrants in the U.S. South, where immigrant workers often practice great temporal and spatial flexibility to maximize earnings in labor markets long characterized by extreme exploitation. Research in Nashville, Memphis and rural southern locations suggests that employers frequently favor new immigrant workers not simply for the reason typically explored by labor-market economists (low wages) but also for immigrant workers' reliability in a casualized employment context requiring them to work unexpectedly and move frequently. Adapting to unreliable jobs, immigrant workers stretch family relations not only transnationally across national borders but also regionally within the U.S. itself. However, as casual employment practices, and their attendant labor geographies, construct immigrant workers as ephemeral (in concert with immigration policies that place unauthorized immigrants "outside the law"), immigrants seek to situate them-

selves and their families in place, as permanent social residents of the U.S. This paper explores the structural frictions among employment casualization (as effected by both employer action and state immigration policy), its labor geographies, and immigrant workers' countervailing efforts to locate themselves and their processes of social reproduction within the South. Embedded in these frictions are multiscalar processes and conflicts over space and place that require an explicitly geographical imagination and that can contribute to more robust theorizations of migrant labor within geography. Forming the theoretical basis for a forthcoming study, the paper examines the gendered, classed, and racialized implications of this new geography of transnational and regional Latino migration, social reproduction, and labor.

Keywords: social reproduction, labor geographies, immigration, U.S. South, race, gender

Benjamin N. Smith, Florida International University. Email: bsmith@fiu.edu; *Who's Afraid of Persian Gulf Investors? A Case Study in Cultural Economy*

As Dubai Ports World's attempted takeover of management contracts at several U.S. ports demonstrated, businesses from and business practices within the Persian Gulf are viewed with suspicion by the West in general and U.S. in particular, because of the oil wealth that underlies them and fears of terrorism. In this paper, drawing on news reports, interviews, and observations gathered during four months of fieldwork in Dubai, I will explore the discourses surrounding Persian Gulf business practices and how the business class of the United Arab Emirates of Dubai attempts to overcome those both domestically and in overseas investments. It is my argument that while Dubai's business culture does have a very long way to go in terms of workers rights, the way their and other Persian Gulf countries' capitalism is discussed in the West has not moved much beyond tropes set during the days of Orientalism - tropes which Dubai businesses often attempt to subvert. This paper augments other work done concerning the cultural economy, in that it shows how cultural-spatial imaginaries are far from absent in supposedly rational economic practices.

Keywords: Cultural Economy, Dubai, Orientalism

Betty Elaine Smith, Ph.D., Eastern Illinois University. Email: besmith@eiu.edu; *Human Dimensions and Tropical Environments of Ecuador*

Expeditions and research have been undertaken in Ecuador during the twentieth century by scholars in the natural and social sciences that would be of interest to geographers. Results have been published in discipline specific journals, often with little interdisciplinary interaction or knowledge. This research focuses on English language articles of the past century. Full text digital availability through online library vendors provides access to new sources of information relevant to Ecuadorian geography. While no one of these articles may suffice to provide an overview of the human and natural history of Ecuador, a geographic synthesis and awareness of prior findings offers the possibility of making new associations and identifying interesting relationships between humans and their past and present environment.

Keywords: Ecuador, Andes, cultural ecology, South America

Brenton G. Smith, B.A. Geography, S.F.S.U., 1991, California State University Northridge. Email: theapco@hotmail.com; *The highway landscape as a petroleum landscape, land-use, and wise-use*

Persons with respiratory conditions, or persons with compromised immune systems, as well as younger persons and older persons can all be more sensitive to air pollution, and considered sensitive receptors. In the State of California, of concern from the regulatory perspective is air pollution that creates or increases the health risk to people, especially people considered sensitive receptors. When a new school is required by a school district certain guidelines are to be followed, and a degree of flexibility is afforded. A general rule is to avoid, if possible, locating a school near a source of air pollution that may aggravate or precipitate adverse respiratory conditions or contribute to a long-term health risk. This project illustrates the importance of understanding spatial relationships when making planning decisions. The questions arise: How close is too close, and why is close too close? Highways present a variety of landscapes, the thesis is that this landscape in particular is not a healthy landscape. This project invites the curious to examine similar landscapes, although this particular landscape does not exhibit extremely high traffic flow, the question becomes: Are there similarities to very highly traveled landscapes? How can urban highway landscapes be described? Can landscape land-use be improved? This project investigates these questions.

Keywords: Traffic, air pollution, risk, receptor, petroleum, landscape, waste

Daniel S. Smith, Antioch University, New England. Email: danielsomerssmith@aya.yale.edu; *Environmental Regionalism as Discipline: The Northern Forest of New England and New York*

This talk examines environmental discourse related to the rural, forested margins of northern New England and New York, especially an interstate region called the Northern Forest that has been embraced as a symbol and political vehicle for environmentalism. I examine the origins of metropolitan conceptions and practices related to northern landscapes, how this discourse developed over time, and how it has functioned politically in different historical contexts. I use a post-structuralist perspective, examining power relations both in terms of explicit political struggles involving class and urban-rural relationships and at the overarching level of discourse that gives shape to those struggles. I make use of historical texts related to tourism and environmentalism, as well as ethnographic research. What stands out over time is the persistent coupling of, on one hand, the construction of symbolic difference between the modern metropolis and an imagined, non-modern rurality and, on the other hand, the intensification of material and political linkage between metropolitan and rural areas. The construction of difference lies at the heart of the objectification and Foucaultian "discipline" of rural nature and culture, which in turn facilitates the intensification of linkage. The two trends are functionally related, as the "protection" of seemingly non-modern nature and culture ensures continued production of both material and symbolic commodities, while commodification and economic growth serve as a basis for mainstream environmentalism. Environmental advocacy that relies on a romanticized Northern Forest is problematic both for local communities and regarding environmental problems that transcend regional boundaries.

Keywords: northern forest, discourse, regionalism, tourism, foucault, cultural politics

Darren Paul Smith, University Of Brighton. Email: D.Smith@bton.ac.uk; *The manufacture of new student landscapes and lifestyles*

This paper argues that a second-wave of studentification is unfolding within many British cities, which is tied to the development of large-scale, purpose-built student accommodation by private sector consortiums. It is contended that these new student landscapes may yield detrimental social, cultural and economic effects, which are similar to the impacts of relatively high concentrations of students within housing of multiple occupation, and the private rented sector. The discussion points to the growing prevalence of redefined student lifestyles, and a blurring between student and young professional identities and living arrangements. It is asserted that the manufacture of these new student geographies and lifestyles are connected to neoliberal models of urban regeneration, and wider trajectories of urban gentrification.

Keywords: students, studentification, gentrification

Derek A. Smith, Carleton University. Email: dereka_smith@carleton.ca; *Undoing the Revolution? Regional Patterns and Local Consequences of a National Land Reform Program in Mexico*

The México Indígena research team chose for their topic of the First Bowman Expedition the study of what they now consider to be the most significant land tenure change in Mexican history. The Programa de Certificación de Derechos Ejidales y Titulación de Solares (PROCEDE) is a national program that has involved mapping the external boundaries and, in most cases, internal divisions of over 27,500 ejidos and other "social properties" in Mexico since 1992. The scope of the program is significant, affecting an area of over 880,000 square kilometers, or roughly 45 percent of the country. Some three million people have received certificates for individual land parcels that were until recently considered inalienable common property. This paper overviews the implementation of the program and analyzes regional differences in participation rates, the partitioning of communal lands, and resistance to the program. While some of the ostensible goals of the program are laudable, there are serious concerns. Local social and environmental consequences, including changes in community governance, increased socioeconomic differentiation, loss of forest cover, and threats to the cultural survival of vulnerable indigenous populations, are also discussed.

Keywords: land tenure, neoliberal policies, Mexico, PROCEDE, indigenous peoples

Dianna Smith, University of Leeds. Email: d.m.smith04@leeds.ac.uk;
Graham Clarke, University of Leeds. Email: g.p.clarke@leeds.ac.uk;
Joan Ransley, University of Leeds. Email: j.k.ransley@leeds.ac.uk;
Janet Cade, University of Leeds. Email: j.e.cade@leeds.ac.uk; Obesity:
Individual choices or environmental influences?

Obesity and diabetes are increasingly prevalent in the United States and the United Kingdom. Governmental policy focuses efforts to reduce the growth of obesity on individual choices ("Eat less, exercise more!"), however, research indicates that an individual's home and work environments can contribute to increased weight gain (Morland et al 2006). This study explores the hypothesis that where a person lives and works directly influences his/her weight. The research focuses on healthy and unhealthy food access in Leeds and Bradford, West Yorkshire, with the intention of extending the 'food desert' debate into public health. We use a combination of methods to study the complex relationship between food access and obesity. Firstly, a spatial interaction model identifies areas of poor healthy food access (potential 'food deserts'). A spatial microsimulation model, SimHealth, simulates the prevalence of obesity across Leeds and Bradford and cluster analysis indicates regions with statistically significant high rates of obesity. Multilevel modelling techniques identify the significant individual and area level variables that influence high obesity prevalence. These relationships are further explored in the microsimulation model using 'what-if' modelling. 'What-if' modelling estimates the individual level impact on obesity when food access is changed (for example, the addition or removal of grocery stores and fast food outlets). These techniques provide a useful estimate of environmental influences on obesity and predict the possible outcomes of adjusted food access. Although the relationships may not be straightforward, SimHealth is a valuable tool for understanding the individual level impacts of environment on obesity.

Keywords: obesity, food access, microsimulation, diabetes

H. Gregory Smith, Ph.D., Federal Government. Email:
Harold.G.Smith@nga.mil; Academic Research Opportunities at the National
Geospatial-Intelligence Agency

"Know the Earth?Show the Way." The National Geospatial-Intelligence Agency (NGA) achieves this vision by providing geospatial intelligence in all its forms and from whatever source?imagery, imagery intelligence, and geospatial data and information?to ensure the knowledge foundation for planning, decision, and action. Academia plays a key role in the NGA research and development program through the NGA Academic Research Program. This multi-disciplinary program of basic research in geospatial intelligence provides grants and fellowships to the leading investigators, research universities, and colleges of the nation. This research provides the fundamental science support to NGA's applied and advanced research programs. The major components of the NGA Academic Research Program are: ? NGA University Research Initiatives (NURI): Three-year basic research grants awarded competitively to the best investigators across the US academic community. Topics are selected to provide the scientific basis for advanced and applied research in NGA core disciplines. ? Historically Black College and University - Minority Institution Research Initiatives (HBCU-MI): Two-year basic research grants awarded competitively to the best investigators at Historically Black Colleges and Universities, and Minority Institutions across the US academic community. ? Director of Central Intelligence Post-Doctoral Research Fellowships: Fellowships providing access to advanced research in science and technology applicable to the intelligence community's mission. This paper provides information about the NGA Academic Research Program, the projects it supports and how researchers and institutions can apply for grants under the program. In addition, other opportunities for academia to engage with NGA through training programs and recruitment are discussed.

Keywords: Academic, Research, NGA

James M. Smith, Ph.D., Towson University. Email: jmsmith@towson.edu;
Chinese American Identities: Ethno-spiritual Communities and Social Spaces

This project explores ethnic identities among English-speaking Chinese Americans in an ethnic church in the Baltimore urban region. The concept of ethno-spiritual communities is employed to analyze the expression and articulation of Chinese American identities through the mediating beliefs of evangelical Protestant fundamentalism. Chinese American communities and ethnic religious practices are situated within the broader scales of changing geopolitical and structural constraints of neoliberalism and globalization. This analysis of the social space of the informants applies theoretical concepts from Bourdieu such as social capital, habitus and field. Qualitative approaches (semi-structured interviews, participant observation and discourse analysis) allow for an intensive engagement with informants, and affirm the importance of these approaches for any geography that engages seriously with the agency of individuals acting and struggling within structural contexts. In accord with the thematic emphasis of the session, this discussion is developed in detail. Preliminary conclusions stress that heterolocal networking enables individual actors to

reinforce solidarity and accumulate social capital through intermeshed ethnic and religious practices. Likewise, a fundamentalist Christian cosmology shapes specific discourses and imaginative geographies, and commonalities of class frame lifestyle attitudes and socio-political dispositions. These methods and conclusions embed this study of the social spaces of ethnic religious institutions firmly within contemporary and critical human geography.

Keywords: Keywords: Chinese Americans, ethnic geography, social spaces, Bourdieu

Jeffrey S. Smith, Ph.D., Kansas State University. Email:
jssmith7@ksu.edu; The Effects of Transnational Migration on a Small Village
in Zacatecas, Mexico

Each year thousands of people from rural Mexico (both documented and undocumented) emigrate to the U.S. seeking employment. The literature on this pattern of international migration between the U.S. and Mexico is both diverse and substantial. Few studies, however, have investigated the impact that transnational migration and the flow of remittance money has on rural villages and the quality of life for local residents. The purpose of this poster is to share the preliminary results of my field work in the town of Chalchihuites, Zacatecas, Mexico during the summer of 2006. My findings reveal changes in: 1) local cultural traditions (e.g. housing, sense of community, food ways), 2) commercial activities (e.g. personal savings and investment, shopping opportunities), 3) community development (e.g. 3 for 1 program, government programs and expenditures), and 4) quality of life for women (e.g. gender roles, health issues, marital issues). I look forward to sharing the details of my results with you and listening to your thoughts and feedback.

Keywords: Transnational Migration, Zacatecas Mexico, Remittances, 3 for 1 Program

Jonathan Vaughan Smith, Truman State University. Email:
jvsmith@truman.edu; Contrastive religio-cultural impacts of published
Christian and Islamic scriptures in Africa: a spatial perspective

Much has been written about Christian missions as agents of culture change. Less discussed has been the cultural and religious transformations wrought by the advent of mother-tongue scriptures. Even less addressed has been the comparative societal influence between Christian vernacular scriptures versus Islamic Arabic scriptures. And there is a considerable lacuna in the geographic literature. This paper selects a number of African ethnolinguistic groups having published scriptures and examines them according to a set of variables in their cultural geographic context. The intent of the paper is to falsify the compelling hypothesis of Lamin Sanneh that vernacularization was the key to vibrant indigenous Christianity and ethnic solidification, while literacy in Arabic and an extra-local geographic orientation buttressed a robust Islamization while subsuming the local ethnic reality to the greater global Islamic religio-culture realm.

Keywords: Culture change, Christianity, Islam, Africa

Jonathan M. Smith, Texas A&M. Email: jmsmith@tamu.edu; Free
Thought in the Early Nineteenth Century United States: A Chapter in the Great
Western Apostasy

In the eighteenth century there began to spread through Europe and its dependencies a set of doctrines united in their antipathetic repudiation of Christianity. This great Western apostasy has for more than two centuries been represented as a movement opposed to belief and faith, both epistemologically and politically; however today, when many question the special status the foundational presuppositions of "enlightenment" have long enjoyed, enlightenment beliefs no longer appear so exceptional, noetically speaking. The "grating roar of pebbles" that Matthew Arnold reported in "Dover Beach" was, perhaps, not so much the "long, withdrawing roar" of the "Sea of Faith" as the rushing tide of a new faith. Viewed in this postmodern light, modern free thought, in its many sects and heresies, appears as but one more belief system. It was invented; it spread as much by inveigling as by enlightening; and it has today very possibly run its course and reached its limit. This paper is part of a proposed historical geography of this movement. Using records of free thought newspapers, societies, and evangelists, it begins to map the spread of "infidelity" in the United States, from the rationalist enthusiasm of the late eighteenth century to the early Darwinian apologetics of the mid nineteenth century.

Keywords: Religion, Free Thought, Modernity, Historical Geography

Laura J Smith, PhD, Macalester College. Email: smithl@macalester.edu; *Poor Credit, No Problem? Modeling High Foreclosure Areas*

Many public policies that promote homeownership focus on barriers to becoming a homeowner, but the ability to sustain homeownership is an important policy concern as well, especially in addressing racial homeownership gaps. Analysis of foreclosure data can enhance the effectiveness and efficiency of homeownership preservation programs. This study examines the statistical association of foreclosures with social, economic, and housing variables to assess whether it is feasible to identify in advance neighborhoods at risk of high foreclosure rates. The resultant model shows that foreclosure risks were highest in neighborhoods with elevated credit risk indicators and a high proportion of homeowners who are recent minority buyers. The model also shows that using a popular proxy for credit score data may exaggerate linkages between neighborhood racial composition and foreclosure risks. Because the model allows foreclosure counselors and other homeownership preservation programs to focus their mitigation efforts, there would appear to be social benefits to enhancing public access to data on mortgages, foreclosures, and foreclosure risk factors.

Keywords: housing, urban geography, race

Laurel C. Smith, University of Wisconsin-Milwaukee. Email: laurels@uwm.edu; *Embodying neoliberalism: A video-mediated tale of ethno-development in southern Mexico*

In this presentation I take a look at how indigenous women in the isthmus region of the southern state of Oaxaca come to embody neoliberal development strategies deployed the Mexican state. First I situate a video produced by a woman's association affiliated with a regional organization designed to undertake ethno-development. Here I consider how these women acquired the equipment and technical expertise to make videos by tapping into distinctly gendered geographies of learning produced by the sort of socio-spatial entanglements commonly called transnational networks of advocacy. Then I screen portions of this video so that we might hear indigenous women's critical analyses of how neoliberalism intimately impacts their lives. Afterwards, I draw on recent research on mobility, feminist geopolitics, and indigenous identity politics in order to locate the technocratic testimonials that travel by means of this video.

Keywords: Mexico, neoliberalism, indigenous peoples, visual technologies

Laurence C. Smith, Ph.D., University of California - Los Angeles. Email: lsmith@geog.ucla.edu; Yongwei Sheng, Ph.D., University of California - Los Angeles. Email: ysheng@geog.ucla.edu; Glen M. MacDonald, Ph.D., University of California - Los Angeles. Email: macdonal@geog.ucla.edu; *Could thawing Arctic permafrost reduce the abundance of northern lakes?*

The locations of ~200,000 large northern hemisphere lakes (sized 0.1 to 50 km², northwards of ~45° N latitude) are intersected with new global databases on topography, permafrost, peatlands, and LGM glaciation to identify some first-order controls on lake abundance and land area fraction at the pan-Arctic scale. Of the variables examined here, glaciation history and the presence of some form of permafrost appear most important to northern hemisphere lake abundance. Lake densities and area fractions average ~300-350% greater in glaciated (vs. unglaciated) terrain, and ~100-170% greater in permafrost-influenced (vs. permafrost-free) terrain. The presence of peatlands is associated with additional ~40-80% increases in lake density and ~10-50% increases in inundation area. Lakes are most abundant in glaciated, permafrost peatlands (averaging ~13.2 lakes/1000 km²) and least abundant in unglaciated, permafrost-free terrain (~1.2 lakes/1000 km²). Lake statistics are surprisingly similar across continuous, discontinuous and sporadic permafrost zones, decrease modestly in isolated permafrost, and drop sharply in the absence of permafrost. A crude calculation based on "space-for-time" substitution for all glaciated/lowland terrain (~2.7 X 10⁷ km², of which ~48% is currently in some state of permafrost) suggests that in a "permafrost-free" Arctic, the number of lakes could be reduced from ~192,000 to 103,000 (-46%) and their total inundation area reduced from ~560,000 to 325,000 km² (-42%). A more plausible scenario of thawed discontinuous, sporadic and isolated permafrost suggests reductions to ~155,000 lakes (-19%) and 455,000 km² (-19%), respectively.

Keywords: Arctic lakes permafrost global change hydrology

Marissa Smith, Arizona State University. Email: marissa.lsmith@asu.edu; *Urban expansion in Mexico: Research on the fringe*

The largest increase in future population is predicted to occur in medium sized cities in developing countries. Settlements on the urban fringe of these growing areas find agricultural land being converted to commercial, residential and industrial use. This research examines the land use change on the urban edge of Oaxaca, Mexico, and the associated environmental and social consequences of this transformation in the peri-urban community and municipality of San Jacinto Amilpas (SJA). The city of Oaxaca is expected to grow from a current popula-

tion of approximately 500k to over a million by 2010. The dramatic growth and subsequent environmental change embodied in the process of urbanization is altering the economic, cultural and political face of SJA. Interviews with community members indicate that these changes have resulted in increased crime and conflict, amplified class divisions, and a population increasingly focused on individual pursuits and new sources of livelihood which are slowly eroding traditional community cohesiveness.

Keywords: Mexico, urbanization, land change

Monica Lipscomb Smith, UNC Chapel Hill. Email: monica_smith@unc.edu; Weiqi Zhou, University of Vermont. Email: ; Lawrence E. Band, UNC Chapel Hill. Email: ; Morgan Grove, USDA Forest Service. Email: ; *Comparison of urban land cover classification data in Baltimore*

The 2001 National Land Cover Dataset (NLCD) includes landcover/landuse, impervious, and canopy data products. These NLCD products were compared with eCognition classified data based on 0.6 m resolution Emerge imagery, and RESAC landcover/landuse data based on 30m sub-pixel classification of ETM+ data. These comparisons were carried out for a number of small watersheds within the Baltimore Ecosystem Study located in Baltimore County, Maryland. The NLCD canopy layer underestimates canopy cover by an average of 12 percent and as much as 61 percent. Larger differences between NLCD and eCognition classified data appear in heavily forested areas than in more developed watersheds, indicating that the NLCD canopy product is more precise in detecting canopy absence than presence. The NLCD impervious product was very similar to the eCognition classified data for pavement and slightly less similar to classified data including both pavement and buildings. Discernment of differences between NLCD and RESAC development density data was difficult given the differences in class definitions. Differences in grass classification are also significant. In the RESAC data, grasses are divided into the classes: pasture, row crops and other grasses. The NLCD grasses are divided into classes: developed open space, pasture, grassland, and cultivated crops. eCognition classified grasses are included in the HERCULES class: fine vegetation. There is no relationship between any of these classes of grass as defined by these three datasets. Thus, determination of grass-related categories, such as lawn area, requires more detailed analysis of imagery.

Keywords: National Land Cover Database, urban land cover, remote sensing

Monica Smith, MA, National University of Singapore. Email: monsmith68@yahoo.com; *Is neoliberalism an illusion? The case of Sri Lankan domestic migrant workers in Lebanon*

This paper will provide a context-specific examination of the processes and spaces through which neoliberal programs are constituted in particular forms. In attending to the migration experiences of Sri Lankan domestic workers in Lebanon, I will address the constitution of such workers' identities through marketized discourses and policies of the Lebanese and Sri Lankan States. My work will enter with spatiotemporal specificity the debate of the "illusion of neoliberalism" (Castree 2006). Engaging with Agamben's (1998) theoretical work on a modern homo sacer my work will examine how power operates within two state bodies to maintain the position of maids and nannies as persons residing in legal abandonment. Through an analysis of the day-to-day operations of these offices, which simultaneously ensure the demand of cheap, flexible labour while working within a human rights framework, I will examine how such bodies collude to produce and reproduce female migrant workers as residing in a state of exception. Ultimately, I hope to explore: 1) how Agamben's work, which asserts that power is operating differently within the modern democracy so that the political is defined as a border between the human and the inhuman, can inform our understanding of neoliberalisation; and 2) how the articulation between certain neoliberal policies and human rights efforts extend our understanding of neoliberalism.

Keywords: neoliberalism, migrant workers, Middle East

Nathan P. Smith, Center for Latin American Studies, University of Arizona. Email: npsmith@email.arizona.edu; *Verifying Equity? Regulation and 'Quality' in the Guatemalan Coffee Sector*

The contemporary international political economy of certified coffee is characterized by growing competition among distinct social and environmental regulatory regimes (i.e., certifications) as NGOs, governments, and corporations struggle to legitimize standards and labels. To better understand how these tensions have emerged and evolved, this paper examines the implications of Starbucks' C.A.F.E. (Coffee and Farmer Equity) Practices program. Some observers claim that the C.A.F.E. Practices process of 'verification' allows Starbucks to circumvent working exclusively within certified fair trade and organic networks, diluting stringent social and environmental standards by focusing on increased 'economic transparency' to improve the overall 'quality' of their supply chain. Empirical evidence from Guatemala, long a test-site for

C.A.F.E. Practices, supports this critique. Moreover, in the case of Guatemala, the C.A.F.E. Practices strategy reinforces the preponderance of large-scale coffee plantations. Yet the future implementation of C.A.F.E. Practices, paradoxically, may also generate market opportunities for producer cooperatives and medium-scale farms that successfully combine multiple regulatory regimes. More broadly, the C.A.F.E. Practices strategy demonstrates how the role of the private sector vis-à-vis the future expansion of social and environmental regulation of commodities is increasing in scope and influence, thus introducing new tensions and producing new alliances between corporations, NGOs, governments, and producer associations. In conclusion, I argue that the C.A.F.E. Practices framework represents a larger shift underway in the coffee sector, whereby new regulatory regimes predicted on market-based approaches, which link together notions of 'quality' and 'economic transparency,' seek supremacy and undermine efforts to reform trading practices and mitigate environmental degradation.

Keywords: regulation, Starbucks, Guatemala, transparency, verification

Neil Smith, Distinguished Professor, Graduate Center, CUNY. Email: nsmith@gc.cuny.edu; *After Military Geography*

Co-authored with Deborah Cowen, this paper suggests that modern social forms are haunted by a history of national war. National military strength relied on the development of ideals of 'solidarity' and technologies of social insurance, and was only meaningful in a context where military jurisdiction outside the nation was distinguished from police authority within. Although this separation between police and military was never absolute, it was nevertheless the basis for distinguishing a set of social rights and legitimate forms of violence inside the nation state from another world beyond. Today, the separation between 'internal' and 'external' security that was so central to geopolitical military and social forms is giving way. This is occurring through the blurring of police and military jurisdiction and practice and the privatization of security forces, the severing of longstanding connections between citizenship and soldiering, and the decline of national conceptions of social security. These trends challenge geopolitical conceptions of security and may be better captured by a 'geo-economic' notion of political power. In keeping with these shifts we argue that critical investigation of 'security' in its social and state forms, cannot focus singularly on the military, on military geographies, or even militarization, nor can it assume national forms. A geo-economic conception of security underlines conflicts between the logics of territorial states and global flows of production, the proliferation of non-state and private actors entangled in security, and the recasting of citizenship and social forms.

Keywords: nation-state, soldiering, geopolitics, police power, geo-economics, the military, citizenship

Patrick Caleb Smith, William Carey University. Email: johndeereemcc@hotmail.com; *Hot Water: The Historical Geography of Public Swimming Pools in Mississippi 1950-2005*

Swimming pools have been a part of Americana for many years. Every summer America's youth would end the school year and flood the local public pool for days of leisure and tomfoolery. In the mid-twentieth century, children used pools as places of society building and social development. Pools were places where boys wrestled and tried to physically outperform each other on the diving board. Girls used the pool as a place to catch up on the latest gossip and the model their newest outfits. Mississippi is no exception to the scene of a public pool. For many years these pools were the center of a young person's summer livelihood. Since 1950, an undocumented change has occurred in the quantity and magnitude of these public pools. This study patterns the change across Mississippi and how government and society have managed them.

Keywords: Recreation, The South, Race

Richard G Smith, University of Wales Swansea. Email: r.g.smith@swan.ac.uk; *Global cities and the geography of global command: beyond a fundamental aporia*

Saskia Sassen and Peter Taylor have made significant advances to the conceptualization of the 'global city' and the specification of the 'world-city network' respectively. These advances have been made on the basis of a particular argument about the 'strategic control' and 'command and control' of the global economy, which has led Sassen to formulate her 'global-city thesis and model' and Taylor his 'world-city network' thesis. The paper interrogates this body of work, and reveals why the theses put forward by Sassen and Taylor are ineffective as explanations of how global cities are configured. The paper moves on from the structuralism of global urban theory (Sassen, Taylor, and Castells) to engage critically with the potential of actor-networks, social studies of finance, and Badiou's concept of the event.

Keywords: Global Cities, Poststructuralism, Globalization

Sara H. Smith, University of Arizona. Email: shsmith@email.arizona.edu; *New Directions in Post Colonial Geography*

Critics have suggested that the concept of the 'postcolonial' is overly optimistic, and furthermore, that it privileges the 'colonial,' by making it the central, defining moment in the history of former colonies. Despite these critiques, postcolonial scholarship has opened up important questions that must be addressed, as well as a political position from which to engage in research. My comments will address the utility of taking a postcolonial approach to the study of religion and the geopolitics of the body in the Ladakh region of Jammu and Kashmir State, India.

Keywords: postcolonial, political geography, India, Ladakh,

Scott G Smith, University of Cincinnati. Email: smisg@email.uc.edu; *To GIS or Not ... that is the question*

The outcome of this project is an Emergency Response application enabling mutual aid response teams to quickly launch a detailed map, driving directions, and miscellaneous information for every street in the City of Lebanon through the use of a FileMaker Pro template distributed by Warren County, Ohio. This presentation will discuss the potential uses of GIS functionality to manage two critical issues that arise from the county guidelines—how to simultaneously update FileMaker Pro data with ArcGIS, and how to ensure reliable Mutual AID directions for other districts. Further, the spatial distribution of GIS adoption by municipalities within Warren County, Ohio will be discussed.

Keywords: gis,map,county,EMS

Shannon M Smith, Michigan State University. Email: Smith361@msu.edu; *Gender and Non-motorized travel in Lansing, Michigan*

Overweight and obesity rates are steadily rising, and are cited by the Centers for Disease Control and Prevention as some of the most important public health issues that place second only to smoking as the leading causes of preventable death in the United States. A growing emphasis on combating weight gain by community design geared for active travel is emerging in urban planning and public health literature. However, disparities exist between men and women in the obesity rates, and so they must be studied separately. This paper examines the linkages between these gender disparities, physical activity, active travel, gender roles, lifestyle and community design in six Lansing, Michigan, area municipalities. Travel patterns from residents in six different neighborhoods are analyzed to show underlying factors and behaviors that contribute to different travel patterns, in terms of trip frequency, length or trips, and mode of travel, between women and men, and the relationship between non-motorized travel and public health.

Keywords: gender, travel mode, neighborhood design

Steve Smith, Missouri Southern. Email: smith-st@mssu.edu; *Geographic Imagination, Geography Scale, and Epistemology: contextuality and the limits to spatial justice*

The Geographical Imagination as a theoretical device has impressed upon geographers not only the importance of understanding the relationship between local, national, and global politics, but has also opened up considerable debate regarding the efficaciousness of the concept itself. This paper explores the epistemological dimensions of the Geographic Imagination by examining both the commentary literature on the subject and its relevance to questions of justice, geographic scale, and the Geographical Imagination writ large. This work suggests that in order to more fully incorporate Geographical Imagination as an analytical tool theorizing needs to occur that addresses the deep epistemological issues encountered by asserting the existence and importance of "spatial knowledge." To this end a discussion of philosophic notions such as contextualism, as well as the application of comparative method will be discussed as mechanisms that provide opportunities for advancing our understanding of the Geographical Imagination, geographic knowledge, and geographic approaches to justice.

Keywords: geographical imagination, scale, contextualism, epistemology

Susan J. Smith, MA, D Phil, Durham University. Email: susanj.smith@durham.ac.uk; *Housing Futures: Keeping the Options Open*

This paper is about the encounter between housing and financial markets. The title is a play on words. It reflects the concerted effort that is underway to boost the trade in house price derivatives. It is fashionable to worry about this innovation; and it is certainly wise to be cautious. The global economy is fragile and irreparably unequal. On the other hand, without such a market, some of the world's smallest (home) investors and (housing) asset holders are denied the financial instruments that bigger businesses routinely use to manage risk. So I ask the questions: what are the implications if a liquid market in housing derivatives does develop; what are the consequences if it doesn't; and why should geography matter?

Keywords: Financial Markets, Cultural Economy, Housing

Thomas Smucker, Ohio University. Email: smucker@ohio.edu; *Land Rights Amidst Shifting Livelihoods: Problems of ASAL Tenure in Kenya*

Kenya's dryland areas encompass a range of land tenure arrangements that are evolving amidst rapid livelihood change and growing uncertainty surrounding future land policy reforms. Critics have suggested that environment and development interventions in East Africa have rarely been sensitive to the social and political realities facing dryland communities. In this light, this paper examines contemporary proposals to reform Kenya's complex systems of land tenure and considers the institutional and livelihood issues that must be addressed to make a break with the limitations of past approaches.

Keywords: Kenya; Land Tenure; Rural Livelihoods

Diane E Snediker, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: snediker.3@osu.edu; Alan T Murray, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: murray.308@osu.edu; Timothy C Matisziw, Center for Urban and Regional Analysis, The Ohio State University. Email: matisziw.1@osu.edu; *Decision Support for Network Interdiction Mitigation and Protection*

Our increasing reliance on networks of all types (transportation, communications, energy, etc.), coupled with their increasing vulnerability to disruption, makes it critical to protect these networks from natural disasters, terrorist attacks, and other incidents (otherwise known as interdiction). However, choosing how to best protect, reinforce, and improve a network given a limited budget is a complex problem. Here we discuss methods to support decision-making and planning for network interdiction. We have developed a systematic approach that examines the effects of different interdiction scenarios on a network based on a variety of performance measures. Previous studies have illustrated the difficulty of identifying one clear worst-case scenario that can guide planning efforts, as many scenarios exist that are significant to understanding interdiction impacts. The developed decision support methodology allows for more comprehensive exploration of interdiction impacts, statistically and visually, and facilitates examination of "what-if" planning scenarios.

Keywords: networks, survivability, critical infrastructure, spatial analysis, strategic planning

Ian Snider, Master's Student, Appalachian State University. Email: naturelink@gmail.com; *Documentating Transhumance Adaptation: An ancient lifestyle, a digital approach*

The Niti Valley of the Garhwal Himalaya, India is home to the Bhotiya people. This indigenous group has a long standing tradition of transhumant pastoralism. This way of life has changed due to political, economic, and ecological forces at work in the region. The majority of herders have sold their flocks and taken up other livelihood activities. The remaining shepherds live increasingly on the margins of society and have been forced to adapt their traditional grazing practices to the new political landscape. This paper will focus on how I propose to document these adaptations through field interviews and the creation of a spatial multi-media product. A spatial data base of the region is however difficult to assemble due to its proximity to the northern border with occupied Tibet. However, for the purposes of transcending scale and bringing the perspective of the herders themselves to the academic world the best available data will be used for a global e-conference to be held in partnership with the Mountain Forum. A website will be maintained and updated from the field via satellite internet. A study team will be assembled for the field work and directed by myself and regional partners. The results of the project will be a spatial multi-media product displaying interview footage, audio clips, and pictures upon the modeled landscape.

Keywords: Mountains, Transhumance, Spatial Multi-Media

Stefanie Snider, University of Southern California. Email: ssnider@usc.edu; *Fat Girls and Size Queens: Alternative Publications and the Visualizing of Fat and Queer Eroto-Politics in Contemporary American Culture*

FaT GiRL: A Zine for Fat Dykes and the Women Who Want Them, produced between 1994 and 1997 in the San Francisco Bay Area by a changing collective of self-identified fat lesbians, was a project based in visual and textual self-representations of fat dykes. Seven issues were created during its run; each features what might be called "explicit" photographic self-representations as well as fiction, poetry, recipes, and calls for activism. This essay investigates the discursive and material formulations of this zine as an object of visual culture within the fields of fat and queer activism. The objects of study here, zines, photographs, and fat queer female bodies, are imbricated and analyzed as projects of fat and queer enunciations of empowerment and visibility within a mid-1990s context of identity politics and its backlash. Also considered is the first issue of a new fat and queer zine, *Size Queen: For Queen Size Queers and Our Loyal Subjects*, created by Max Airborne and Cherry Midnight, two former members of

the FaT GiRL Collective. Beginning its circulation in 2005, several years after FaT GiRL folded, with a potentially wider agenda and audience, *Size Queen* might be seen to both complicate and revisit the assumptions and manifestations of fat and queer identity to which FaT GiRL earlier brought attention. Intense visual and textual analysis of these zines begins to tell us about how fatness, gender, and sexuality inform each other and are mapped onto bodily artifacts and politics in contemporary American culture.

Keywords: fat, queer, photography, alternative publication, body, identity politics, self-representation

Todd M Snider, Central Washington University. Email: sniderto@cwu.edu; *The Conversion of Private Timberlands to Residential Development in the Cle Elum River Watershed*

Unprecedented residential development has been occurring throughout Kittitas County, Washington. Many of Upper Kittitas County's private forestlands have been rezoned, parcelized, fragmented, and converted to residential development. Land use in the Cle Elum River watershed, in particular, has experienced significant change in the past decade. Thousands of acres of traditional timberlands have recently been converted to residential parcels and marketed as such, paving the way for continued growth. Despite the quantity of conversions and uncertainties regarding the ensuing effects, no attempts had previously been made to comprehensively document these changes and relate them to the historical resource-use context of the area. The purpose of this research was to document the location of all conversions, the quantity of converted land, the rate of change, and how it has affected area land cover, land use, ownership, road and utility networks, and perceptions of natural resources over the past fifty years. By relating recent land use change to historical trends, we can understand the past and improve planning for the future.

Keywords: Land-use, timberlands, Kittitas

Jean M. Snyder, Western Washington University. Email: snyderjean@hotmail.com; Andrew J. Bach, Dr., Western Washington University. Email: andy.bach@cc.wvu.edu; Casey Hanell, Western Washington University. Email: caseyhanell@hotmail.com; Elizabeth Siedlecki, Western Washington University. Email: elizabeth.siedlecki@gmail.com; *Soil Development on Alluvial Terraces of the Elwha River, Washington*

The Elwha River has been chemically, physically and ecologically altered for the past 100 years by the Glines Canyon and Elwha Dams. The reservoirs behind the dams have trapped over 13.8 million cubic meters of sediment that would have otherwise been transported downstream. The lack of sediment input has impacted soil development. The dams also stop marine derived nutrients from entering the soil via salmon carcass decomposition. This study evaluates the impact of the dams on floodplain and alluvial terrace pedogenesis. Multiple terraces provide an opportunity to examine soil development characteristics in the drainage by controlling environmental factors to create a chronosequence. We hypothesized that the higher (older) terraces will be more developed than the lower (younger) terraces. Two soil pits were excavated on five different age surfaces; active floodplain, one meter terrace, high terrace, Pleistocene end moraine and Pleistocene terrace. For each soil pit, physical characteristics were recorded according to USDA specifications. The floodplain had the least developed soil with only a thin A horizon (12 cm). The one meter terrace had a thicker A horizon (20 cm). The most developed soils were the high terrace and end moraines sites. The high terrace sites had very developed A (30 cm) and B (40 cm) horizons. The end moraine sites had O (1-2 cm) and E (20-25 cm) horizons with multiple B horizons (70 cm). From our research we realized that pedogenesis at the study site does not reveal a simple chronosequence model for the Elwha River valley.

Keywords: pedogenesis, soil chronosequence, dams, Elwha River

Adriana S Soares, Riverside County TLMA. Email: asoares@rctlma.org; *A Spatial Analysis of Dengue Fever in the Americas, 1995 - 2005*

ABSTRACT A Spatial Analysis of Dengue Fever in the Americas, 1995 - 2005. The World Health Organization considers dengue to be the most important vector-borne viral disease, potentially affecting 2.5 billion people in tropical and subtropical countries throughout the world. Dengue fever (DF) and the more severe manifestation dengue hemorrhagic fever (DHF) re-emerged in the Americas by 1970s and 1980s. In 1998, the Americas reported more than 700,000 cases of DF and more than 12,000 cases of DHF. What are the factors causing the increase in DF and DHF incidences in the Americas? One may think of natural factor such as climatic changes. Natural causes, however, may only be a part of the cause and effect complex. The primary contributing factor to this problem may be man-made such as urbanization. Since 1950s, an increasing proportion of the world's population lives in cities and suburbs. In the last two decades, DF and DHF cases have grown because of increasing human contact with forest areas as well as increasing urbanization. Until now, most researches have

focused on the biological, entomological, and clinical aspects of DF and DHF. Location-specific studies of DF demonstrating an integrated use of socio-economic and cultural practices are very few. This calls for an in-depth study of the factors that influence DF and DHF in Latin America. The main objective of this paper is to show that certain factors such as demographic, social, economic, and environmental changes greatly increase the potential for the spread of DF in Latin America.

Keywords: Medical Geography, Dengue Fever, Americas

Adam D. Sobek, University of Utah. Email: adam.sobek@geog.utah.edu;
Harvey J. Miller, University of Utah. Email:
harvey.miller@geog.utah.edu; *Methods for comparing space-time paths*

Classic travel behavior theory states that the desire of individuals to participate in activities provides the motivating factor which drives human movement. Although individuals have freedom to choose activities, research has shown for a given population, stable clusters of similar activity schedules emerge based on demographics and socio-economic factors such as an individuals' income, household size, and car ownership status. These clusters are termed representative activity patterns. Traditional cluster dimensions include the type of activity, the timing and distance from home or other anchors. A remaining question is whether the detailed geographic properties are also similar and, if so, how similar? This paper leverages the constructs embedded within the theory of Hägerstrand's time geography to investigate the geographic similarities between space-time paths. Specifically, for two space-time paths for two individuals with similar demographics, are the geometric patterns exhibited by the space-time path similar? This paper compares several methods for analyzing the similarity of multi-dimensional vectors and adopts a technique from remote sensing based on the root mean squared error (RMSE) measure for multiple endmember spectral mixture models. This method is computationally efficient and allows quantitative comparison of the similarity of space-time paths.

Keywords: Time Geography, GIS, Travel Behavior

Dennis L. Soden, Ph.D., Institute for Policy & Economic Development at UT El Paso. Email: desoden@utep.edu; Janet S. Conary, Institute for Policy & Economic Development at UT El Paso. Email:
jconary@utep.edu; *US / Mexico Border Counties in Transition: A New Geographic Perspective*

This paper explores the question, If the 24 southwest border counties were a 51st state in the United States, how would they compare to the other 50 states? In 1998, former Texas Comptroller John Sharp published *Bordering the Future: Challenge and Opportunity in the Texas Border Region*, which provided an assessment of the economic, political, and social condition of the Texas border counties. This report, commissioned by the U.S./Mexico Border Counties Coalition, extends those findings to all of the 24 U.S. counties that are contiguous with Mexico. As a region, if these 24 counties were the 51st state, how would they compare with the rest of the nation? By examining data across 13 dimensions or areas, the conclusion may be that politically the 24 border counties may have more in common across legal jurisdictions (i.e., states) and can logroll their interests to have the federal government better respond to critical regional needs. In addition, the data suggests that the presence of San Diego County as a border county greatly skews the data and in many ways misrepresents the region's overall condition.

Keywords: Border Counties, underemployment, crossings

Terry L. Sohl, Science Applications International Corporation. Email:
sohl@usgs.gov; Roger Auch, Science Applications International
Corporation. Email: auch@usgs.gov; *Contemporary Land Cover Change in the Coast Range Ecoregion*

The Coast Range ecoregion stretches from northwestern Washington to San Francisco Bay, covering a thin strip of coastal land within 125-km of the Pacific Ocean. Forest use, defined as both lands with forest cover and recently cut forest, covers over 80% of the ecoregion. The timber industry is the primary driver of land cover change in the ecoregion. Nearly 11,000 km² of forest was clear-cut between 1973 and 2000, making the Coast Range one of the most dynamic ecoregions in the United States, with nearly 27% of its area experiencing some form of land cover change during that time period. Because of extensive fires in the late 1800s and early 1900s, large swaths of forest in the ecoregion were likely too small for commercial cutting prior to 1960. Cutting increased rapidly after 1960, peaking during the 1986 to 1992 time period. However, rates of cutting during the 1980s may have been unsustainable, given the typical 40- to 60-year cutting cycle in the ecoregion, and cutting declined in the 1990s. Decreases in cutting were also a result of actions taken to save Spotted Owl habitat, including the establishment of the Northwest Forest Plan. Over 95% of land cover change in the ecoregion is directly related to timber activities, with much smaller amounts of change caused by urban expansion and shifts in agriculture.

Keywords:

coast, range, ecoregion, land, cover, use, change, drivers, causes, contemporary

Youngsinn Sohn, UMBC (University of Maryland Baltimore County). Email: ysohn@umbc.edu; *Urban Forest Characteristics and Patch-size Effects on Urban Heat Islands*

Urban tree canopies efficiently dissipate the solar energy received through evapotranspiration and shade impervious surfaces preventing the original heating of the impervious surface and storage of heats by impervious surface materials. Through urban heat islands mitigation, urban forests also can significantly reduce the air pollution in urban area. Due to this positive contribution of urban tree canopies to urban environment, many studies on urban forests mapping and assessment have been performed recently. The goals of this paper are threefold: (1) map urban forest patches within the Baltimore city and surrounding areas, (2) analyze the urban forest distribution characteristics, and (3) assess the patch-size effects on urban heat island phenomena. The analysis results will provide the urban forest characteristics and the assessment results of functional performance of urban forests in mitigating urban heat islands effects in the Baltimore city area.

Keywords: Urban Forests, Patch-size Effects, Forest Fragmentation, Urban Heat Islands

Martin Sokol, Dr, Queen Mary, University of London. Email:
m.sokol@qmul.ac.uk; Chris van Egeraat, National University of Ireland,
Maynooth. Email: ; Brendan Williams, University College Dublin.
Email: ; *Polycentricity, knowledge-intensive business services and space of flows in an emerging global city: Evidence from Dublin*

The paper engages with a polycentricity debate by examining the notion introduced by Manuel Castells (1989, 2000) that a 'new spatial logic' has emerged as a consequence of the informational or knowledge-based economy. Such an economy, it has been argued, is increasingly dominated by a 'space of flows' and is accompanied by the emergence of 'informational cities' taking a form of 'multifunctional, multinuclear spatial structures'. This proposition is examined in the context of Dublin, an emerging global city. Focusing on knowledge-intensive business services (KIBS) in the Greater Dublin Region the paper argues that a much more complex geography is emerging, opening up several fundamental questions and highlighting the need to re-conceptualise the 'informational city'. In this context, the paper makes the point that, in addition to the role of information and communication technology (ICT) emphasised by Castells, there is a need for a conceptual approach that would be more sensitive to a number of other crucial factors that shape the geography of KIBS. In particular, the role of the state (in its various geographical scales) and the labour market conditions are highlighted, alongside corporate locational strategies of KIBS themselves. Furthermore, it can be argued that a combined effect of these factors may not automatically support the emergence of 'polycentric' spatial structures.

Keywords: polycentricity, city-region, Dublin, knowledge-intensive business services

Miriam Solis, Undergraduate, University of California, Berkeley. Email:
mvsolis@gmail.com; *(En)Gendering Agricultural Reform: Geographies of Governance in Rio de Janeiro, Brazil*

Brazil was one of two countries in Latin America to explicitly introduce the possibility of granting land tenure to both a man and a woman during the 1980s. Yet, the first and only Brazilian Agrarian Reform Census in 1996 revealed that national rate for women's land tenure was less than 13%, hardly the idealized number. The same Census revealed that the state of Rio de Janeiro (RJ) beat the national average by more than four times over: the percentage of land titles that were granted to women was 53%, about 1/3 third of who were single mothers. To understand political and economic processes that shaped this gendered dynamic, qualitative techniques were used. Specifically, archival data of governmental agencies and social movements was examined and interviews were conducted with leadership of agrarian reform movements in the state, the directors and staff of governmental agrarian reform agencies, and scholar-activists whose work focuses on land distribution in the state. My research findings indicate that the state was the ultimate beneficiary in granting women's land tenure in RJ. This necessitates analysts to go beyond the celebratory expressions driven by the territorialization process shaping the state's landscape. It is from this point of reference that this research further explores notions of the institutionalization of social movements, the (il)legalization of women's work and bodies, and agricultural reform as a highly gendered and capitalistic apparatus of the state.

Keywords: Gender, agricultural reform, Brazil, Rio de Janeiro

Patricia Solís, Association of American Geographers. Email: psolis@aag.org; My Community, Our Earth: Geographic Learning for Sustainable Development

The Goal of the My Community, Our Earth (MyCOE) program is to encourage students to use geographic methods for understanding and demonstrating how a sustainable development issue affects their community and environment. A brief overview of the program's mission and history preface commentary on the sets of activities that the partnership has taken since inception. Collaboration among government agencies, foundations, NGOs, private enterprises, schools, universities, informal youth groups, international organizations and individuals comprises the foundation of this global partnership. Ongoing work continues to build the MyCOE network as a broad, long-term resource for sustainable development activities and organizations around the world. www.geography.org/sustainable.

Keywords: sustainable development, geographic learning, Millennium Development Goals

Katrinka C. Somdahl, Macalester College. Email: somdahl@macalester.edu; Transition Embodied: Bird Brain Dance, at home in motion

This paper is intended to ask the question if it is possible to be at 'home' while in motion. I analyze the work of Bird Brain Dance, who performed a "navigational" dance project in the fall of 2002. Over the course of this dance project, choreographer Jennifer Monson and her company followed the migration pattern of tagged ospreys as they flew south from Maine to Venezuela. Each performance event began with a sensory workshop, followed by the performance itself, and concluded with a discussion amongst the performers and audience members. Ms. Monson uses the idea of "location" to ground her work in the bodily realities of those present. She creates a rooted sense of place, a home, in the moment of sensory awareness. This awareness is then contrasted to an analysis of non-places, specifically understandings of the spaces of migration and travel. I argue that like the migrating birds, humans are also inherently the repositories of their previous points of interaction, up to and including the present moment. In this way identity and home are never 'displaced' even while in motion. In this work, I pull from interviews and the performers on line journals to illustrate their embodied understanding of transition.

Keywords: mobility, performance

Melanie Sommerville, M.A., . Email: melanie.sommerville@gmail.com; 'Terrorist Ducks' and Tainted Salad Greens: On the Need for Critical Geographies of Food Safety in Canadian Food Systems

Over the past two decades, a series of food scares has driven public concern about the safety of food production systems to new levels. These developments, which have been one impetus for the growing popularity of alternative food movements, have not gone unnoticed or unaddressed by the Canadian federal and provincial governments. Indeed, discourses of food safety have become increasingly prominent in Canadian agricultural policy and regulation over the past decade, and, together with the creation of bodies such as the Canadian Food Inspection Agency, are increasingly shaping the structure, modus operandi, and future development of our food production systems. This paper examines the emergence and mobilization of key discourses of food safety in Canadian agricultural policy, their consequences for the everyday functioning of food production systems, and the responses they legitimize to recent 'threats' to and within these systems, such as those associated with the Avian Flu and the bacterial contamination of salad greens and carrot juice. The paper explores the role that linkages between food safety and food quality, and between food safety and food, human, and national security play in dominant food safety discourses. Through these explorations, the paper highlights a growing need for critical geographies of food safety, which explore the ways that dominant food safety discourses and the actions and responses they legitimize may be both reinstalling food production systems with questionable safety records, and limiting the development of the alternative food systems that consumers increasingly demand.

Keywords: agriculture, food safety, food scares

Jessica Rae Sunday, Oregon State University. Email: jsunday@geo.oregonstate.edu; Assessing Green Space in Urban and Suburban Oregon

This study analyzes green space in cities in the Willamette Valley, Oregon to establish sustainability trends in the region based on certain indicators. Green space is characterized using a standard definition of unsealed, permeable land. This definition is extended for the purposes of this study to include land that is classifiable using remotely-sensed data. The cities of Corvallis and Eugene were chosen based on their perceived attention to environmental issues, population characteristics, and educational statistics. The first objective was classification of land cover types in terms of nominative characteristics using Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER). Vegetation

cover is also assessed through a Normalized Differential Vegetation Index (NDVI). This is followed by a comparison to the characteristics of an intermediately located city, Harrisburg, OR, which is not considered politically green. The final objective is an analysis of trends in green space coverage (on a scale of percentage green) over the past six years. It is expected that green space in cities considered to be environmentally friendly will increase over a specified time period, as will the surrounding urban areas, due to their geographical proximities.

Keywords: green space, sustainability indicators

Conghe Song, University of North Carolina at Chapel Hill. Email: csong@email.unc.edu; Lawrence B Band, University of North Carolina at Chapel Hill. Email: ; Christina L Tague, University of California at Santa Barbara. Email: ; Paul C Stoy, Duke University. Email: ; Gabriel G Katul, Duke University. Email: ; Ram Oren, Duke University. Email: ; Modeling the Impacts of Canopy Structure on Energy, Water and Carbon Fluxes through a Loblolly Pine Stand: Uniform vs. Gappy Canopies

The impacts of uniform and 'gappy' canopy structure on fluxes of radiation, latent heat and net photosynthesis are investigated using a series of modeling tools that incorporate the two-leaf concept. We verified model simulations against radiation and eddy covariance flux measurements collected during May to September of 2001-2003 at Duke Forest Ameriflux site, located in a loblolly pine stand in the Blackwood Division of Duke Forest, near Durham, North Carolina. Statistical tests found that the modeled daytime net radiation, evapotranspiration (ET) and net photosynthesis based on the uniform canopy structure are significantly higher than the corresponding values based on the gappy canopy structure. Modeled values of net radiation, ET and net photosynthesis are also significantly different from the measured net radiation, ET and estimated Gross Ecosystem Production (GEP) for both canopy structures. However, the correlation between the modeled net radiation and measured values is highly significant ($R^2 = 0.95$) for both canopy. The modeled daytime latent heat fluxes correlates reasonably well with half-hourly daytime measurements ($0.45 = R^2 = 0.71$), while the simulated net photosynthesis correlates marginally well with GEP estimates ($0.26 = R^2 = 0.43$) for both canopies. Sensitivity analysis found that the differences between the two types of canopies are primarily caused by the fraction of sunlit leaves and the radiation intensity on the shaded leaves. The differences decreases as the canopy cover and LAI increases, but never disappear. Therefore, canopy structure may have significant implications for up-scaling ecosystem processes using remotely sensed LAI measurements.

Keywords: Canopy Gaps, Radiation Transfer, Evapotranspiration, Carbon Assimilation

Guan Song, Northern Illinois University. Email: songguan1981@hotmail.com; Jie Song, Northern Illinois University. Email: jsong@niu.edu; Simulations of Dynamic Vegetation over Grasslands and Croplands

Global CO₂ and water cycle are closely related with each other by CO₂ assimilation and transpiration of vegetation. Grasslands cover 40% of land surface and play important roles on carbon sequestration. Inaccurate simulations of most land surface models (LSMs) are mainly caused by simple descriptions of vegetation dynamics responding to the changing environment; in particular, the importance of belowground dynamics is ignored. The objective of the research is to improve the simulation ability of LSMs on CO₂, water, and heat fluxes between atmosphere and grasslands by integrating detailed processes of vegetation dynamics into one of the current LSMs, called NOAH. The added components include fast processes associated with photosynthesis and respiration, and slow processes associated with allocation, turnover of leaf and root, and decomposition of litters. The improved model will be driven by atmosphere observations, at sites of grasslands and croplands. The simulated results, such as fluxes of CO₂, latent heat, and sensible heat, will be compared with Ameriflux observations. LAI will be compared with remote sensing data. The comparisons will be analyzed and discussed.

Keywords: CO₂ flux, vegetation dynamics, belowground biomass, Land Surface Model

Jie Song, Northern Illinois University. Email: jsong@niu.edu; Guan Song, Northern Illinois University. Email: ; Vegetation and Root Dynamics for the Land Surface Modeling

Global water and carbon cycles are closely linked both aboveground and belowground in the Earth system. Biosphere can potentially become a sink or source for atmospheric carbon dioxide as long-term changes in temperature and precipitation occur. Current climate models consider primarily aboveground components of vegetation because these can be easily observed. However, root distribution in response to environmental conditions is missing in most land surface models. The objective of this study is to construct a dynamic root module that links water availability with root distribution. Primary root stores most of carbon and anchors the plant, while it is the fine root that absorbs water and

nutrient and is especially dynamic. In the dynamic root module, fine root is differentiated from the primary root in their carbon allocation, turnover and function. The geometry of the primary root is assumed to be conical with rooting depth calculated from total biomass in the primary root and stem diameter. The fine root allocation in the soil is assumed to depend on available soil moisture at that depth. The dynamic root module enables accurate account of carbon in primary root, fine root, litter, and soil as well as respiration and moisture at different soil depth. It further enhances the understanding in surface-atmosphere exchanges in energy, water vapor and carbon dioxide.

Keywords: Dynamic vegetation, carbon and water cycle, root dynamics

Kuan Song, University of Maryland. Email: songkuan@yahoo.com; John Townshend, University of Maryland. Email: jtowshe@umd.edu; A Geolocation Accuracy Assessment of NASA Landsat GeoCover

The legendary Landsat program has benefited research, engineering, and education for more than two decades. One of the recent important benefits is the creation of Landsat GeoCover funded by NASA. GeoCover includes three 'Epochs': circa-1970, circa-1990, and circa-2000. GeoCover is free to the users worldwide. Its downloading volume from GLCF (Global Land Cover Facility) exceeds 8 terabytes monthly. GeoCover was orthorectified using the 1990s NIMA elevation, which was the best data available at the time but was also recognized as incomplete in certain but unspecified regions on Earth. This was suspected to have introduced uncertainties into GeoCover. Our study assessed GeoCover so that the researchers can be aware of the geolocation accuracy variations around the world. An algorithm was developed for this purpose, by examining the geolocation difference between GeoCover and the newly available SRTM 'Finished' data. This algorithm is based on the similarity between the shaded relief of elevation data and the natural contrast of Landsat imagery in mountainous regions. This algorithm was applied and can only be applied to the major mountainous regions. The following results are found: 1. In most regions of Earth, GeoCover has very high geolocation accuracy. The errors are simply of the scale of sub-pixel. The accuracy within continental US is close to perfect. 2. A significant amount of errors showed up in certain regions of Earth, noticeably part of the Andes and around the East African Rift. The algorithm can automatically adjust those problematic GeoCover images to the accuracy of SRTM data.

Keywords: GeoCover, SRTM, Landsat continuity, geolocation Accuracy

Wei Song, University of Louisville. Email: wei.song@louisville.edu; Yves Boquet, University of Bourgogne, France. Email: boquet.yves@wanadoo.fr; Study of China's Domestic Air Passenger Transportation: Development Patterns and Regional Disparity

China has experienced a tremendous growth of its domestic air passenger transport in the two decades of transition towards a socialist market economy. The open-door economic policy of China and its obvious attractiveness as a tourism destination have swelled the ranks of visitors and business travelers, from overseas as well as China, while the personal income rise of a large segment of Chinese society is a major factor for business and leisure travel throughout the country. We start with an overview of the evolution of China's aviation industry in the dual context of economic reform and globalization. The breakup of CAAC's monopoly led to the birth of many airlines, currently under consolidation around three major carriers centered in the top cities. We follow by examining the main spatial patterns of the geography of air traffic within China, dominated by three major centers of growth in the East: Beijing, Shanghai and Guangzhou/Shenzhen, where the relevance of the hub-and-spoke concept in the Chinese context is doubtful at this time. We end by assessing the relationship between economic growth, the rise of tourism and the development of aviation in China. Government's aviation policies and economic dynamics are among the key proponents for the expansion of China's domestic air transport system, which is apparently dominated by the East Region, followed by the West and Middle Regions.

Keywords: Air Transport, China, hubs, economic development, regional disparity

Yu-Ling Song, National Taiwan University. Email: yulingsong@yahoo.com; Nora LH Chiang, National Taiwan University. Email: ; Si-ming Li, Hong Kong Baptist University. Email: ; The Mobility and Attachment of Displaced Residents under Urban "Redevelopment" Projects in Shanghai

This research aims to elaborate the community relationships of residents displaced by redevelopment projects after their relocation through a comparative research based on two databases. One is a survey of 1200 Shanghai households conducted in 2006; the other is 10 in-depth interviews of Shanghai displaced residents in 2004 and 2005. The paper draws on the concepts of "place" developed in structurationist geography to understand the community relationship after relocation. Three interrelated aspects structuring community relations are analysed: first, the redevelopment and relocation planning of Shanghai in a

globalization context; second, the everyday life of the displaced residents; and third, their personal experiences and emotions in place. We find that traditional community relationships are replaced by services provided by the estate management company, and the displaced residents are generally satisfied regarding their day-to-day life. The conditions of buildings and the convenience of transportation and everyday life are the most important factors affecting residential satisfaction. The imagination of being a "Shanghai citizen" and "living in the inner city" and the discourse of "the city periphery now is the inner city of the future" make the displaced residents feel better even though they actually reside in the suburb. They look forward to enjoying the beautiful living of Shanghai citizen sometimes in the future.

Keywords: displaced residents, community relationship, place attachment, everyday life, Shanghai

Lynn Songer, University of Oregon. Email: lsonger@uoregon.edu; Susan Hardwick, University of Oregon. Email: susanh@uoregon.edu; Amy Lobben, University of Oregon. Email: lobben@uoregon.edu; The Effectiveness of Internet-GIS in an Introductory Human Geography

Increasingly, instructors turn to GIS as a teaching tool. Instead of teaching GIS, they harness the power of GIS as a tool for data exploration and explanation. Software such as ArcIMS allows instructors to organize and make available Internet-delivered "learning modules." Such delivery also appeals to the growing number of distance education students. But, what are the consequences of implementing these learning modules, especially in place of traditionally-delivered classroom lectures? This paper presents results from a study assessing the effectiveness of two problem-based learning approaches for teaching human geography. The control approach was designed around the use of static maps for student-centered problem solving activities. The research approach substituted internet-based GIS maps for static maps. Students from the University of Oregon and Lane Community College participated in the study. Assessment data included pre- and post-test efficacy surveys, pre- and post-test content knowledge questions from the released 2001 AP Human Geography exam, and a structured performance assignment.

Keywords: geographic education, GIS, assessment, undergraduate

Helen Sooväli, Tallinn University, Estonia. Email: helen.soovali@tlu.ee; Andres Kurg, Estonian Art Academy, Estonia. Email: andres@artun.ee; Dealing with the Past. Spatial Considerations in Contested Tallinn Town Centre, Estonia

2006 was a turning point in Estonian history. Economically booming, forward looking Estonia represent a success story among the former Soviet bloc countries. At the same time, Estonia has been struggling with its Soviet past expressed in the celebrations of the 'victory day' of WWII on May, 9, Tallinn 'liberation day' on September, 22 by Russian speaking minority; and the presidential elections resulting in the second coming of the national awakening. An emblematic icon of the contested histories, contemporary narratives of different ethnic and social groups and geographical representational belonging is a monument dedicated to Soviet soldiers who perished in WWII. The so called Bronze soldier monument in the heart of Tallinn town centre has been declared as 'no man's land' and guarded by policemen since 05.09.06 in order to avoid any provocative acts. After the downfall of the Soviet Union and the founding of the new Republic of Estonia the place has been reborn to a certain afterlife, becoming a contested site where symbolic battles are held over its meaning, where different territorialisations are literally acted out, thus showing the political meaning of the city as a public realm. With the monument battle, this paper seeks to find out Estonia's geographical imagination based on its multiethnic society. How do different ethnicities identify themselves geographically: with EU vs Russian Federation? Further, as this case illustrates the contestedness of space, we focus on the ongoing political, economical, cultural debates on Estonia's belonging to Europe, Northern Europe vs to Russian speaking territories.

Keywords: transformation, East Europe, geographical imagination

Daniel G. Sorenson, United States Geological Survey. Email: dsorenson@usgs.gov; Rates of Land-Cover Change in the Puget Lowland Ecoregion

A land-cover study has been completed for the Puget Lowland ecoregion in the State of Washington. This national study attempts to describe the rates and driving forces of change on an ecoregion basis between 1973 and 2000. The Puget Lowland is one of the 84 ecoregions determined by the EPA's Level III ecoregions of the United States. Thirty-two 10-kilometer square areas were randomly sampled within the Puget Lowland to adequately characterize the ecoregion. Analysis of land cover change within these sample blocks was based on manual interpretation of Landsat MSS, TM, and ETM+ data for the core dates of 1973, 1980, 1986, 1992, and 2000. The TM and ETM+ classifications were resampled to 60 meters to correspond with the MSS data. Total spatial area

change for the entire study period is 27.8% which is the highest rate observed so far in the national study. The dominant land-cover conversions occur between the land cover classes that are associated with tree harvesting and reforestation. Except for the last time interval 1992-2000, the conversion from forest to other classes accounts for at least half of all conversions. Forest cover loss was 10%. The developed land-cover class showed the largest gain, increasing 6.8% during the study period with 72.5% of the land converting to development coming from forest. The time interval with the highest rate of change was 1986 to 1992, in which the rate was 2.3% per year of total change. This time period also coincides with the peak of tree harvesting.

Keywords: Land-Cover Change, Puget Lowland

Alexandre Sorokine, Oak Ridge National Laboratory. Email: sorokina@ornl.gov; Visualization of the US Electric Grid: The Cartogram Approach

GIS is a powerful tool for modeling of geographic networks such as electric grids, road and rail networks, and others. However, network and geographic space are significantly different and often points that are close to each other in geographic space are far from each other in the network space and vice versa. This presents a major problem for the visualization of the networks. The nodes and links that are necessary for understanding of the network operation are often congested leaving other parts of the map devoid of useful content. Also users often need to relate network elements and near-by geographic objects. In this study we suggest a computational approach to combine both network and geographic views on a single display. To achieve this goal we employ a well-known technique for constructing cartograms. In a cartogram the map space is transformed to present qualitative information. In our approach we transform map space to equalize the density of the map features of interest thus enabling user to discern separate network elements while preserving geographic context. First we calculate a map of the density of network elements. Then we use diffusion algorithm to calculate a dislocation matrix. Finally the matrix is applied to the network itself and other GIS layers. We use animation to simplify comprehension of the transformed map. The proposed method helped us to create maps of the electric grid that can clearly present the structure of the grid and show coincident geographic features at the same time.

Keywords: cartography, map making, cartograms

Matthew Sothern, University of St. Andrew's. Email: msouthern@u.washington.edu; Pacific Queens: fa'afafine and neocolonialism in Aotearoa/New Zealand

Aotearoa/New Zealand, like many western countries, has witnessed dramatic increases in HIV/AIDS infections since the turn of the millennium. A significant proportion of these new infections occur in communities of Pacific Islanders in Auckland. Recent public health HIV prevention campaigns aimed at Pacific Island communities have emerged. Prominent among these campaigns are representations of fa'afafine, a Samoan form of transgenderism. This paper examines the spatial logics of these representations and contrasts them to the ways Pakeha New Zealander's are represented in HIV prevention campaigns. The paper argues that an epistemic insecurity in hegemonic western constructs of gay masculinity and gay sexuality is simultaneously disavowed and secured through the representational and spatial Othering of the Pacific transgenderisms of fa'afafine.

Keywords: Neocolonialism, HIV/AIDS, Transgender, New Zealand

Christopher E. Soular, United States Geological Survey. Email: csoulard@usgs.gov; Landcover Trends of the Central Basin and Range Ecoregion

Few multitemporal landscape-change data currently exist for basin-and-range regions within the United States. As part of the U.S. Geological Survey Geography Discipline's Land Cover Trends project, estimates of change for the Central Basin and Range ecoregion between 1973 and 2000 were calculated by utilizing a sampling strategy coupled with a manual interpretation of 11 landcover classes from Landsat imagery for five dates (1973, 1980, 1986, 1992, and 2000). An appropriate statistical criterion was selected to document and describe the rates of landcover change and how they vary spatially, thematically, and temporally. Harsh climate, infertile soils, and lack of viable resources have historically impeded anthropogenic land-use change in the Central Basin and Range ecoregion. Although these factors continue to minimize such change in the region, various other factors have driven contemporary change. Between 1973 and 2000, the footprint of landscape change in the Central Basin and Range ecoregion was 1.45% (or 4,978 km²). The most prevalent changes during the study period were fire disturbance and agricultural shifts across the region. These landcover changes can have far-reaching consequences, including the elimination of endangered flora, biotic vulnerability due to loss of habitat, and potential loss of human capital.

Keywords: Land-use change, landcover change, ecoregion, Great Basin, fire

Caleb Southworth, University of Oregon. Email: caleb@uoregon.edu; Matthew Allen Derrick, Department of Geography, University of Oregon. Email: mderrick@uoregon.edu; Reconfiguring Russia: How National Identity and Trade Networks Influence Regional Autonomy

Russia is commonly viewed as a monolithic, authoritarian state where the center dominates the politics of the periphery. In 2004, President Vladimir Putin eliminated the practice of directly electing regional governors in the country's 89 regions in favor of direct appointment. Deputies to the State Duma (lower house of parliament) were converted from a system of single-mandate electoral districts to proportional representation where voters chose party lists of candidates. Despite such changes, this paper examines sources of regional power and negotiation with the Kremlin that create varying degrees of autonomy. Why are some regions loyal to the center while others exert greater autonomy and attempt to negotiate for federal resources? Data on the Russia's 89 regions will be used to develop a scaled measure of autonomy based on the extent of majority party control of the regional assembly, the party affiliation of the governor and the proportion of office holders who are of the titular nationality. One expectation is that nationally defined, autonomous republics, such as Bashkortostan and Tartarstan, will exert more autonomy. Spatial data analysis will be used to show the effect of natural resources, economic stability in the regional economy and inter-regional trade ties on political autonomy. The main working argument is that despite authoritarian control of the political system, regional politics within Russia continue to shape the national agenda in terms of trade, privatization and foreign investment - all issues likely to change Russia's future status in Europe.

Keywords: Russia, state capacity, islam

Jane Southworth, University of Florida. Email: jsouthwo@geog.ufl.edu; Lin Cassidy, University of Florida. Email: cassidy@ufl.edu; Michael W Binford, University of Florida. Email: mbinford@geog.ufl.edu; What's with all the classifications? Using continuous approaches to land cover change analyses within the Lower Mekong River Region

Human activities operating at multiple spatial and temporal scales induce changes in economic, social and demographic structures, land cover and land use, and natural resource extraction. Reciprocally, human activities are themselves influenced by the manner in which climate variation, variability in the quantity and quality of natural resources, and other processes of environmental change interact with sociocultural systems. We are currently working to integrate natural and social science analyses of social, economic, and biophysical variables to address the question of how their complex interactions generated the spatially and temporally shifting dynamics of human development and environmental change in the Lower Mekong River Region of mainland Southeast Asia over the past millennium. This research presents some of the initial results of the land cover change analysis and is used to highlight the often useless nature of land cover classification techniques currently in use. Within dynamic landscapes we need dynamic land cover analyses and we present results from continuous representations of land cover, specifically using thermal analyses and new thermal based vegetation indices of land cover change, to highlight the importance of moving beyond the simple classification scheme within land change science research.

Keywords: Land Cover Change, Asia, social-ecological systems, remote sensing

Jacob Sowers, Kansas State University. Email: jsowers@ksu.edu; Desert But Not Deserted

A review of popular and academic literature reveals that the experiential desert landscape has traditionally been understood as wilderness. Narratives focus on adventure and journey in the midst of landscapes antithetical to dwelling and at-homeness. However, millions of acres in the Mojave Desert were opened for settlement in 1938 with the passage of The Small Tract Act. The act allowed people to buy 5 acre plots of land as long as they paid a nominal fee and built a structure. By the 1950s tens of thousands of cabins dotted the southern Mojave Desert. The following decades witnessed widespread abandonment due to inhospitable conditions and the growth of nearby towns converting the home-steaded areas into suburban landscapes. Although a few cabins remain in some places Wonder Valley is the last area to maintain a community and sport a largely unaltered desert landscape. Wonder Valley thus presents a paradoxical situation juxtaposing civilization and dwelling within a supposed wilderness landscape of journey. This paper explores how the citizens negotiate this situation by investigating the cultural landscape, participating in daily events, and conducting semi-structured and unstructured interviews. I have found that the desert landscape plays an essential role in feelings of at-homeness and place identity but the contrasting insider expectations have led to an ambiguous community identity and increasing social tensions. I believe that Wonder Valley is an

excellent example of an existential ecotone, in this case emerging from the overlapping experiential regions of wilderness and civilization.

Keywords: desert, wilderness, at-homeness, experiential landscape, existential ecotone

Stephanie Spahlinger, U.S. Bureau Of the Census. Email: stephanie.m.spahlinger@census.gov; Mapping System Development - Producing Millions of Maps for the 2010 Decennial Census

The U. S. Census Bureau requires paper maps and electronic map files to support the 2010 Decennial Census. Maps are used for a variety of purposes, depending on the census operation. Examples include: navigation (orientation), display of assignment areas for census takers; recording feature, boundary, and address updates to a spatial database; and relating census geography to statistical data. The U.S. Census Bureau will design and produce millions of paper maps to support census operations. Many operations are short term and involve tens of thousands of temporary enumerators. A compressed operational schedule, coupled with high volume map production, requires a non-interactive mapping process. In this environment, a computer performs all mapping functions. To effectively meet these requirements, a mapping system must employ cartographic intelligence such as maximizing scale, minimizing sheet size and numbers of sheets, providing operation-specific content, and supporting geographic entity-based mapping (as opposed to normalized sheet lines based on grids or quadrangles). In its customized mapping system the U.S. Census Bureau employs automated computer algorithms that perform traditional cartographic functions such as scale determination, feature density assessment, inset area identification, map sheet layout configuration, text placement, integrated quality control, parameter driven symbolization, and specifically formatted output. This presentation describes Census Bureau mapping goals, the rationale for this approach, a description of the map production methodology and anticipated issues with this approach.

Keywords: cartography; census, mapping system

Jodi Farrell Sparks, Indiana State University, Biogeography and Dendrochronology Lab. Email: dahlia98@hotmail.com, jfarrell1@mymail.indstate.edu; James H. Speer, Dr., Indiana State University, Biogeography and Dendrochronology Lab. Email: jspeer3@isugw.indstate.edu; Use of dendrochronology to study pandora moth (*Coloradia pandora*) outbreaks in the Arapaho National Forest, Colorado USA.

Pandora moth (*Coloradia pandora*) is distributed over much of the Western United States. It is a phytophagous insect that eats only older pine needles; therefore, there is only a 2% mortality in the host trees. Pandora moth leaves a tree-ring signature in ponderosa pine (*Pinus ponderosa*) tree rings that consists of the smallest rings at the beginning of the suppression, thinner latewood throughout the signature, and lasts from 4-20 years. All previous published research on pandora moth has been conducted on ponderosa pine as the host species. This study examines the effect of pandora moth defoliation on lodgepole pine (*Pinus contorta*) and reevaluates the signature criterion for this new species. Ten sites in the Arapaho National Forest in northwest Colorado were collected in 2004 and 2006. Tree cores were mounted, sanded, and crossdated using standard dendrochronological techniques. The site-level chronologies were examined for climate response and pandora moth signatures were identified visually and with the program OUTBREAK. All sites showed some significant climate response but were rather complacent in their ring widths. We have evidence for four possible outbreaks in the 1860s, 1900s, 1930s, and 1960s.

Keywords: Dendrochronology, pandora moth, distribution, Colorado, Lodgepole Pine, biogeography

Tony Sparks, University of Washington. Email: tsparks@u.washington.edu; As Much Like Home as Possible: Privacy, Rights Talk, and Negative Freedom in Seattle's Tent City

In the early summer of 2005 SHARE/WHEEL, a consortium of self managed homeless shelters, won a decisive battle against the city of Seattle and its "Safe Harbors" homeless tracking system. Proponents of Safe Harbors had argued that mandatory tracking of homeless individuals was a key component in evaluating the "success" of the county's "Ten Year Plan". SHARE/WHEEL that it was a fundamental violation of the privacy of homeless individuals. In the end, after a long series of mediations between SHARE/WHEEL and city officials, the city capitulated and offered a extensively scaled down version of the program which did not require individuals to offer ANY information as a condition of homeless service utilization. While on the surface this appears as a decisive victory for "homeless privacy rights" in Seattle. The language of rights does a significant disservice to both SHARE/WHEEL's position and strategy. Over three months spent living in Seattle's tent city III, a very different vision of rights and privacy began to emerge as I spoke with homeless individuals about the ways in which the conceived of themselves as citizens as well as how they negotiated the

labyrinthine world of police, service providers, and neighbors. This talk explores conceptions of rights, privacy, and citizenship as it pertains to homelessness as well as how the homeless conceive of themselves in relation to these categories. What emerges, I argue is a complexity that is obscured by an emancipatory vision of legal rights that relies on liberal notions of public and private.

Keywords: homelessness, rights, urban, law

Benjamin Spaulding, University of Connecticut. Email: benjamin.spaulding@uconn.edu; Robert Cromley, Ph.D., University of Connecticut. Email: robert.cromley@uconn.edu; Integrating the Maximum Capture Problem into a GIS Framework

This paper presents a methodology for reformulating the maximal capture problem by using the data representation and manipulation capabilities of GIS to define: 1) the coverage region captured by each potential facility, and 2) each unique demand region covered by a specific combination of potential facilities. The formulation is modeled on the maximum covering problem although the integer restriction on the demand capture variables is relaxed. Because demand regions are not exogenously given, areal interpolation is used to estimate the demand associated with each of these regions. The model is used to determine the location on a network for a set of home improvement stores that are hypothetically in competition with existing Home Depot stores in Southeastern New Hampshire.

Keywords: GIS, location-allocation modeling, maximum capture problem

David Speer, University of Wisconsin - Eau Claire. Email: speedm@gmail.com; Phillip Herman Larson, University of Wisconsin-Eau Claire. Email: larsonph@uwec.edu; Harry M. Jol, Dr, University of Wisconsin-Eau Claire. Email: jolhm@uwec.edu; Douglas J Faulkner, Dr, University of Wisconsin-Eau Claire. Email: faulkndj@uwec.edu; Garry Leonard Running IV, Dr, University of Wisconsin-Eau Claire. Email: runningl@uwec.edu; Post-glacial History of the Lower Chippewa River Valley, western Wisconsin: A Progress Report

A complex sequence of stream terraces has long been recognized along the lower Chippewa River valley but these landforms remain poorly understood. The purpose of this project is to provide a map of the stream terraces along the Chippewa River valley from Eau Claire, Wisconsin, downstream to its confluence with the Mississippi River as a first step in a broader investigation of the post-glacial history of the Chippewa River valley. Interpretation of aerial photographs, topographic maps, and digital elevation models (DEMs) were used to identify stream terraces within the study reach. Terraces were then mapped using ArcGIS software. Seven terraces were identified and mapped. The Wissota terrace (graded to the Chippewa terminal moraine), the highest, most prominent, and most extensive of them is preserved across the entire study reach. The remaining terraces are inset below the Wissota terrace. The lowest two terraces are only a few meters above the modern flood plain. Higher terraces generally exhibit lower relief except for the Wissota terrace where large (up to 10 m high and 200 m long) parabolic dunes are present locally. Lower terraces exhibit higher relief. Point bars and abandoned channels are usually readily apparent on the lowest terraces and the modern floodplain. Preliminary ground penetrating radar investigations and coring of several terraces in the study reach have yielded subsurface data suitable for sedimentological and stratigraphic analysis and samples suitable for optical stimulated luminescence dating. Future investigations will focus on determining terrace ages and sedimentological characteristics, and stratigraphic relationships among these terraces.

Keywords: Fluvial geomorphology, Stream Terraces, Wisconsin

James H. Speer, Indiana State University. Email: gespeer@isugw.indstate.edu; Multiple-scale disturbance and climatic response across the entire range of ponderosa pine in the western United States.

Ponderosa pine (*Pinus ponderosa*) dominates western North America dry forests from Mexico, through the United States, and into Canada. It is a keystone species controlling fuel loads that affect wildfire and create microclimates in which other plants thrive. Two hundred candidate ponderosa pine chronologies were collected from the International Tree Ring Databank (ITRDB) across the full range of the species. I use cluster analysis to group the chronologies to identify natural spatial patterns based on their common signal. Principal component analysis was used to extract the common signal to determine the disturbances or climate that controls the chronologies on multiple spatial scales. I hypothesize that climate will be the main controlling factors at broad scales while insect outbreaks may control tree variability at an intermediate (regional) scale and fire and gap dynamics may control variability at fine spatial scales (watershed).

Keywords: Dendrochronology, ponderosa pine, western United States, cluster analysis

Karen Speirs, University of Connecticut Department of Geography. Email: Karen.Hanson@huskymail.uconn.edu; *Population Incentives of Rural Areas*

With many rural communities in the Corn Belt and Great Plains region experiencing population decline, local governments are offering incentives in hopes of attracting migrants, or retaining existing populations. These programs offer a variety of incentives, from tax breaks to free land to payment of educational expenses, all designed to stabilize population levels, if not promote population growth. This paper briefly examines past, current, and proposed population incentives, while identifying the issues and problems faced in the participating communities.

Keywords: rural, population

Greg Spencer, University Of Toronto. Email: greg.spencer@utoronto.ca; **Tara Vinodrai, University of Toronto.** Email: tara.vinodrai@utoronto.ca; *Varieties of knowledge and the economic performance of Canadian cities*

This paper draws upon recent research on clusters and regional innovations systems that identifies a number of key drivers of economic growth and performance, including the presence of highly skilled workers, R&D investments and venture capital, and a well-developed research infrastructure. More recently, scholars have suggested that the innovative capacity of firms and regions rests upon their ability to capitalize on the quality of the local knowledge base. Similarly, scholars working within the tradition of evolutionary economics have recently emphasizes the importance of related variety to the competitiveness of firms and industries. While this literature examines the importance of the specific knowledge base of firms or industries, it does not tend to consider the characteristics of the overall knowledge base in a particular city or region and its effect on regional performance. This paper addresses this concern directly using data on educational attainment, post-secondary fields of study and a number of other socio-economic characteristics. We examine the prevalence of symbolic, analytic and synthetic knowledge bases within Canadian city-regions to develop a typology of places based on the relative diversity of the local knowledge base. We use a series of descriptive statistics and a multiple regression model to explore the relationship between knowledge diversity and economic performance, while controlling for a series of other place-based characteristics. Our preliminary findings show that Canadian city-regions with a diverse knowledge base have performed better compared to those places with a more specialized knowledge base.

Keywords: Canada, city-regions, knowledge bases, economic performance

Christina Spielman, State University of New York at Buffalo. Email: cspielman@gmail.com; **Marcia Rioux, Ph.D., York University.** Email: Marcia.Rioux@mail.atkinson.yorku.ca; **Ezra Zubrow, Ph.D., State University of New York at Buffalo.** Email: zubrow@buffalo.edu; **Tamara Daly, Ph.D., York University.** Email: dalyt@yorku.ca; **Mihaela Dinca-Panaitecu, York University.** Email: miha-dinca@sympatico.ca; **Gail Kunkel, York University.** Email: gfkunkel@yorku.ca; *Landscape of Literacy and Disability in Canada*

A multi-disciplinary team of researchers used data from the International Adult Literacy and Life Skills Survey, the Canadian National Population Health Survey, and the Canadian Participation and Activity Limitation Survey to reveal the spatial relationships amongst rates and types of disability and levels of literacy. Using Geographic Information Science, statistical analysis, and cartographic methods the team spatially identifies the following: 1) rates of disability and levels of literacy, particularly as it changes over the life course; 2) barriers and accommodations faced by people with disabilities; and 3) components of functional and critical literacy in Canada. The analysis is graphically displayed using easy to read maps designed to engage and empower people with disabilities. A key goal is to support efforts to address the human rights, political, social, and economic issues that contribute to illiteracy among people with disabilities and to support a policy dialogue about literacy and disability in Canada and internationally.

Keywords: literacy, disability, Canada, GIS, cartography

Benjamin Spigel, The Ohio State University, Department of Geography. Email: spigel.1@osu.edu; *Transmission or Transmutation? The Role of Tacit Knowledge and Codification in the Creation of the Linux Operating System*

This paper studies the role that tacit information played in newsgroup discussions among early developers of the Linux operating system. By analyzing knowledge artifacts created by conversations between developers, testers and users, it is shown that instead of merely codifying knowledge, tacit information is exchanged via Information and Communications Technologies (ICT). This conclusion is reached by applying a deeper understand of computer code, one which allows for ideas to be embedded within code just as it can be with any other language. Working within traditional frameworks of knowledge codification and cognitive proximity, this paper studies the circumstances necessary for the

successful transmission of tacit knowledge over spatial distance through ICT.

Keywords: Keywords: Tacit Knowledge, Codification, Articulation, Internet, Linux

Kevin M Spigel, Ph.D., Mercer University. Email: spigel_km@mercer.edu; *Environmental Magnetism- and Fossil Pollen-based Proxies for Environmental Change in South-Central Wisconsin*

Sediments from Emrick Lake, south-central Wisconsin, provide evidence of hydro-geomorphic responses to Holocene climate and vegetation change and Euro-American settlement along the prairie-forest ecotone. A 9-m sediment core was recovered using a Livingstone piston corer in February 2004. Sediments were analyzed for environmental magnetic parameters, loss-on-ignition, and fossil pollen. Fossil pollen samples were compared to modern pollen datasets using the modern analog technique (MAT) to estimate Holocene climate and vegetation characteristics. Abrupt warming at ~11,500 cal. yr B.P. was associated with: arrival of Pinus, Quercus, and Ulmus-dominated mixed forest; decline of Picea forest; and accelerated lake productivity. The middle Holocene (~4600 - 3000 cal. yr B.P.) shows increased percentages of non-arboreal pollen, and a decline of total pollen influx suggests climate became slightly warmer and drier and initiated a transition to Quercus woodland. Late Holocene sediments contain evidence of climate changes registered in the environmental magnetism and LOI record; although weak evidence exists in the vegetation record. The vegetation mosaic is still Quercus woodland, but with fewer prairie taxa than the middle Holocene, probably indicating slightly more humid conditions. Climate has been cooler and more humid in the late Holocene compared to the middle Holocene and vegetation stabilized into a mixed forest dominated by Quercus and Pinus. Results of this study confirm that development of the warmest and driest Holocene climates occurred later than along the ecotone in south-central Minnesota and is similar to the environmental history previously documented for northeast Iowa and elsewhere along the ecotone in southern Wisconsin.

Keywords: Holocene environmental change, environmental magnetism, fossil pollen, MAT, geomorphology

Jana Spilkova, Charles University in Prague. Email: spilkova@natur.cuni.cz; *The changing face of the Czech retailing in the transformational period*

Among the most important features of the current Czech retail there is growing importance of the biggest international retail chains, cooperation and integration tendencies of small entrepreneurs as a reaction to the chains' growth and the internationalisation and globalisation trends. The concentration of retail activities is also obvious in the spatial dimension of retailing. The number of new outlets is growing, but among them the large-scale stores are the most common. The second half of the nineties brought a dynamical development mainly in the sector of modern and complex shopping centres. The development of these centres revealed also some problematical aspects. The most discussed are following: inner city stagnation, outflow of the commercial activities to the border of the city, transportation problems, increased need of parking lots, lost of the agricultural land because of shopping centres construction, legislative regulation of the large-scale objects, competition of big stores to small entrepreneurs, and last but not least - changes in the consumer behavior of the shoppers. The new trend represents the connection of shopping with leisure or sport activities. The second fastest growing retail format is the discount store. Since consumer behavior is also very common field of study in the behavioral geography, it is very interesting to study the relations between the consumer behavior and the spatial structure of retailing. It is also challenging to observe the changing preference for the main shopping place throughout the Czech Republic.

Keywords: retail, shopping centres, hypermarkets, discount storers, consumer behavior, transforming economies

Dale K. Splinter, Calvin College. Email: dk5@calvin.edu; *Spatial patterns in the fluvial system: comparisons between three eastern Oklahoma ecoregions*

Ecoregions are homogeneous regions delineated by similar associations of geology, climate, soils, land use and potential natural vegetation (Omernik, 1987). Ecoregions provide a spatial framework to establish whether geographic phenomena differ between ecoregions. A study was initiated to establish whether watershed morphology and the characteristics of stream channels could be differentiated by ecoregions in eastern Oklahoma: the Ozark Highlands, Boston Mountains, and Ouachita Mountains were selected for study. One hundred and forty-nine watersheds and stream reaches were randomly selected for investigation. Four lines of inquiry were used to evaluate whether differences exist between ecoregions. These include morphometric analyses of watersheds, upstream-to-downstream trends in channel morphology, dissimilarity and cluster analysis of watershed and reach variables, and channel reach classification. Statistical results reported at $\alpha = 0.05$. Morphometric analyses report statistical differences between some of the watersheds and ecoregions. Regression coefficients were used

to test for significant differences in the upstream-to-downstream trends in channel morphology. Significant differences exist in particle-size, bankfull width, and width-depth ratio. Cluster analysis and dissimilarity were conducted using a sum of squares method. The most dissimilar watersheds and stream reaches exist in the Ouachita Mountains. A chi-squared test reported no differences between Rosgen stream classifications by region and stream order. However, spatial patterns of reach types could be inferred in the upstream-to-downstream direction. The results of this study show that ecoregions in eastern Oklahoma provide a spatial framework that explains differences in watershed and reach morphology, clusters and dissimilarity, and channel reach patterns.

Keywords: ecoregions, geomorphology, streams, oklahoma

Eric Sproles, Lane Community College / Ecotrust. Email: sproles@lanec.edu; Charley Dewberry, PhD, Ecotrust. Email: cdewberr@presys.com; Mertens Mike, Ecotrust. Email: mikem@ecotrust.org; A GIS-based analysis examining the distribution of salmonids and forest stand age at the watershed scale

Geographic Information Systems (GIS) were used to investigate connections between forest stand age and salmonid distribution in the Siuslaw watershed of western central Oregon. We used three years of Rapid Bio-Assessment (RBA) data to map the population distribution of Coho salmon within the Siuslaw Basin. The data was then compared to the forest stand age upstream of survey locations to identify trends that exist between stand age and the distribution of salmonids within the catchment. The Siuslaw basin is situated in the Oregon Coast Range, which is composed of steep slopes that are highly sensitive land use practices. Understanding the factors that drive the distribution of salmonids within a watershed is vital in natural resource management plans that encourage healthy salmonid populations. While previous studies have examined fish numbers at the reach scale, we look for relationships that exist between salmonid populations and the forest stand age at the watershed scale.

Keywords: GIS, ecohydrology, environmental modeling, aquatic habitat

Catherine Lee Spruance, University of Utah. Email: catherine.spruance@geog.utah.edu; Andrea Brunelle, Assistant Professor, University of Utah. Email: andrea.brunelle@geog.utah.edu; Fire History and Vegetative Response in the Gila National Forest as Determined from High Resolution Analysis of Pollen and Charcoal from Lake Sediments

Contiguous 1-cm lake sediment core samples were analyzed for magnetic susceptibility, LOI, pollen and charcoal, to determine fire history and vegetative response in the Gila National Forest of southwestern New Mexico. Cores were obtained from Mimbres Lake in the Aldo Leopold Wilderness Area, using a modified Livingstone corer. The sediment record spans the mid-Holocene through the present. Age controls are provided by ¹⁴C and ²¹⁰Pb dating. Few other continuous paleoenvironmental records are available for this area; thus, the environmental reconstruction from this site will provide information of use to forest and environmental policy managers, while helping to fill a gap in current knowledge.

Keywords: Paleoclimate, Holocene, Fire, Charcoal, Pollen, Disturbance, New Mexico, Gila National Forest, Mimbres Lake

Janaki Srinivasan, School of Information, UC Berkeley. Email: janakis@sims.berkeley.edu; Reshaping a Development Project : The Case of Information Kiosks in Cuddalore, Tamil Nadu, India

This paper explores the mechanisms by which global context, local relationships and the 'targets' of development mediate the translation of development projects into concrete outcomes. The paper does so by using the case of a village information kiosk project established in 2001 by EID Parry (India) Limited, a leading sugar producer, in Cuddalore district in the south Indian state of Tamil Nadu. Parry equipped 45 kiosks with computers and internet connectivity to provide agriculture related information and services to the 25,000 farmers who cultivated sugarcane for its factory, hoping that this would enable them and, by extension, the company to prosper. By 2005, however, the project was not working as planned and Parry was keen on modifying the project goals. Drawing on a six-week ethnographic study of the kiosks in 2005, the paper analyses the divergence between the goals and outcomes of the project since its inception. It argues that three factors crucially reshaped the project. One was the changing regulatory framework of the Indian sugar industry against the backdrop of a global emphasis on deregulation, which led to a shift in relations between Parry and sugarcane farmers. Two, local production relations between farmers and landless laborers determined who could afford the services offered by the kiosks, who would find them of value and which services were the most sought after. Finally, villagers contested the project goals and outcomes, by influencing the location of kiosks and their accessibility to different sections of the population.

Keywords: Agrarian Relations, Information Technology, South Asia

Scott St. George, Geological Survey of Canada. Email: sstgeorg@nrcan.gc.ca; Coherent tree-growth response to multivariate climate controls in the Winnipeg River basin, Ontario, Canada

This study uses a network of fifty-four ringwidth chronologies to evaluate tree growth in the Winnipeg River basin since AD 1783. The basin drains parts of northwestern Ontario, northern Minnesota and southeastern Manitoba, and is a key area for hydroelectric power production. Most chronologies were developed from *Pinus resinosa* and *Pinus strobus*, with a limited number of collections made from *Thuja occidentalis*, *Picea glauca* and *Pinus banksiana*. Empirical orthogonal function analysis shows that nearly half (43%) of the network's total variance is shared among all sites, regardless of species. This pattern can be recovered using as few as nine chronologies, and is not affected by the method used to remove variability related to age or stand dynamics from individual trees. Regional tree-growth (as represented by the first eigenvector) was persistently low during the early 1840s, the 1860s and the early 1900s. Tree growth was more variable during the 20th century, although less interannual variability was observed after circa 1980. Response function analysis shows that growth is significantly, but weakly, correlated with both temperature and precipitation during summer (June-July). However, the significant correlation between tree growth and summer precipitation is only present during years with above-average temperatures. Similarly, ringwidth is only significantly correlated with June-July temperatures during dry summers. These results indicate that tree-growth patterns in this region are regionally coherent and have been stable over the past two centuries, but that the climatic factors that limit growth are multivariate and change in importance from year-to-year.

Keywords: dendrochronology, paleoclimate, Canada

Kevin St. Martin, Rutgers University. Email: kstmarti@rci.rutgers.edu; Quantitative and Critical GIS Methods to Foster Community Participation in Natural Resource Management

There is a long history of critical engagement with natural resource management regimes in the global South where community and territory are the foundations of alternative (e.g. traditional, communal, commons) management practices. There, where quantitative data is scarce and community-based social relations are assumed primary, qualitative methods have proven crucial to the revelation of alternative resource management approaches and potentials. In the global North, where such foundations are often assumed nonexistent, qualitative methods focus on impact analyses rather than the development of alternative management systems themselves. While these regimes are data rich and subject to a variety of quantitative measures and understandings, that information has remained external to qualitative and critical approaches. Re-examined from a critical perspective, however, the mass of data collected for the management of natural resources reveals surprising potentials. National Marine Fisheries Service data used to assess fish stock, for example, can be processed such that fishing communities and territories emerge where none previously existed. The "Atlas Project" utilized statistics, density mapping techniques, and home range analyses to map the domains of several fishing communities in New England. Labor time by location was computed along with a host of other quantitative measures and superimposed on standard nautical charts. Fishermen were presented the composite maps within the context of a participatory action research project that explored the community inhabitation of space, the lived experiences of fishermen within mapped territories, and the viability of community/territory as an ontological foundation for the formation of alternative economic subjects and management practices.

Keywords: GIS, quantitative methods, mixed methods, fisheries, natural resource management, political ecology

Jill Stackhouse, Syracuse University. Email: jstackho@twcny.rr.com; Financing Supply & Demand: Housing Policies under Chile's Military Regime

This project explores the implementation of the military government's housing policies under the guidelines of neoliberal reform. By identifying urban land and the house as business assets, changes in Santiago's urban landscape are revealed. This discussion blends discussions of business, state government, and the military regime's political project. Unlike previous studies which have examined the social and economic impact of these policies, this project views the business of the state from the perspective of the military government.

Keywords: Housing, Chile, Military Regime, Business

Patrick Stacy, Graduate Student, The University of Arizona, Department of Geography and Regional Development. Email: pstacy@email.arizona.edu; Stephen R Yool, Associate Professor, The University of Arizona, Department of Geography and Regional Development. Email: yools@email.arizona.edu; Using Soil Moisture Estimates to Model Coccidioidomycosis Incidence: A Remote Sensing Approach

Coccidioidomycosis or Valley Fever is a disease caused in Arizona by the inhalation of spores produced by the soil-dwelling fungus *Coccidioides*

posadasii. Symptoms are usually mild, but if the infection spreads beyond the lungs, skin lesions, bone and joint damage, even death, can occur. Precipitation has proven a valuable predictor in the seasonality and timing of outbreaks, but more may be done to localize predictive models. Precipitation data is collected at point locations and can only be interpolated to an area, limiting spatial analysis. Local soil moisture may be a more useful metric. We use Advanced Very High Resolution Radiometer (AVHRR) Normalized Difference Vegetation Index (NDVI) time series data to produce a surface moisture proxy for Pima County, Arizona. We compare these data with Valley Fever prevalence, enabling predictive analysis county-wide. Surface moisture residence time is examined also for its role in the growth and seasonality of the fungus. We create surface moisture maps and compare them with prevalence maps, refining the predictive potential to local scales and providing clues to the 'spatiality' of the disease. Results could promote timely awareness of incidence peaks, mitigating the disease.

Keywords: medical geography, Coccidioidomycosis, remote sensing, soil moisture

Chad Staddon, University of the West of England. Email: caedmon.staddon@uwe.ac.uk; Alan Terry, University of the West of England, Bristol. Email: alan.terry@uwe.ac.uk; Imperial Europe Redux? implications of enlargement for the 'Global South'

Discussions of EU enlargement tend to focus either on internal dynamics or on the more obvious global scale geopolitics. Relatively little attention has been paid so far to the implications of EU enlargement for the 'Global South' and in particular for those nations whose recent development has depended to a significant extent on the special status conferred on them by their former colonial ties to European nations. Yet the 2004 and 2007 waves of accession are having profound impacts on relations between Europe and its ex-colonies and on the internal dynamics between 'old' and 'new' Europe. In this paper we examine the contours of a new set of (postcolonial) spatial relations that could, polemically at least, be summed up as 'Imperial Europe Redux'.

Keywords: Europe, Enlargement, Geopolitics

Samantha Staddon, University of Edinburgh. Email: s.c.staddon@sms.ed.ac.uk; Forest monitoring by local communities; what impacts for society and the environment?

The poster will present my proposed PhD research which centres on community-based natural resource management (CBNRM) and specifically the monitoring of forest resources by local communities. It aims to merge issues of human and physical geography in gaining an understanding of the impacts of community-based forest monitoring on both local communities and the forest resource-base. Questions which will be addressed include what constitutes monitoring of natural resources, how widespread are various forms of community-based or indigenous monitoring, what the aim of such monitoring is, how monitoring informs forest management, how such monitoring compares to 'scientific' monitoring and what various forms of monitoring achieve in reality, both for society and the environment. My investigations will most-likely be carried out in Nepal, where 'community forestry' has a relatively long tradition and where local communities are actively engaged in the use and management of local forest resources. Fieldwork will include typical human geography methods such as focus groups, semi-structured interviews and questionnaires, and physical geography methods such as ecological assessments and survey work. I will be collecting and analysing social, economic and ecological data. I am currently not able to offer any conclusions as this is a presentation of work in progress, the fieldwork component of which has yet to be conducted.

Keywords: natural resource management-community based, forests-monitoring, forests-resource use, communities-participation, indigenous knowledge, Nepal

Stephen J. Stadler, Geography, Oklahoma State University. Email: steve.stadler@okstate.edu; Allen Finchum, Geography, Oklahoma State University. Email: allen.finchum@okstate.edu; Robert Rabin, National Severe Storms Laboratory, NOAA. Email: rabin@ssec.wisc.edu; Bruce Battles, Geography, Oklahoma State University. Email: ; Elaine Prins, CIMSS, Wisconsin-Madison. Email: elaine.prins@ssec.wisc.edu; Phillip Bothwell, Storms Prediction Center, NOAA. Email: phillip.bothwell@noaa.gov; Relationships Between Oklahoma Wildfire, Population Density, And Fuel Availability

Winter 2005-06 was the second driest in 110 years in Oklahoma. Given exceptional dryness, large wildfires burned over 240,000 hectares. Can readily available statewide databases be used to assess the spatial likelihood of large wildfires during drought sequences? Within a GIS, we examined the joint occurrences of fire locations, population density, and fuel availability. A 6-month composite of wildfire locations was constructed using the GOES WF-ABBA fire detection product. NOAA gridded population density estimates in 1 km² cells

were included. Fuel availability was estimated in two ways: land use categories from the state's GAP analysis and NDVI change (September minus December values). Using GOES pixel center locations, we constructed 4 km buffers to assess the local percentage of each cover type. The joint occurrence of fire, population density categories, and percentages of land use types were assessed statistically. The most probable fire locations were in forested areas of modest but not sparse population. We speculate this is explained by large fuel availability with enough people to set fires (accidental and intentional) and minimal fire protection so individual fires have time to become large.

Keywords: wildfire, environmental modeling, Oklahoma

Lynn A. Staeheli, University of Edinburgh. Email: lynn.staeheli@ed.ac.uk; Citizenship and the Search for Community

Citizenship is a contested concept. Many of the controversies surrounding citizenship rest, in part, on the relationship between individuals and the communities in which they are situated. As such, community becomes the terrain - metaphorically, politically, and spatially - on which struggles over citizenship are enacted. This paper examines the role of community in constructions of citizenship, focusing on: 1) community as a territorialized concept; 2) community as a social and political construct; and 3) community as a disciplining or regulatory tool. The paper concludes with a discussion of the possibility of democratic citizenship located in community.

Keywords: Citizenship, Community, Belonging

Johannes Stahl, Humboldt University Berlin. Email: johastahl@yahoo.de; Property in the Age of Migration: a Tale of Three Albanian Villages

This paper analyzes property relations on land in southeastern Albania through a comparative study of three villages. The paper argues that different migration opportunities for Vlachs, Macedonians and ethnic Albanians contribute to the differentiation of actors and property relationships in Albania. The three cases demonstrate a change in the value of land after the collapse of socialism. The deteriorating conditions for agricultural production and an increasingly dilapidated rural infrastructure have led to a general devaluation of agriculture. At the same time alternative opportunities have emerged through ethnically differentiated migration strategies. These broad macro-level changes have produced a general shift in rural livelihood strategies from agricultural towards migration strategies. In consequence, new kinds of actors emerged at the local level. The differentiation of actors led to dramatic effects on property relationships. The paper suggests migration as a pathway by which transnational forces affect rural property relations. Migration responds to transnational changes in value and modifies local actor constellations. The changes in value and actors lead to changes in rural property relations, as actors modify property relationships in reaction. The fact that migration has become ubiquitous in rural areas implies that one cannot understand rural property if one does not look at the revalorization of rural objects driven by transnational forces.

Keywords: Albania, property, migration, ethnicity

Dennis Staley, University of Memphis. Email: dstaley@memphis.edu; Linking Process and Form on Alpine Talus Cone Systems: Front Range, Colorado USA

This research examines the relationship between geomorphic process, surface form, and particle morphology on alpine talus cone systems in the Colorado Front Range. High resolution digital terrain data derived from terrestrial laser scanning and airborne laser swath mapping sources provided an unprecedented resolution for the analysis of talus cone system form. Point specific measurements of particle morphology and geomorphic process were made on several talus cones. Rockfall, debris flow, and slushflow are the primary processes that have formed and sculpted the talus cones. Surface forms associated with these processes were analyzed using a three-tiered spatial hierarchy consisting of analysis at the particle scale, feature scale and system scale. At all scales of analysis, talus cone form was related to debris transport mechanisms. Forms associated with rockfall reflect controls related to particle sizes of transported debris and in-situ material characteristics. Debris flow and slushflow related forms represent material shear strength and yield strength. The ability to decipher these properties using measurements of form from high-resolution digital elevation data allows researchers to decipher geomorphic processes at very fine-spatial scales across large areas from remotely sensed terrain data. The use of a conceptual hierarchy of relevant spatial scales elucidated the complex relationship between spatial scale, process, and form evident in talus systems.

Keywords: Geomorphology, Mountains, Talus, LiDAR

J. Anthony Stallins, Florida State University. Email: jastallins@mailers.fsu.edu; **Matt Smith, Florida State University. Email:** mcsmith@fsu.edu; **Michael Nesius, Florida State University. Email:** mjn03d@fsu.edu; **Mary Ann Johns, Florida State University. Email:** mcr04c@fsu.edu; *Dam-induced forest change along the Apalachicola River, Florida*

This study examines the floodplain of the Apalachicola River, a large river in north Florida which has undergone channel degradation and a decline in river stages since dam closure at its headwaters in the 1950's. Repeat survey data are used to analyze changes in species composition since 1977 in several floodplain forest types. We present evidence of shifts in the forest towards species characteristic of drier sites, a pattern which is more pronounced at higher floodplain elevations and within smaller stem size classes.

Keywords: vegetation dynamics, water resources, dams

Paul A Stangl, Assistant Professor, University of Nevada, Reno. Email: stangl@unr.edu; *Revolutionaries' Cemeteries in Berlin*

In Germany, the Revolutions of 1848 and 1919 resulted in the martyrdom of opposition leaders and constituents, whose burial sites in Berlin became key sites of memory and commemoration for the working class movement. Political turbulence and regime change throughout the twentieth-century has resulted in contestation over the meaning and use of these places; a trajectory illustrating the dynamic, reciprocal relationship between popular memory and official history, and the interplay between concrete representation, place-based associations, and spatial relations in constituting social meaning in the urban landscape.

Keywords: Urban landscape, Berlin, memory & history, place & space

Diane M. Stanitski, Ph.D., Shippensburg University. Email: dmstan@ship.edu; *NOAA's Role in the Global Ocean Observing System for Climate*

The National Oceanic and Atmospheric Administration (NOAA) collaborates with national and international partners to build a sustained global ocean observing system for climate. The international system is now 56% complete, with the United States contributing approximately half the system. A total of 4725 platforms are maintained globally. Sea surface measurements continue to be a top priority for NOAA and the global ocean observing community because of their importance for weather forecasting, seasonal forecasting, and droughts. Subsurface heat content and tide gauge measurements are also critical to our understanding of sea level rise. These two combined are essential for hurricane forecasting and forecasting of storm surge and coastal inundation. Drifting buoys were deployed in advance of hurricanes in 2005 and 2006 for improved hurricane forecasting. Improvements to the tropical moored buoy network include expansion 1) in the Indian Ocean, 2) in the PIRATA array, 3) on tropical reference stations, 4) with surface salinity, and 5) with Next Generation research and development. A "systems approach" to international coordination of national implementation efforts is at the fore and the primary goal remains to build a global ocean observing system for climate. Partnerships are critical and all of NOAA's contributions to the international system are managed in cooperation with the Joint Committee on Marine Meteorology. The NOAA Office of Climate Observation promotes the utilization of platform and data infrastructure for several objectives, including understanding the Earth's climate system, documenting sea level change, and monitoring the global carbon and water cycles.

Keywords: ocean observations, sea surface temperatures, drifting buoys

Anna E Stanley, Ph.D., Université Laval. Email: astanley@uoguelph.ca; *Aboriginal peoples and environmental policy making: Scale, Discourse, and the Production of Difference in Environmental Justice Scholarship*

Recently, Environmental justice scholarship has come under fire for its lack of attention to the spatiality of social life and for its inability to move theoretically and methodologically beyond distribution and causality. Together with calls for more critical investigations of the structural and systemic sources of injustice, geographers have urged a more thorough investigation of the role of space, and particularly scale, in the study and production of injustice. These critiques are particularly significant for understanding the politics of environmental policy making where the lands, livelihoods and rights of First Nations peoples might be implicated. I draw on the work of Young and Foucault to outline a perspective and methodology that attends to these challenges. I argue that the insights gained from Young's (1991) thesis that the production of difference is the root of oppression, and from Foucault's concepts of "subjugated knowledges" (1976) and discourse (1972) contribute significantly to understanding the role of space and scale in producing and contesting injustice. Further, that this analytic attention to space and scale allows scholars to uncover the ways in which meanings are made and the structural and discursive processes which maintain and contest them. Through the use of examples from a study of Canadian NFW management policy making and the experiences of the Serpent River First Nation (SRFN) I

propose that such a focus provides a better way to uncover the neo-colonial politics of policy making, and a more sensitive and partial conception of the geographies of the SRFN themselves.

Keywords: Environmental justice, methodology, theories of justice, discourse, scale, production of difference, indigenous geographies.

Kim Stapleton, Oklahoma State University. Email: Kim.Stapleton@okstate.edu; *Using GIS to Incorporate Population Characteristics in Exploration of Potential Radioactive Waste Routes in Oklahoma*

Because of its geographical location, all types of radioactive waste can potentially be routed through Oklahoma from points-of-origin to designated waste repositories located across the nation. Federal and State agencies have implemented numerous regulations to ensure public safety and respond to concern over accident consequence. However, potential conflicts exist in carrying out the routing considerations outlined in the Federal Code of Regulations by the Department of Transportation. Population characteristics are not explicitly included in the routing process and limiting an urban population's exposure along a route to potential harm from radiation is sometimes at odds with limiting transit time. Attempting to introduce explicit consideration of population in identifying potential radioactive waste routes, this study uses GIS techniques to incorporate population characteristics in exploring the routing problem in Oklahoma. Following the 1992 routing guidelines of the U.S. Department of Transportation, potential Oklahoma radioactive waste routes, weighted by total distance or transit time, are first identified in this study for a set of hypothetical origination and destination sites. GIS functions are developed to derive and report the demographic characteristics of people who live along the routes and could be impacted. A new routing criterion of the least population being potentially impacted then is discussed and implemented in GIS to help explore the potential radioactive waste routes in Oklahoma. The GIS functions developed in this study can be used to support better decisions on routing radioactive waste.

Keywords: GIS, routing problem, Radioactive waste, population

Sarah Starkweather, University of Washington. Email: starks@u.washington.edu; *Unknown and Unknowable: The Politics of Counting Americans Abroad*

There are about 4 million to 7 million American citizens living outside of the United States, about whom very little is known. Indeed, even the question of how many there are lacks any definitive answer. The imaginary space of the American nation is thus largely invisible outside US borders. It is arguably in the interests of the state to increase their understanding of this small but not insignificant group of taxpayers/voters/citizens - and for their part, groups representing Americans living abroad view an accurate statistical portrait of the overseas population as essential for lending legitimacy and weight to their advocacy activities. An Overseas Enumeration Test (OET) was conducted in 2004 in order to gauge the prospects for a full census of the American population abroad in 2010. The utter failure of the OET guaranteed that there will be no census of Americans living abroad in the foreseeable future. In this paper, I will outline the origins, implementation, and assessment of the OET. While arguments in favor of the OET focused on political rights, citizenship, and American identity, such concerns were ultimately eclipsed by techno-rational concerns about implementation procedures, statistical validity, and cost. I read this event with (and against) recent literatures on governmentality and biopolitics in the framing of 'the nation.'

Keywords: census, expatriates, citizenship, migration, biopolitics

Scott Starratt, United States Geological Survey. Email: sstarrat@usgs.gov; *Too Clever To Be Understood: The Record Of Late Holocene Central California Climate From San Francisco Bay Marsh Sediments*

Sediment cores collected from three marshes on the northern margin of San Francisco Bay each provide a somewhat different record of late Holocene climate variation in central California. The timing of changes in the diatom floras illustrates the complex interaction between local and regional climatic processes. Results from Rush Ranch and Petaluma marsh suggest that conditions along the central coast began to dry out prior to the Medieval Climatic Anomaly, and that fresh water became increasingly abundant during the transition from the Medieval Climate Anomaly to the Little Ice Age. In contrast, the Benicia State Park site is dominated by a freshwater flora during the Medieval Climate Anomaly, and conditions become brackish at the beginning of the Little Ice Age. Differences in the timing and duration of the fresher and more saline intervals at Rush Ranch and Benicia State Park are largely controlled by proximity to the main channel of the Sacramento-San Joaquin River system. The short (about 15 km) distance from the mouth of the tidal channel to Rush Ranch appears to have a dampening effect on the expression of climate variation. For example, the transition from brackish to fresher conditions takes place between 3,200 and 3,100 cal yr B.P. at Benicia State Park, but does not occur until several hundred years later at Rush

Ranch. The subsequent transition from fresher to more brackish conditions occurs 150 to 200 years earlier at Rush Ranch.

Keywords: diatoms, tidal marsh, salinity

Paul F. Starrs, University of Nevada. Email: starrs@unr.edu; *The Red Hot GR Papers: Cool Writing, Hot Topics, and Preeminence in the Geographical Review's 25 Most-Influential Articles*

A survey of practitioners in geography and cognate fields elicited opinions about the most influential articles among nearly one-hundred years of work appearing in the "Geographical Review." Favorites clearly prevail, and the range of all-star names within North American geography (including a fair number of foreign-born authors who nonetheless undertook publication in American English) is notable. That selections span the full range of publication dates suggests that citation indices and "readability" can be considered disjunct topics. A roster of twenty-five articles is presented, and with that, some conclusions, both well meditated and marinated, about timelessness, precocity, innovation, and the wielding of the editorial katana as a forceful influence in journal life.

Keywords: journals, publications, classics, literacy, provocation

Pierre Stassart, Liège University. Email: p.stassart@ulg.ac.be; *What makes the difference? Short versus long supply chains, learning abilities towards sustainable development.*

The study of alternative agrifood networks (AAFNs) is currently the subject of debate regarding "reflexive/unreflexive localism". This leads us to wonder about the relevance of categories such short and long food supply chains. We approach this question holistically, rather than from a normative standpoint, questioning the learning abilities of the two systems: short and long food supply chains. Two case studies are tackled through cross-intervention research. One is a project for the direct sale of "Semois beef" (short supply chain) and the other is an organic Limousin beef chain piloted by a supermarket (long supply chain). The first case is an emerging project rooted in a specific area that is carried in particular by a farmers' market. The stake is to integrate a "local biodiversity" dimension as a central element of the Semois beef's definition as a commodity. The second case - that of organic Limousin beef ? is piloted by a distributor that is a "leader" on the national organic foods market. It asks the question of the final product's differentiation and the shift from an obligation of means to an obligation of result in organic production. The preliminary findings indicate that the short and long categories are heuristically relevant to a certain extent, especially when it comes to the following questions: "How does one relate environmental issues to a local territory? How can one develop a socially inclusive approach with regard to producers and consumers? What elements of taste are reversible or, on the contrary, irreversible?"

Keywords: Alternative Agrifood Networks, sustainable development, learning abilities, consumer producer cooperation, Organic beef production

Miha Staut,, University of Primorska, Science and Research Centre, Koper. Email: miha.staut@zrs-kp.si; *Contextualizing the Idea of the 'Healthy Mediterranean' in Slovenia: Diverging Processes in Health Related Cultural Practices*

Degenerative and non-communicable diseases are nowadays representing the largest share in mortality of high-income countries. Recently, there has been an interest among health researchers in the positive attributes associated with the Mediterranean lifestyle, areas of interest include family structure, diet, and siesta. Within the Slovenian context there are currently two diverging processes which are actively reshaping the notion of 'mediterranean'. From the period after the 2nd world war, political and socio-economic processes resulted in the weakening of Istrian identity as characteristics associated with the socialist period contributed to the eroding of regional and cultural behaviours and identities across the country. Epidemiology and social studies of health have identified various positive attributes of Mediterranean lifestyle and diet. These positive associations are gradually permeating Slovenian society, however such health beliefs are more widely held among affluent social groups and are not limited to the Slovenian Istria region. By drawing on historical ethnological and epidemiological evidence, the poster will attempt to elucidate the spatial context of the idea of Mediterranean in Slovenia and its perceived influence on the health of people.

Keywords: geography of health, identity, lifestyle, Mediterranean

David Stea, Professor Emeritus, Center for Global Justice, Mexico. Email: ds34@txstate.edu; *Toward a Theoretical Basis for Ethnophysiography*

This paper is based upon ethnophysiographic research conducted over the past several years among cultures of both the Southwestern U.S.A. (Navajo) and Western Australia (Yindjibarndi) under a grant from the U.S. National Science Foundation. It is concerned with the basis for the relation of landforms to language, and is an attempt at, or a beginning of, formulating grounded theory for the results thus far obtained. Several dialectically related concepts are fundamental: "truth" vs. reality and "myth" vs. reality, for example - and the nature of

"reality" itself. Conceptualizing these involves ethnoscience, and ethnography as an identifier of ethnoscientific concepts and principles. In both Navajo and Yindjibarndi societies, landscapes are stories "animated" or "personified" as totem animals or monsters. Palmer (1977) talks about totemic forms, such as those associated with water, as water animals, land animals, and human spirits. These totems (water totems include warlu among the Yindjibarndi, "big snake" among the Navajo) may apply not just to the identification of landforms but to navigation among them (safe travel in marginal landscapes), and to explanations of floods and droughts,

Keywords: ethnophysiography, landscape, language, culture

Kimberly Stefanski, Florida Atlantic University. Email: kstefans@fau.edu; Kasama Polakit, Florida Atlantic University. Email: kpolakit@fau.edu; David C. Prosperi, Florida Atlantic University. Email: prosperi@fau.edu; *Regional Spatial Structure: Does It Exist?*

Notions of urban spatial structure are well understood. But if recent researchers and observers, like Hill and Brennan (2005) and/or Lang et al (2006), are correct the "area of significance for most is the metropolitan area." Unlike the well known principles of urban design and its iconic images, little is known about metropolitan scale design and form beyond the almost banal dichotomous descriptors such as "central city/suburb" or more recent abstract notions such as "polycentricity." The purpose of this paper is to report on a systematic review of the notion of metropolitan design and form including, but not limited to, institutions and/or organizations engaged in regional structure and design studies, north American and European formulations of spatial structure and planning, and consideration of themes such as the warring centripetal/centrifugal forces, the role of economic clustering in creating multiple centers, the role of "starchitects" and iconic buildings as single needle acupuncture (ineffective), and the city-management paradigm that emphasizes process over product. Emphasis is placed on the design, economic, and political formulations, in the hope of arriving at a normative and empirically testable theory of metropolitan structure and form. Where possible, examples will be drawn from the South Florida urban region and the San Francisco urban regions, both examples of polycentric development.

Keywords: south florida, metropolitan design

Frederick A. Stehle, BA, MA Geography Student, California State University Los Angeles. Email: frederick.a.stehle@aero.org; *The Geography of the Former Tarim River Delta Complex*

The Tarim Basin, located in China's vast northwest territory is one of the world's largest closed basins and contains China's longest inland river, the Tarim River. The river flows from west to east along the northern edge of the famous Taklimakan Desert. Like other inland desert rivers, the Tarim River transports and deposits abundant sediment in its terminal lake area. Today, a huge fan-shaped delta complex can be seen at the eastern end of the Tarim Basin. The fact that a dense drainage network exists in this former delta complex suggests that the delta complex was sporadically inundated by floodwater from the Tarim River and therefore able to maintain a vegetation cover adapted to the dry and saline desert environment. The river's former delta region was a primary source of subsistence for ancient isolated communities such as the Loulan Kingdom. Due to climatic change, construction of reservoirs, and expanded upstream agricultural activities the Tarim River floodwaters ceased to reach the delta complex. The subsequent collapse of the vegetation cover has exposed abundant and loosely bound fluvial deposits to aggressive northeasterly desert winds making this delta complex a major source of the central Asian dust storms. This study attempts to reconstruct the past environment of this delta complex by re-examining records of early explorers to the area, satellite images, and digital terrain model derived from the Shuttle Radar Topography mission (SRTM) data. The objective is to gain a better understanding on the geography of the former delta complex.

Keywords: Tarim River, Tarim Basin, Desertification, Dust Storms, River Delta

Michael K. Steinberg, University of Hawaii. Email: msteinbe@hawaii.edu; *Landscape Changes in Guatemala's High Cuchumatanes*

The high Cuchumatanes Mountains (above 3,000 meters) in Guatemala presents a fascinating landscape anomaly compared with the surrounding areas. For example, this cold remote area lies above the maize production line; instead, the high Cuchumatanes produces most of Guatemala's potato crop and sheep products. Floristically, it also represents an anomaly compared to other areas in Guatemala and Mesoamerica in general. The high Cuchumatanes are dominated by paramo grasslands and scattered stands of juniper and pines. The paramo in the Cuchumatanes represents the most northerly range of this ecosystem in Latin America. Therefore, culturally, economically, and botanically, it more resembles highland South America than northern Central America. Given the landscape distinctiveness of this region, general descriptions of change in

Mesoamerica often fail to capture the events taking place in the high Cuchumatanes due to globalization, economic and political changes, and population growth. This paper presents an overview of the environmental and cultural changes taking place in the high Cuchumatanes and compares these changes with events taking place in other areas in Guatemala and mountain regions elsewhere.

Keywords: Guatemala, development, population growth, sheep farming, paramo

Philip E. Steinberg, Florida State University. Email: psteinbe@fsu.edu; Thomas E Chapman, Florida State University. Email: tec03c@fsu.edu; Locating Queer Key West: Between the Closet, the Resort, and the Bridge

This paper utilizes data from 52 interviews conducted in Key West, Florida in December 2004 to investigate Key West's attraction as a destination for gay and lesbian tourists. Drawing on the insights of queer theory, as well as critical cultural geography and geophilosophy, we propose that Key West's attraction lies less in its being a destination with distinct queer places, or refuges, than in the way in which it provides an environment wherein individuals can construct space and, in the process, construct themselves and their own identities (including their sexual identities), engaging in a process of self-determination. This finding suggests that place-based metaphors, such as "the closet" and "the resort," are less evocative of the queer tourism experience than is the metaphor of "the bridge," which implies continual processes of crossing, connecting, and transgressing.

Keywords: tourism, queer geography, sexuality, Key West

Alethea Y Steingisser, University of Oregon. Email: asteingi@uoregon.edu; W. Andrew Marcus, University of Oregon. Email: marcus@uoregon.edu; James Meacham, University of Oregon. Email: jmeacham@uoregon.edu; Losing Steam: Human Influences on Geysers in Yellowstone National Park and the World

Geysers are exceptionally rare surface expressions of large subsurface geothermal systems. They are geologic wonders, potential energy sources, provide research opportunities for numerous biologic and geologic processes, are treasured natural resources that provide spiritual meaning, recreation, and stimulate local economies through tourism. Yellowstone National Park was set aside as the world's first national park in 1872 due primarily to its multiple geyser basins; an act that set the stage for preserving lands deemed unique or rare in all countries of the world. The scarcity and importance of geysers is enhanced by the ease by which human activities can destroy them. Human impacts to geysers result from geothermal energy development and exploration, direct physical damage, and land use changes, with the result that few remaining geysers basins persist in their natural state. Globally, there are at least 40 locations where historic geyser activity has been documented, with geysers now extinct in many locations. Yellowstone has lost a small number of geysers to vandalism and urban development, but there is potential for greater damage if geothermal development occurs outside the park boundaries. This paper summarizes the conflicting data on numbers and distributions of geysers around the world and human impacts to these geysers, then explores human impacts in Yellowstone National Park, which has the world's largest concentration of geysers. Data were derived from National Park Service archives at Harpers Ferry and Yellowstone National Park, as well as on-line and library sources. Cartographic visualizations illuminate these concepts.

Keywords: Yellowstone, national parks, geysers, archival research, historical geography, maps, cartography, environmental geography

Anatoly Stepanov, . Email: anatoly_stepanow@mail.ru; Transportation and Siberian Development

Geopolitical position of Russia requires its integration into the system of Eurasian communications and into the world economic flows. Potential accumulated under the Soviet regime has been exhausted; transportation system needs large investments. The Soviet planned economy led to structural disproportion that resulted in recurrent failures of the national transportation system; railways and pipelines (that in 2004 provided for 94 percent of national cargo turn-over) suffered the most. During the recent resurrection of the Russian economy, transportation and energy became the weakest links that on a certain stage could impede transformation and modernization of the country. Both federal and municipal structures are really interested in modernizing transportation systems including construction of high-speed railways, seaports, airports that comply with international requirements, transportation and logistics terminals. To meet new requirements the "just-in-time" principle is implemented, transport turns into a complex goods-producing logistics system. The system of supply chain management should be implemented that would include Russian regions both into world processes of production, storage, distribution, and transportation and into the corresponding information and financial flows. The economic interests of Russian regions demand increase in economic activity of business-

structures (industrial, trading, infrastructural), to increase production and, consequently, to increase finance flows into the budget. Investments into the economy would help to reconstruct and in some cases to build new infrastructures complying with the new technological requirements. The positive effect for society will be in increasing number of jobs, of taxpayers, in improvement of technological culture in logistics, storage, and transportation.

Keywords: Transport complex, Russia, Siberia

Drew Stephens, The GIS Institute. Email: drew@serviceatsea.org; Service at Sea : Leveraging GIS Training to Conservation Organizations for Greatest Community Benefit

Service at Sea is a ship-based technology assistance program that will begin a circumnavigation of the earth in August, 2007. We have a big objective: We will sail around the world over four years, using adventure as a vehicle to perform community outreach for and service to international conservation groups, and K-12 teachers and students worldwide International Conservation Organizations understand the value of GIS but are hampered by the very limited access to quality GIS training. The GIS Institute, through its Geo3 Program, is prototyping a models to deliver instructor led training to conservation groups all over the world, at low or no cost. Stakeholders in conservation technology are increasingly interested in programs which leverage benefit for the entire community where activity is taking place. This presentation will deliver the results of a proof-of-concept exercise with conservation organizations in Africa and Latin America in 2006 and 2007, and how those activities were leveraged for the local community. The discussion will include the range of cultural, physical, logistical and environmental challenges presented in six African and Latin American countries, along with a discussion of local data readiness, hardware infrastructure, photos, and lessons learned that will be applied to upcoming training deployments. www.serviceatsea.org

Keywords: GIS, conservation, sustainable development

Lindsay Stephens, University of Toronto. Email: lindsay.stephens@utoronto.ca; Geographies of the Circus: Transgressive spaces and neoliberal subjects

The Circus has traditionally been seen as a space outside the centre, a marginal or transgressive space occupied by marginal or transgressive bodies. But there have been considerable changes in the circus over the last 30 years, most noticeably the explosion of "Cirque" (The avant-garde 'artistic' form of circus made popular by Cirque de Soleil) as a central force on the entertainment circuit in western industrial nations. Despite its transgressive reputation, contemporary circus has been linked to urban revitalization, growth, creative capital and entrepreneurship, central features in the economic growth of the postindustrial societies. In addition the new "cirque" no longer displays "abnormal" bodies or "freaks", but instead is founded on feats of athleticism that rival the Olympics. My research examines changes in the transgressive qualities of the circus and investigates its participation in the production of neoliberal subjectivity as well as the possibilities it offers for exceeding normative subject positions. Specifically, in what ways does contemporary circus exist as a transgressive space opening up alternative ideas of subjectivity, and in what ways does it conform to and promote ideas of neoliberal subjectivity that are increasingly prevalent in the space of the "every day"? This paper will present my research proposal and initial findings based on literatures of the body, subjectivities, and transgression.

Keywords: circus; transgression; subjectivity; body theory; neoliberalism

Philip Stephens, San Diego State University. Email: phil.stphns@gmail.com; Sergio J. Rey, San Diego State University. Email: serge@rohan.sdsu.edu; Spatial Analysis of HUBZone Determinations in San Diego California

Enterprise zone studies have tended to focus on the econometric measurement of impacts due to zone designation. Despite the stated goal of improving distressed communities, comparatively little research has focused on how distressed zones are chosen. This paper looks at one such enterprise zone program allocation formula and tests it. Application of exploratory spatial data analysis methods reveals that the HUBZone program in San Diego County does not appear to follow the prescribed formula for designation, excluding some qualified census tracts while designating some non-qualified tracts.

Keywords: Spatial analysis

Pamela Stern, Simon Fraser University. Email: pamela_stern@sfu.ca; Media Representation of Indigeneity in the New Mackenzie Valley Gas Pipeline

Inuit and other northern indigenous peoples are joined with multinational corporations in their current efforts to construct a natural gas pipeline along the Mackenzie River corridor in Canada's Northwest Territories. This contrasts markedly with the situation in the 1970s when the Mackenzie Valley Pipeline was first proposed. Then, indigenous opposition to hydrocarbon development on their traditional lands bolstered a nascent environmental movement. The public

hearings on the social and environmental impacts of 1970s pipeline proposal were widely covered by Canadian media. Significantly, the media coverage presented an image of northern indigenous peoples as primordial hunters at the very time that the Mackenzie Valley Pipeline Hearings and related developments were bringing northern indigenous peoples into Canadian citizenship. In this paper I argue that images of northern indigenous peoples and culture that helped unite public opposition to the earlier megaproject remain perversely influential in the contemporary debate. I examine representations of indigeneity in newspaper and other print media stories concerning the current pipeline project. In contrast to the original Mackenzie Valley pipeline proposal, there is little opposition to the current effort. Unable to abandon primitivist images of northern indigenous peoples, reporters have been at pains to explain current indigenous support for hydrocarbon development. Curiously, while reporters have questioned indigenous support for the pipeline on the basis that development brings social change, they have failed to notice the irony of simultaneous indigenous support for hydrocarbon development and concern with the deleterious environmental effects of climate change associated with hydrocarbon use.

Keywords: hydrocarbons, media, Inuit, First Nations

Carolina Sternberg, . Email: sternber@uiuc.edu; Carolina A Sternberg, Ph.D student, University of Illinois at Urbana-Champaign. Email: sternber@uiuc.edu; *Deserving the city? The neoliberal governance in Buenos Aires and Chicago*

Contingent neoliberalism, reveals that different political cultures, social bases, and institutional frameworks in global cities negotiate and mediate a similar drive to discipline urban physical forms and social realities. Based on this perspective, this paper examines urban neoliberal governance focusing on two global cities, Chicago and Buenos Aires. This work outlines the dominant contour of this ongoing process of diversity and therefore, highlights both the key similarities and key differences in the programs and policies offered, responses of people to, and spatial outcomes that result. It is suggested that urban planning administrations, landscape architectural endeavors, and real-state capital combined, constitute a type of urban regime which ultimately facilitate the drive to discipline physical form and social realities. The results are different social and spatial outcomes, particularly with respect to low income and racialized areas (the black and Hispanic belts in Chicago, the Abasto and La Boca communities in Buenos Aires). Key differences are found to exist in outcomes from educational policy, housing policy, economic development strategies, regulating and preservation of public space, and welfare initiatives. I conclude that it may be best to think of urban neo-liberal governance as a diverse and variegated set of regulatory schemes rather than as one ideal-type formation. In addition, it can be considered as a set of regulatory schemes organized to discriminate who are the ones that deserve to live in the city.

Keywords: neoliberal governance, urban policies, comparative studies

Rolf Sternberg, Montclair State University. Email: fsternie@aol.com; *Hydropower's Future, The Environment and Global Electricity Systems*

Hydropower is a well established electricity system on the global scene. Global electricity needs by far exceed the amount of electricity that hydrosystems can provide to meet global electricity needs. Hydropower contributes about 20% of the world's electricity needs. Much of the world's hydropower remains to be brought into production. Improved technology, better calibrated environmental parameters for large projects have become the norm in the past 15 years. How and why does hydropower retain a prominent role in electricity production? How and why does hydropower find social acceptance in diverse social systems? How does hydropower project planning address issues beyond electricity generation? How does the systems approach to hydropower installations further analysis of comparative energy sources powering electricity systems? Attention to the environmental impact of hydropower facilities forms an integral part of systems analysis. Similarly, the political and economic variables call for balanced analysis to identify the viability status of hydro projects. Economic competition among energy systems requires in context assessments as these shape decision making in planning of hydropower systems. The low production costs per kWh assure hydropower at this juncture, 2007, a very viable future.

Keywords: Hydropower, Environment, Electricity Needs, Systems Analysis

Robert Stetson, University of South Florida St Petersburg. Email: rrobstet@aol.com; *Resolution Effects on the Prediction of the Revised Universal Soil Loss Equation (RUSLE)*

This study compares effects of different resolutions of input data on calculating the Revised Universal Soil Loss Equation (RUSLE) for three different physiographic provinces of the United States: Central Florida (Tampa Bay; Hillsborough; Alafia; Peace; Little Manatee) Southern California (San Gabriel; Seal Beach; Santa Ana; Newport Bay; Aliso-San Onofre; San Jacinto), and Eastern Arkansas (Boeuf; Bayou-Macon; Lower Mississippi-Greenville; Lower Missis-

sippi-Helena; Lower White; Lower Arkansas; Bayou Bartholomew), at an 8-digit Hydrologic Unit Code (HUC) level within the selected study areas. This research examines how resolution of data influences the calculation of RUSLE in different physiographic provinces. The study uses Soil Survey Geographic Database (SSURGO) 30-meter and State Soil Geographic Database (STATSGO) 100-meter soil maps ("K factor" Soil Erodability), and Digital Elevation Models at the 10 meter, 30 meter and 90 meter resolution ("LS factor" Slope) as well as Landuse at different resolutions (GIRAS vs SWFWMD/CalTrans/Ark eqv.) ("C factor" Cover Management).

Keywords: gis rusle resolution effects water

Anneliese Steuben, University of Washington. Email: asteuben@u.washington.edu; *Pitfalls and Detours in Teaching for Social Justice*

This paper explores the obstacles that public school educators face in their efforts to teach with antiracist or inclusive pedagogies in diverse classrooms, and discusses their experiences and results of negotiating these challenges. This research is informed by the theoretical frameworks of both multicultural and antiracist education literatures, brought to life by qualitative data from teachers in the profession. In today's educational context of the No Child Left Behind Act, continuing de facto segregation in schools and continuing achievement gaps for many minorities, it is vital to understand the work that some teachers are doing to actively counter the racism and other forms of social exclusion that underpin so much of public schooling. The multitude of obstacles that such educators face?in the classroom, the school and the broader social-political-economic milieu?sometimes prevent them from enacting inclusive or antiracist pedagogy, while in other moments teachers find ways to mediate the challenges through pedagogical flexibility and creativity. Through contextualizing the educators' experiences within broader systems of political, economic and social change at multiple scales, the discussion will explore how power circulates in society more generally, and how people use cooperation to challenge and rework their relationships to each other within broader inequalities of power.

Keywords: education, pedagogy, antiracism, social justice

Forrest R. Stevens, University of Florida. Email: forrest@ufl.edu; *Bridging the Landsat Data Gap: Evaluating ASTER as an Alternative*

The NASA Landsat program has provided uninterrupted access to remotely-sensed, multi-spectral land imaging data since 1972. With the failure of the scan line corrector of Landsat 7 and malfunctions of the solar array drive in the aging Landsat 5 platform, ongoing longitudinal research utilizing Landsat data is severely threatened. This study evaluates other space-based alternatives to Landsat data sources for use in ongoing, long-term research. Comparable multi-platform data from the South American tri-national border of Brazil, Peru, and Bolivia are compared. Features evaluated include issues of calibration, viewing angles, scalar mismatch, land cover classification performance and calculated continuous indices. The most likely alternative sensors are highlighted, including the ASTER instrument (Advanced Spaceborne Thermal Emission and Reflection Radiometer). Finding a viable multi-spectral, land imaging alternative is imperative for many applications where Landsat data are used. The research areas of land use/land cover change and human-environment interactions are considered.

Keywords: Landsat, ASTER, remote sensing, NDVI, scale

James B Stevens, Texas Christian University. Email: j.b.stevens@tcu.edu; *The Trinity River: A Response to Urbanization*

I will carry out my project by locating a stream site upstream, downstream and in the middle of the city of Fort Worth. The sites were selected based on road accessibility, semi-locale urban developments, clear and present tributaries and their confluence points, measurability of stream flow volume, and riverbed cuts for analysis. At the three sites, I will document urban development using historical aerial and satellite images, and note stream cross sections by visiting the sites to make measurements. This data will be analyzed through ArcGIS, and displayed according to spatial references. This method is ideal for the success of the project because it directly addresses the problem of stream channels changing as a result of time, but also urbanization. GIS programming allows up close and personal interaction of measured data combined with aerial images, and should result in precise maps showing these changes over time. Using multiple locations for test points the effects of urban planning can be seen immediately surrounding the focal area as well as downstream. Once the results are acquired, geography theories will be applied for further analysis. This analytical documentation could then be used by many people who might be involved in urban planning models. This could also be used as a starting point for further more in depth research and data collection for future projects.

Keywords: GIS

Quentin Stevens, Bartlett School of Planning, University College London. Email: q.stevens@ucl.ac.uk; *Artificial Waterfronts*

Beginning with Harvey's study of Baltimore's Inner Harbor, geographers have led the study of revitalized waterfronts as archetypal elements of the post-industrial cityscape. Urban waterfronts worldwide have been re-designed to support middle-class leisure, inner-city housing, high-profile business headquarters and cultural institutions. They have also been re-engineered to provide new piers, esplanades, marinas, beaches and wetlands. Several studies have sought to comparatively catalog postmodern waterfronts, identifying different categories of forms and functions, but in a majority of cases focusing only on the built environment above the water line. While critics have often bemoaned the artificial, superficial history, sociability and functional mix of these waterfront settings, less academic attention has focused on the artificiality and superficiality of the geography itself. These sites are almost never natural shorelines. Many leisure waterfronts are, like Baltimore's, built on the ruins of industrial port areas. They are almost entirely synthetic and carefully shaped to accomplish specific experiential effects. This paper examines contemporary urban waterfronts including artificial beaches, lagoons, marinas and rivers; aquariums; floating urban environments; and indoor waterscapes. It analyzes the relation between the physical geography and human geography of these waterfronts, focusing primarily on how these artificial environments are perceived and used by the general public. It explores how designers use engineering, landscape and architecture to control various geographic, climatological and hydrological features of the waterscape and its interface with urban public space, so as to create idealized urban settings which optimize spectacular leisure and place promotion.

Keywords: waterfronts, urban design, public space, landscape architecture

Stan Stevens, University of Massachusetts. Email: sstevens@geo.umass.edu; *Theorizing Protected Areas: Fourth World and (Post)colonial Perspectives on Conservation Enclosures, Commons, and Liberation Ecologies*

Much political ecological theorization has overly-narrowly represented protected areas as state/colonial conservation enclosures which construct "wilderness" by coercively displacing residents. I expand this conceptualization by 1) linking the globalization of exclusionary protected areas to (post)colonial, Fourth World and frontier theory and 2) by correcting conflation of "wilderness" reserves (a small percentage of global protected areas) with protected areas by engaging with a greater diversity of protected area types including community conserved areas (collectively managed commons and sacred places), Indigenous protected areas, co-managed protected areas, "protected landscapes/seascapes," and "managed resource protected areas." From these perspectives I re-conceptualize protected areas as diverse forms of conservation territories with different political ecologies grounded not only in different conservation goals and governance but in different state/colonial "frontier" political contexts and state commitments to social justice and Indigenous rights. I situate exclusionary, state-imposed protected area enclosures in indigenous peoples' homelands within Fourth World struggles over identity and territory, inter-cultural/"ethnic" asymmetries of power, expansionary state imperialism/"internal" colonialism and territorialization, and "frontier"/inter-national/global political economies. State (and international/INGO) promotion of exclusionary protected areas thus is often embedded in larger political ecologies of state/colonial territorialism, "nation-building," and economic nationalization/globalization and concordant oppression/dispossession of Indigenous peoples. Alternative, non-"wilderness" paradigms of protected areas and efforts to repudiate and redress coercive conservation enclosures reflect other social/political/economic dynamics as well as different conservation conceptions. Indeed, truly "(post)colonial protected areas" constitute "liberation ecologies" affirming, defending, and restoring Indigenous peoples' rights, commons, conservation values, knowledge, institutions, and their governance of self determination-based conservation and political territories.

Keywords: indigenous peoples, protected areas, conservation

Olivia Stevenson, University of Leeds. Email: geos@leeds.ac.uk; *Windows on the world: Everyday mobility practices of children's access to Information and Communication Technology (ICT) in the home.*

The linkages between geographies of young people, identity, power and space offer opportunities to reflect how children, their families, and Information and Communication Technologies (ICT) have been incorporated into geographical research and contribute to new directions in children's geographies. This paper presents the findings of a project which investigated children and their family's use of Information and Communication Technologies in the home. Much of the existing research into children's use of technology concerns deterministic discourses, and does not focus on the spatialities of the everyday, lived experiences of children and their families. This paper discusses how children's mobility practices, can be explored, negotiated, shaped, experimented with, challenged and transformed within different contexts. By considering the

ways in which children's mobility practices are generated/controlled/resisted in the traditional space of the home, this paper also explores the tensions between children's mobility choices and the demands of family life. The research data was generated by a questionnaire survey of 500 secondary school children in the South East of England, the use of time-space diaries and a series of interviews with children and their families. The paper reflects upon the links between children's technological choices, and their experiences within a variety of sociospatial contexts, and contributes to (re)theorising the linkages between young people, identity and spaces of the home in a technological age.

Keywords: children, families, home, Information and Communication Technology (ICT), mobility practices, spatialities

Angela May Stewart, Graduate Center, The City University of New York & The New York Botanical Garden (Dept. of Plant Sciences). Email: angelasteward@gmail.com; *From the margins: Examining the social dynamics of women-led natural resource management in Amazonia*

The women's association of the Foz de Mazagão Velho (Associação das Mulheres-Foz de Mazagão Velho, Amapá, Brasil) is a non-profit organization composed of ribeirinhas, female residents of the floodplains of the Mazagão Velho River Basin. The primary goal of the organization is to administer sustainable development projects in an area undergoing steady population growth. One such initiative is the association's fresh-water shrimp management project. As part of the project, member households are designated specific zones for shrimp collecting; families also receive fishing materials (shrimp and nursery baskets) purchased with association funds. Members report that zoning prevents encroachment by outsiders, helping to sustain shrimp yields, while the acquisition of fishing materials has increased household shrimp productivity. The current paper examines the socio-political conditions that have allowed for these positive results in light of a long history of failed community natural resource management (CNRM) projects in the Foz de Mazagão Velho. The paper further discusses local conceptions of "community" in this rapidly changing social space. The paper argues that the association's current success is linked to previous efforts to strengthen organizational capacity. In the past, community associations depended upon powerful families with the technical knowledge to drum up support for CNRM projects, and in the process were subjected to manipulation and control. Furthermore, the women's association's incorporation of women from recently-settled households have also facilitated group efforts. The case study offers an example a marginalized group's struggle for self-preservation by engaging with more powerful entities, such as government institutions and universities.

Keywords: Amazonia, Community-Based Natural Resource Management, Caboclos, Livelihoods, Sustainable Development

Dona J. Stewart, Georgia State University. Email: djstewart@gsu.edu; *Creating Stereotype(s) in the Middle East - The Role of Early Geographic Thought*

The creation of negative stereotypes of the Middle East, under the construct of Orientalism, has been a subject of considerable inquiry. Most previous research has utilized sources such as "The National Geographic" and traveler's diaries, and focuses on the era when Europeans established defacto control over the region. Utilizing collections of rare manuscripts, particularly volumes produced as 'Geographies of the World', in the 1600s, this paper finds deeply entrenched stereotypes existed well before the onset of 'The Age of Imperialism'. These sources are particularly insightful as they detail varied stereotypes not of the region as a whole, but of specific ethnic groups (Arabs, Turks, Persians, "Moors") in the area now known as the Middle East. Finally, these accounts raise questions as to the role of early geographic thought in creating enduring racial and ethnic caricatures.

Keywords: Middle East, Stereotype, Geographic Thought, Orientalism

Jeffery Stewart, Lawrence Livermore National Laboratory. Email: pierce10@llnl.gov; *The Geospatial Analysis and Modeling Team at Lawrence Livermore National Laboratory*

In the Engineering Directorate of Lawrence Livermore National Laboratory (LLNL), a number of researchers from diverse backgrounds have come together to advance Geospatial Analysis and Modeling within LLNL, the Department of Energy, and for other external customers. In this talk we present an introduction to LLNL Engineering Directorate's Systems and Decision Sciences Section and its context at LLNL. LLNL is a Department of Energy Laboratory, whose primary goal is National Security, supports a number of research topics in Energy and Environmental domains. The Engineering Directorate, which supports Lab research in addition to pursuing research avenues on its own, is divided into a number of divisions, based on areas of expertise. The personnel of the Systems and Decision Sciences Section include people with a myriad of backgrounds, including Economics, Operations Research, and Geography. The focus of our projects is diverse as well. We will present recent and current projects that the

Geospatial Analysis and Modeling Team have been involved with. These include examining spatial significance of stakeholder input in Total Maximum Daily Load Modeling, Energy System End-State Modeling, and Spatial and Temporal Risk Assessment.

Keywords: Energy Modeling, Spatial Modeling

Meg Stewart, Vassar College. Email: mestewart@vassar.edu; Mary Ann Cunningham, Vassar College. Email: macunningham@vassar.edu; Kirsten Menking, Vassar College. Email: kimenking@vassar.edu; Ken Bolton, Vassar College. Email: kebolton@vassar.edu; Sharing Project Data Using Google Earth: Doing GIS Without Learning GIS

Google Earth transformed the public's ability to visualize landscape features through imagery and is amplifying spatial literacy and geospatial awareness. Increasingly this program is serving as a platform for GIS data with more individual purposes. We have begun to use Google Earth to serve data to other users on campus, in order to facilitate communication about research projects, to support teaching, and to aid in community outreach. Beginning with a set of data for a collaborative stream monitoring project, we have used this approach to present our data to the public, as well as to provide cross-platform data access to participants of various projects. We have also used Google Earth with locally-produced data sets to support workshops and demonstrations in non-GIS classes and across disciplines. While this application is in early stages of development on campus, it has proven a useful tool for these communication purposes. The intuitive interface of Google Earth allows us to more quickly and easily produce maps and distribute them by way of the Google Earth community bulletin board than we can if we used an internet mapping service product or traditional GIS software. We present our progress here to show our methods, to demonstrate the strengths and weaknesses of this approach to data distribution, and to help initiate exchanges of ideas on these kinds of directed applications of this software.

Keywords: Google Earth, virtual globe, GIS, education

Harris Washington Stewart III, University of North Carolina at Asheville. Email: hwstewar@unca.edu; Wind Energy Modeling for the Fort Dauphin Region, Madagascar; Implications for Conservation and Development

Madagascar is a country of contrasts. Disparate poverty and unsurpassed biological wealth are immediately juxtaposed across the island nation, converging starkly in the southeast. The region of Fort Dauphin exhibits the lowest electrification rate, per capita GDP, as well as the highest rates of infant mortality and infectious disease. Collectively, these synergistic indicators of extreme poverty may partially explain the region's extremely high rate of deforestation, as the interrelationships between poverty and environmental degradation have been explored extensively across the developing world. While existing work in the region has focused on quantifying levels of deforestation, little has been done to quantify the potential for developing renewable energy alternatives that could offset the region's biomass fuel requirements and thus prevent the loss of its remaining forests. The goal of this study was to address this need by: 1) modeling the kilowatt potentials that exist in the winds of Fort Dauphin and by 2) identifying locations that would be most appropriate for the siting of wind energy generators. This study involved a combination of ground-work and advanced computer modeling using the Weather Research and Forecasting Model in combination with a Geographic Information System. The work to date has produced the first visual dataset of wind speeds across the Fort Dauphin region, which will soon be analyzed in conjunction with existing infrastructure, population distributions and water source points to explore siting options and the feasibility of providing the residents of Fort Dauphin with basic services developed exclusively from renewable sources.

Keywords: Sustainable development, Renewable energy, Predictive modeling, Suitability analysis, GIS, Atmospheric modeling, Poverty, Environmental degradation, Deforestation, Madagascar

Claudia M. Stickler, University of Florida. Email: cstickle@ufl.edu; Oriana Trindade Almeida, PhD, Instituto de Pesquisa Ambiental da Amazonia. Email: oriana@ipam.org.br; Daniel C Nepstad, PhD, Woods Hole Research Center. Email: dnepestad@whrc.org; Assessing the economic and environmental trade-offs of two land-use policies on an expanding agro-industrial frontier in the SE Amazon

Explosive growth in Brazil's agro-industrial sector is driving historically high rates of forest conversion in the Amazon Basin, posing a threat to human health locally and to regional and global climate systems. Major concerns include the degradation of riparian areas and the resulting effects on water quality and forest connectivity, and increasing levels of carbon emissions. The principal policies that regulate land-use in Brazil?the Forest Code and state zoning plan (Zoneamento Ecologico-Economico)?have met with limited success. In this study, we review the requirements of each of the two policies, and carry out spatially explicit analyses to compare the current landscape in the Xingu River

headwaters region (SE Amazonia) to the landscape that should exist in theory, according to the policies, as a measure of each policy's performance. We compare the "actual" (based on a 2005 land-use/land-cover classification) and "theoretical" landscapes in terms of several environmental (e.g., carbon stocks, forest fragmentation, water quality) and socio-economic (e.g., income, employment, social indices, opportunity costs of compliance) measures. We estimated that if the region were to be reforested to meet current Forest Code requirements, approximately 0.2 Pg of carbon would be sequestered?nearly equivalent to one year's emissions from the entire Amazon basin. Under the current zoning plan, carbon stocks could be reduced by up to 0.07 Pg over the current landscape and still meet legal requirements of the plan.

Keywords: land-use/land-cover change, land-use policy, Amazon, deforestation, agri-business

John Stillwell, School of Geography, University of Leeds. Email: j.c.h.stillwell@leeds.ac.uk; Kirk Harland, School of Geography, University of Leeds. Email: k.harland98@leeds.ac.uk; Commuting to school: spatial analysis and modelling for strategic education planning

A key objective in planning education provision is to ensure that the number of school places is commensurate with the number of children requiring education at different levels. This objective has become increasingly difficult to achieve in Britain due to changing demographic, behavioural and legislative factors. Reductions in fertility mean smaller cohorts of children reaching different stages in the education system; migration patterns create new patterns of demand; parental attitudes to school selection have changed; new legislation on parental choice of school has accentuated the focus on achievement; and variation in school admissions policies has created constraints on the education market. One of the consequences of these developments is that new patterns of interaction emerge annually between the places where schoolchildren live and school locations. This paper concentrates on understanding the dynamics of what we call the 'journey to learn'. The paper explains how PLASC data is being used to investigate the spatial patterns of pupil mobility, primarily in the context of daily trips in Leeds, a city in northern England, but also in relation to movements between schools and between places of usual residence. Consideration will be given to how these flows can be modelled in order to support the local education authority (Education Leeds) make better decisions when planning the provision of primary and secondary schools across the district. Finally, the framework of a planning support system is proposed that incorporates the tools required for the analysis and modelling discussed previously.

Keywords: Commuting; schhols; pupils; spatial analysis; modelling

Mitchel James Stimers, Kansas State University. Email: stimers@ksu.edu; A Gis Analysis Of Temporal And Spatial Regions Of Peak Tornado Activity In The United States

The onset of "peak" tornado season does not occur simultaneously throughout the United States. The migration of the polar jet stream northward combined with the influx of moist tropical air from the Gulf of Mexico work in concert to push regions of frequent occurrence of tornadic activity to the north beginning in spring. Traditionally, these data have been displayed in the context of peak occurrence by state. The goal of this project is to temporally and spatially describe the migration of peak onset from the southern to northern United States. Further, it is determined how well peak occurrence is linked to the relative positions of the continental polar airmass (cP) and the maritime tropical airmass (mT). Historical tornado data from the National Climatic Data Center (NCDC), climate data from the Climate Diagnostics Center (CDC), as well as a geographical information system (GIS) and an Integrated Data Viewer (IDV) are used. A description of the relationship between the cP and mT airmasses and peak tornado occurrence could provide a better understanding of the temporal and spatial movement of the "tornado season" through the United States.

Keywords: Tornadoes, Climatology, GIS, Tornado Season

David Stinchcomb, National Cancer Institute. Email: dstinchcomb@compuvision.net; Barry Miller, National Cancer Institute. Email: ; Vivien Chen, Louisiana Tumor Registry. Email: ; Post Katrina Population Estimates for Cancer Surveillance

The initial impact of the massive population shifts in the Gulf States due to hurricanes Katrina and Rita has been well documented. However, the significant and ongoing impact of these population shifts on disease surveillance has not previously been described. Accurate estimates of regional populations are needed to calculate disease rates as well as to determine the completeness of disease reporting. With populations gradually returning to former homes, estimates are needed for multiple time periods. Also, differences in population shifts by age, sex, and race/ethnicity are needed since these are important covariates of cancer rates. The purpose of our work is to develop estimates for Louisiana population shifts at the state and parish level in conjunction with the Louisiana Tumor Registry to determine cancer rates and the completeness of case reporting. We

began by developing a conceptual model of the population shifts that includes special consideration of cancer case reporting rules that record the permanent address when cases are diagnosed at a temporary residence. Next, available estimates of post Katrina population shifts were collected and compiled. Estimates over time were then developed using the model to bridge temporal gaps in existing estimates and to convert from actual populations to an estimate of the "cancer base population" or the number of people who considered the area to be their permanent residence. This method provides a range of possible base population values that will help determine the completeness and accuracy of our cancer data in Louisiana.

Keywords: population, migration, disease surveillance, disasters, hurricane Katrina, spatial-temporal analysis

Olof Stjernström, Umea University. Email: olle.stjernstrom@geography.umu.se; Ann Grubbström, Uppsala University. Email: ann.grubbstrom@kultgeog.uu.se; Hans Jörgensen, Umeå University. Email: hans.jorgensen@ekhist.umu.se; Land and forest in Estonia

This article studies the influence of the restitution process and the land ownership in Estonia. The basic question relates to changes in private land ownership and land-use after the dissolution of the Soviet system and the fast transformation to a market economy. Issues related to the actual land-use, processes explaining these changes and individual motives for a changed land-use are central. The legal point of view where private land ownership is regulated by recognised legislation is a central point of departure. The emotional aspect relates to peoples commitment and emotions for their home region. The economical aspect concerns the land-use and the land yield (economic exchange). This study focuses the real estate property and the property holders' relation to the property. The purpose with this article is to study real estate property in two regions in Estonia (Põlvamaa and Länemaa) with reference to ownership, land-use and property holders' economical and emotional relation to the property and how these factors influence the property utilisation. A number of hypotheses related to ownership, ethnicity and economic rationality are tested. The study is based on register data comprising all properties with an area of at least 1 hectares or 2,47 acres in two Estonian regions and questionnaire data. The result from the study shows that many agricultural- and forest properties are quite small which affects the amount of economical exchange. The emotional linkages and the symbolic importance of getting land and property back are important factors.

Keywords: Estonia, economic-geography, restitution, landowner-ship, emotional linkages

Mathis Stock, Choros, EPFL. Email: mathis.stock@epfl.ch; Mobility as "arts of dwelling"

Dwelling (wohnen, habiter) and mobility are linked through the individual manners of practising places. For the individuals in (post/late-)modern societies, mobility implies the practice of an increasing number of places - more or less familiar/strange ones ?, actualized through different intentionalities in different situations. This unprecedented situation raises the need of conceptual tools allowing to grasp the different ways individuals cope with space. These "arts of dwelling" are conceptualized here. First, by establishing the conceptual bases of dwelling as practices of places, where the theoretical shift from dwelling as being-on-Earth towards dwelling as coping with space is undertaken. This allows thinking the places as well as the movement, and I will insist upon the notion of experience and the symbolic charge of movement. Secondly, by showing how mobility takes a more and more important part of contemporary arts of dwelling, especially in "poly-topical" modes of dwelling. Finally, by raising the question of how mobile dwelling implies the deployment of geographical competences. These conceptual investigations shall contribute to a more adequate understanding of the very differentiated ways of the individuals' coping with space.

Keywords: mobility, practice, dwelling, theory

Monika Stodolska, University of Illinois at Urbana-Champaign. Email: stodolsk@uiuc.edu; Kimberly J Shinew, University of Illinois at Urbana-Champaign. Email: shinew@uiuc.edu; Thomas K Anderson, University of Illinois at Urbana-Champaign. Email: tanders9@uiuc.edu; The Effect of Acculturation and Residential Location on Environmental Attitudes and Behaviors among Latino Residents of Two Urban communities

The objectives of the study were to 1) examine the effect of Latinos' acculturation and socio-economic characteristics on their environmental attitudes and behaviors; 2) examine differences in environmental attitudes and behaviors among Latinos residing in two different Chicago communities with varied access to natural environments. Questionnaires were collected from 199 Latinos residing in working-class neighborhood of Little Village, which has little access to outdoor greenery, and 192 from Latinos residing in the lower-to-middle-class community of East Side (Calumet), which is located in proximity to

Lake Michigan and has access to several large parks. Twelve-item Bidimensional Acculturation Scale for Hispanics (BAS) (Martin & Gamba, 1996) was used to measure levels of acculturation. Self-reported pro-environmental behaviors were measured using 9-item scale rating people's frequency of participation in activities such as recycling (Schultz et al., 2000). Environmental attitudes were measured using modified 15-item NEP scale (Dunlap et al., 2000). Data analysis included estimating four OLS regression models with assimilation levels, neighborhood, gender, age, age², income, education, and marital status as independent variables; and environmental attitudes and behaviors as dependent variables. Two models were overall significant at p

Keywords: environmental attitudes, environmental behaviors, Latinos, acculturation, urban

Alison Stokes, University of Plymouth. Email: ajstokes@plymouth.ac.uk; Kirsty Magnier, University of Plymouth. Email: kmagnier@plymouth.ac.uk; Preliminary results from a longitudinal study into student and staff conceptions of geography fieldwork

Whilst much is made in the literature, and anecdotally, of the 'assumed benefits' of fieldwork, its true pedagogic value remains unclear. In particular there is relatively little empirical evidence to substantiate the widely held assumption that fieldwork is a fundamental component of undergraduate geography. It is therefore important that the academic credentials of fieldwork are clarified if its continued inclusion in the undergraduate curriculum is to be justified. This paper will present the preliminary findings from a longitudinal study into the conceptions (ideas and beliefs) of fieldwork held by undergraduate geography students and academic staff at a single UK university. This research is important as students typically develop conceptions that are based on their own experiences rather than 'scientifically acceptable' ideas about the world, and are hence likely to possess a differing set of ideas and beliefs about the nature and purpose of fieldwork to academic staff. Using an open-ended survey method of data collection and analysis based on the phenomenographic method, this study identifies the qualitative variation in responses gathered from geography students and academic staff to the question "what do you think is the main purpose[s] of fieldwork", and investigates how these conceptions vary between students at different academic stages, and between students and staff. By making explicit the ideas and beliefs held by 'novice' and 'expert' geography practitioners about fieldwork and its role within the discipline, the results of this study will inform future investigations into how, as opposed to what, students learn in the field.

Keywords: fieldwork, pedagogic research, conceptions, geography education

Justin Stoler, San Diego State University. Email: stoler@rohan.sdsu.edu; A Spatial Analysis of Self-reported Malaria Prevalence in Accra, Ghana: The Role of Urban Agriculture

Sub-Saharan Africa is experiencing unprecedented urbanization, and many local governments remain unable to meet basic infrastructure needs for these exploding populations. Urban malaria is a growing problem that may be linked to urban agriculture practices. Urban agriculture, which has been shown to reduce poverty and increase food security, may inadvertently harbor malaria's mosquito vector through irrigation and increased water storage. The connection between urban agriculture and malaria prevalence has recently been investigated in several studies, but a clear relationship remains elusive. This study utilizes spatial analysis techniques to examine the relationships between self-reported malaria statistics for 3180 women surveyed in Accra, Ghana in 2003, proximity to sites of urban agriculture, and household characteristics. Self-report data is practical due to its low cost and ease of collection, and it should enhance our overall understanding of the spatial patterns of malaria in Accra.

Keywords: urban, malaria, Accra, Ghana, spatial analysis

Christopher D. Storie, Winthrop University. Email: storiec@winthrop.edu; Joni L Bugden, Dr., Western Carolina University. Email: ; Adam Griffin, Western Carolina University. Email: ; Prototype River Cane Geographic Information System

River cane (arundinaria gigantea) is a native cane of the Eastern woodlands that exists within the Appalachian mountains of Western North Carolina. More importantly, this species of cane is of vital economic importance as an artisan resource used by the Eastern Band of Cherokee Indians (ECBI) to produce traditional woven baskets. Funded through a grant from RTCAR (Revitalization of Traditional Cherokee Artisan Resources) this project was designed to build a prototype GIS database that contains biophysical information of selected cane patches within Western North Carolina. Existing cane areas were identified using local indigenous knowledge, and surveyed using differentially corrected GPS units and an in situ assessment of site characteristics. The GIS database is scalable, and can provide information to scientists and resource managers interested in preserving, protecting and/or restoring river cane. This project is the prototype to determine both the feasibility and usefulness of creating a more extensive database. Finally, an overarching goal of the project was to develop educational

opportunities for students and provide an avenue to enhance partnerships throughout the region

Keywords: Culture, Economics, GIS

Christopher Parkes Storm, Oklahoma State University. Email: chrisstorm@yahoo.com; Take Me Out to the Ballgame: Modelling Professional Baseball Attendance

Multi-Criteria Analysis is used to compare total season attendance for major league, minor league, and spring training baseball. Attendance figures for the 2002-2006 seasons are compared to each Core-Based Statistical Area's (CBSA) total population, total number of business establishments, and per capita income. These comparisons are used to create a model to predict each CBSA's capacity for professional baseball total season attendance. The markets are then categorized based on the highest level of professional baseball the market can predictably sustain. The levels of professional baseball used are Major League, AAA, AA, A, Short-Season A, and Rookie.

Keywords: economic, gis, sport, marketing, statistics

Douglas A. Stow, San Diego State University. Email: stow@mail.sdsu.edu; Yuki Hamada, San Diego State University - UC Santa Barbara. Email: yhamada@rohan.sdsu.edu; Lloyd Coulter, San Diego State University. Email: lcoulter@geography.sdsu.edu; Comparison of Per-Pixel and Object-based Approaches for High Spatial Resolution Monitoring of Vegetation Changes

Successful preservation of rare, endangered, and threatened (RET) species requires adaptive management practices that are based on monitoring changes in habitat conditions over time. In southern California, coastal sage scrub shrublands provide habitat for a large number of RET species. Biogeographical studies of key RET animal species suggests that change in shrub/subshrub cover may be a useful indicator of change in habitat condition; such an indicator has a high potential for being successfully mapped and monitored with remote sensing. The objective of this study was to compare per-pixel and object-based approaches to monitoring changes in a shrubland habitat preserve in southern California. Very high spatial resolution (1 m) visible and near infrared image data were captured seven years apart with an airborne digital camera system. The seven-year period between image acquisitions was one of the more severe droughts on record. The image data were geometrically corrected, radiometrically normalized, and spatially registered to create a precise multitemporal dataset that was subjected to semi-automated land cover change analyses. Results from both image change detection approaches yielded a net loss in shrub/subshrub cover following drought. Detailed land cover changes were detected that corresponded to both direct human disturbance (i.e., urban edge effects) and drought effects. Based on field validation data, habitat change maps from the object-based approach were more accurate than the pixel-based approach, and habitat change features were more realistically represented in terms of shape and size. Shrub/sub-shrub cover change estimates derived from both approaches were similar.

Keywords: remote sensing, habitat monitoring, vegetation change, shrublands, coastal sage scrub

John Byron Strait, Assistant Professor of Geography, Sam Houston State University. Email: jstrait@shsu.edu; Cherisha Nicole Williams, Louisiana Tech University. Email: ; Rubbing Elbows in the Big Easy: The Impacts of Compositional and Redistributive Forces on Residential Segregation Among Racial and Ethnic Groups in New Orleans, Louisiana; 1990-2000

Most residential segregation studies have focused strictly on the residential experiences of African-Americans and whites, usually relying upon measures of residential evenness to gauge the level of segregation between these two populations. This research broadens the analysis of residential segregation by investigating changes in two different dimensions of segregation evident among the four main racial and/or ethnic groups in New Orleans, Louisiana from 1990 to 2000. Measures of residential exposure were decomposed in order to investigate the relative impacts of metropolitan-wide compositional change and intra-urban redistributive change on segregation. During the 1990s all non-white groups became increasingly segregated from whites and increasingly integrated with one another. Evidence suggests that whites, Hispanics and Asians exhibited some degree of "ethnic (or racial) self-selectivity" that functioned to concentrate these groups residentially, although these forces were generally overwhelmed by other redistributive and compositional changes. The evidence further suggests that the isolation of African-Americans and the levels of segregation experienced by this group were strongly impacted by the residential behavior of whites and Hispanics. Meanwhile, Asians and African-Americans became increasingly integrated, largely as a result of members of these two racial groups relocating to the same neighborhoods.

Keywords: residential segregation, race, ethnicity, New Orleans

Thomas P. Strange, University of Tennessee. Email: tstrang1@utk.edu; Carl A. Reese, Ph.D., University of Southern Mississippi. Email: carl.reese@usm; Inter-annual Variability and Seasonality of Modern Pollen Deposition on the Quelccaya Ice Cap, Peru

The interpretation of fossil pollen in ice cores from the tropics has been shown to be a useful tool in the reconstruction of past vegetation and climate. However, a lack of understanding of the relationship between modern pollen spectra and its environment exists. Knowledge of a modern analog (relationship between modern pollen dynamics and modern environmental conditions) is needed in order to better interpret the fossil pollen signatures situated within an ice core. For this study, snow samples were extracted in July 2004 and June 2005 from the Quelccaya Ice Cap in southern Peru in order to gain an understanding of the inter-annual and seasonal variability in pollen deposition on the ice cap. Snow pits were located on the summit, north dome, and south dome of Quelccaya. The pits were dug back to the previous July (winter) ensuring one full year of data. The previous winter's firm is easily distinguishable in the pit as it is darker in color than surrounding layers of firn. Pit depths at the sites ranged from 2.5-3 meters. Samples were collected at 15cm intervals down the entire pit wall and distinct seasonal differences among pollen assemblages are noted in the paper. Pollen results also varied between site locations, probably due to local winds and different depositional environments.

Keywords: tropical ice core, pollen, Quelccaya, Peru

Elaine Stratford, PhD, Institute of Australian Geographers. Email: Elaine.Stratford@utas.edu.au; Inside the Frame: Young Islanders and the Constitution of Sense of Place Through Art

Islandness is a constellation of identifications particular to places smaller than continents and surrounded entirely by water. These identifications include, but are not confined to, strong perceptions of island-self and mainland-other that buffer island peoples from the worst exigencies of modernity. No less powerful than place-based identifications among plains or mountain or forest peoples, and always contingent rather than determined, islandness is nevertheless a particular and potent source of being-in-place. This paper reports on an international community engagement program, Webbing the Islands. Its principal aim is to support island communities to develop and share inventive learning activities that celebrate innovation and resilience in response to long-standing stereotypes about many island(er)s as vulnerable and backward. In particular, the paper focuses on a project among young people in the island state of Tasmania, Australia, encouraging them to explore and value what it means to be a young islander in a sub-national jurisdiction that has been the object of derisive 'mainlander' commentaries. Funded from two philanthropic grants provided by the Ian Potter Foundation and Tasmanian Community Fund, the project involves working with students from grades four to eight based in communities remote from the island's population centres. Students work with a community artist; their teachers are aided in follow-up classroom work by an island studies guide developed by a cultural geographer; and the fruits of their creativity are then shared online. The project illustrates the gains to be made for young people from interventions in the constitution of islandness as an ontological resource.

Keywords: young people, islandness, arts, sense of place, ontology

Kendra Strauss, University Of Oxford. Email: kendra.strauss@geog.ox.ac.uk; Gordon L. Clark, University of Oxford and Harvard University. Email: glclark@ouce.ox.ac.uk; The Challenge of Context in Economic Geography

This paper asks whether a "new quantitative geography" based on critical social/cultural theory is possible in the context of economic geography generally and the study of individual choice in pensions and retirement planning in particular. We explore the limitations of quantitative methods where the intention is to validate a 'strong' model of economic rationality? the logic underpinning much of conventional economic analysis and its related expressions in public policy. Most importantly, we suggest that it is crucial that economic geography take seriously the diversity of "economic" life, bringing into play the significance of context - social identity and attributes including gender, age, social class and aspirations. It is suggested that qualitative approaches focussing on small-scale samples are one way to reintegrate the lived experiences of individuals and communities with more limited but nonetheless valuable quantitative expressions of related phenomenon. These ideas are illustrated through discussion of a large-scale survey of attitudes towards risk and choice among UK defined contribution (DC) pension plan participants. The importance of this project lies in the need to express the diversity of life and scope of experience of real men and women in and through the social sciences, notwithstanding the need for policy-friendly solutions.

Keywords: new quantitative geography, pensions, decision-making, rationality, gender

Emma Street, King's College London. Email: emma.street@kcl.ac.uk;
Rob Imrie, King's College London. Email: rob.imrie@kcl.ac.uk;
Architecture and the Codification of the Built Environment

Architecture, and the form of the built environment, is influenced and shaped by regulations or rules that are formulated to provide specific and predictable outcomes for all aspects of architectural production, from conceptual design to urban form. Such regulations are not necessarily enshrined in law but are systematic sets of rules characterised and differentiated by authorship, context, and implementation. Referring to postal survey and interview data from the UK context, the paper explores architects' attitudes towards regulation and rule relating to building design, and evaluates the interrelationships between processes of regulation and design form and outcomes. We develop the proposition that regulation and rule interact with, and influence, architects and the design process in complex and unpredictable ways. The data are instructive, we argue, in helping to re-think the significance of regulation, and the constitutive ways in which place and regulations are entwined.

Keywords: Codification, Regulation, Foucault

Dmitry A. Streletskiy, Department of Geography, University of Delaware. Email: strelets@udel.edu; Jonathon D. Little, Department of Geography, University of Delaware. Email: ; Nikolay I. Shiklomanov, Department of Geography, University of Delaware. Email: ; Frederick E. Nelson, Department of Geography, University of Delaware. Email: ;
Monitoring Frost Heave and Thaw Subsidence in Northern Alaska with Differential GPS

Vertical movement of the ground surface due to frost heave and thaw subsidence is a common phenomenon in permafrost regions. The magnitude of this movement varies both temporally and spatially, owing to interannual climatic variability at the ground surface and to local variations of soil moisture. Traditional survey methods for measuring vertical surface movement have some disadvantages. Geodetic surveys have good spatial coverage, but are limited to small number of survey benchmarks in the Arctic. Frost tubes and heavemeters allow precise measurements of heave/subsidence, but are usually limited to point locations or very small areas. Differential Global Positioning Systems (DGPS) provides an alternative approach for measuring ground heave/subsidence that can fill the gap between spatial coverage and precision. DGPS technology, in conjunction with survey targets designed specifically for this study, was employed at three sites in the northern Brooks Range Foothills and the Arctic Coastal Plain of northern Alaska. Beginning in 2001, vertical movement of the ground surface was measured twice per year (June and August). The resulting five-year heave/subsidence record, in conjunction with temperature and active-layer measurements, was used to evaluate regional and site-specific factors affecting the spatial and temporal variability of frost heave and subsidence. Results indicate that heave and settlement show patterns of spatial variation similar to those of active-layer thickness. Comparison of GPS-measured ground surface elevations with historic data reveals significant long-term ground subsidence at several sites near Barrow. DGPS methodology is useful for measuring frost heave and thaw settlement over large areas with fine resolution.

Keywords: Active Layer, Alaska, Frost Heave, Differential Global Positioning Systems, Permafrost, Periglacial Geomorphology, Thaw Settlement

Josef Strobl, UNIGIS International, Salzburg University. Email: josef.strobl@sbg.ac.at; UNIGIS - Networked Learning over a Distance

Distance Learning is well suited for GIS professionals aiming at individually enhancing their qualifications. For most adults education works best in an interactive social setting with focussed periods of self study. While the latter is well supported by online learning media and practical exercises, social contexts tend to fall short with distance learning. In order to enhance students' online learning, the UNIGIS program at Salzburg University has developed a multi-pronged strategy for building a social fabric supporting students throughout their entire program. Starting with a residential workshop, students are encouraged to interact and cooperate right from the start. Synchronous (chat) and asynchronous (forums) communication tools are available for study groups, and select assignments are designed as collaborative tasks. Later in the course students work on a collaborative project building teamwork and communication skills. Interaction with faculty of course uses online communication tools, actively facilitated by a class tutor in charge of planning, 'motivating' and moderating online sessions. For specific support requirements one-on-one application sharing and hosted services are used. From a longer-term perspective, UNIGIS is building communities of students and alumni used to collaborating and providing mutual support. Frequently this professional network is cited as the most important asset actively used long after graduation. Countering the potential and risk of online learning leading to an isolated 'home alone' learning experience probably is the most important organisational challenge. Many years of experience across the UNIGIS network have identified a high level of social interaction as key success factor for distance learning

Keywords: distance learning, professional education, interaction, group learning

Rita N. Strong, Univ of North Alabama. Email: rnstrong@una.edu;
William R. Strong, Univ of North Alabama. Email: wrstrong@una.edu;
Lisa Keys-Mathews, Univ of North Alabama. Email: lkeysmathews@una.edu; Earth Systems Interaction: Hurricane Katrina, Environmental Remote Sensing and Change Detection

The damage by Hurricane Katrina to the southern Louisiana environment involved interaction between Earth systems, namely the biosphere, atmosphere, and hydrosphere; this interaction led to environmental change which can be monitored using satellite imagery. This poster will demonstrate the result of undergraduate research using remotely sensed imagery, image processing, coupled with GIS analysis, to determine the geographic extent and change dealt to the coastal wetlands by Hurricane Katrina. The image processing analysis will be conducted on Landsat Thematic Mapper imagery collected on August 22, 2005 (pre-Katrina) and September 7, 2005 (post-Katrina). The image processing analyses that will be applied include registration, spatial filtering, and supervised and unsupervised classification, ending with change detection. The expected outcomes are the delineation of inundation areas in southern Louisiana. This research is funded by a grant from the University of North Alabama's Geography Alumni Association.

Keywords: remote sensing, change detection, Hurricane Katrina

Hubert B. Stroud, Arkansas State University. Email: bstroud@astate.edu;
Thomas O. Graff, University of Arkansas. Email: tgraff@uark.edu;
Environmental Impact of Recreational-Retirement Communities in Southwest Florida

Following World War II a unique set of economic and demographic changes permitted a large number of older Americans to opt for retirement residence in an amenity based location. Amenity based residential developments catering to newly affluent retirees were developed around the nation to serve this new and growing market. Most of these retirement developments were located in Sunbelt states, but no area of the nation is devoid of such developments. The greatest concentration of these developments is in Florida. This paper examines 1) the economic and demographic factors which produced these retirement based developments, 2) the locations of these developments, and 3) successes and problems associated with three of the large developments in Southwestern Florida. Developers of large scale amenity based subdivisions, in their attempt to sell vacation and retirement home sites as rapidly as possible, often create so-called "new communities" that are advertised as places where residents can escape many of the problems associated with urban living. Unfortunately, success in creating such communities has been sporadic and inconsistent. This paper finds many enduring problems that include severe environmental degradation, inadequate public facilities, scattered development, and subdivision designs that do not meet current market demands. Because of these and other problems, more research is needed to find ways to more consistently implement options designed to resolve some of the vexing problems that have been created.

Keywords: retirement communities, amenity land development, Florida: Southwest

Nate Strout, University of Redlands, Redlands Institute. Email: nathan_strout@redlands.edu; Naicong Li, University of Redlands, Redlands Institute. Email: naicong_li@redlands.edu; Aditya Agrawal, University of Redlands, Redlands Institute. Email: aditya_agrawal@redlands.edu; Paul Burgess, University of Redlands, Redlands Institute. Email: paul_burgess@redlands.edu; Tim Krantz, University of Redlands. Email: tim_krantz@redlands.edu; Integrating ABM and GIS Technologies for Modeling Agent Movement and State Change

Through the integration of agent-based modeling and simulation (ABMS) and GIS, domain experts gain the ability to model behaviors and processes as change and movement over time in geographic space. Agent Analyst is a new, open-source extension of RePast for ESRI's ArcGIS® that enables this integration. As a result, ABMS modelers are able to create rules for agent change and movement using standard GIS datasets such as terrain models, physical landscape features, infrastructure and other geospatial data both in raster and vector format. Agent actions may be computed using geoprocessing models of complex geospatial processes, enabling researchers to identify relationships between behavior and temporal and/or geospatial constraints. Two agent-based models to test the capabilities of Agent Analyst will be discussed. The first is a bird migration model that simulates the migration patterns of two bird species, taking into consideration parameters related to migration trigger, navigation methods, and other migration behavior rules. This model demonstrates how the integration with GIS can improve the realism of simulations that involve agent movement over actual landscapes. The second model simulates urban growth patterns for a study area in Southern California. In this model, geographic features (parcels)

change state based on underlying parameters such as physical constraints, land use planning policies, development suitability factors and influence from parcel neighbors, etc. This model was developed to support scenario-building through user-defined adjustable weights. This model demonstrates how actual geographic features may be deployed both as agents and as constraining factors in sub-models of geospatial processes.

Keywords: agent based, GIS, modeling, urban growth, LULC

Diana Stuart, University of California Santa Cruz. Email: dstuart@ucsc.edu; Addressing the Paradox of the "Clean" Field: Conflicts between Food Safety and Environmental Quality in Central Coast Agriculture

The Central Coast represents one of the most productive and high value agricultural regions in California. Two significant problems currently trouble Central Coast agriculture: food safety and environmental quality. At least nine out of twenty outbreaks of *E. coli* 0157:H7 from lettuce and leafy greens in the past decade were traced back to the Central Coast, including the most recent outbreak from spinach in September 2006. Regarding environmental quality, the region suffers from severe water pollution and ecosystem degradation associated with intensive agricultural activities. Current methods to address each of these issues directly conflict. Growers in the region are receiving contradictory messages regarding management practices. This conflict centers on the idea of the "clean" field. As indicated in industry-led food safety guidelines, a "clean" field entails removing peripheral non-crop vegetation, such as shrubs and grasses. It is feared that this vegetation might attract wildlife, seen as possible vectors of disease. This results in a paradox: cleaning up fields for food safety contradicts with practices to clean up the environment, which specifically use non-crop vegetation to absorb and filter out pollutants. Efforts to encourage environmental practices from government agencies and conservation organizations are in direct opposition with market-based pressures to follow food safety guidelines. This paper will explore the dynamics of this opposition, focusing on the role of information and the use of science to support conflicting ideas about land management. I will also examine how principles in sustainable agriculture could be applied to address both issues.

Keywords: sustainable agriculture, food safety, environment, pollution, wildlife

Roger W. Stump, University at Albany. Email: rstump@albany.edu; Scales of Territoriality in Christian Reconstructionism

Christian Reconstructionism has emerged as a small but influential post-fundamentalist movement within conservative Protestantism in the United States in recent decades. While drawing on the renewal of conservative Protestantism promulgated by earlier fundamentalists, Christian Reconstructionists differ from the former in their higher degree of sectarianism, rooted in a specific interpretation of Calvinism rather than in a more generic enunciation of Christian fundamentals, and in their emphasis on the teleological unfolding of sacred history rather than on the secular spread of threats to orthodox beliefs and values. In examining the distinctiveness of this movement from earlier forms of Christian fundamentalism in the U. S., this paper focuses in particular on the distinctive and complex expressions of territoriality that lie at the heart of Christian Reconstructionist thought. Two key factors distinguish these expressions of territoriality: their articulation with regard to spaces organized at a variety of geographical scales, from the body to the local community to the state to the world as a whole; and the explicit integration of these scales of territoriality into a single narrative rooted in the sacred history of postmillennial Calvinism. These factors foreground an exceptionalist view of the United States as the worldly hearth of the postmillennial process of reconstruction and the importance, across different spatial scales, of establishing theonomic structures that unify individuals, families, and states under the domain of Biblical law. This paper finally argues that, based on its distinctive characteristics, Christian Reconstructionism represents significant expression of post-fundamentalism generally.

Keywords: religion, fundamentalism, Christian Reconstructionism, theology

Janet Sturgeon, Assistant Professor, Simon Fraser University. Email: sturgeon@sfu.ca; Globalizing Rubber: "Out-Sourcing" Rubber to Laos from Xishuangbanna

Globalizing Rubber: "Out-Sourcing" Rubber to Laos from Xishuangbanna With China's entry into WTO (2001), and the privatization of state rubber farms in Xishuangbanna, southern Yunnan (2003), newly-formed "rubber companies" are trying unsuccessfully to extend rubber to neighboring Laos through government-to-government concessions. Minority rubber farmers, meanwhile, are rapidly extending rubber to Laos through share-cropping arrangements across the border. This paper traces how minority farmers have become successful (and rich), and also, through an examination of governance of rubber, minorities, and development in Xishuangbanna, explores how this success is profoundly unsettling to discursive concepts of land use, which divided rubber

production into people and spaces that are modern, productive, scientific, and Han (state farms), and those that are backward, inefficient, unscientific, and minority (upland farmers' fields). How have minority farmers used this globalizing moment to transgress these binaries, and to what extent does this crossing rework governance on China's periphery? Janet Sturgeon Geography Dept. Simon Fraser University

Keywords: China, Laos, rubber, state farms, minority households, WTO

Tristan Sturm, UCLA. Email: tristan.sturm@gmail.com; The Environment as Apocalypse

In this paper I will compare and contrast two Christian theories concerning the environment: Premillennialism and Dominion Theology. With a secular apocalyptic thrust, Bill Moyers' speech following the acceptance of the Harvard Global Environment Citizen Award, deplores these theories but makes little distinction between them. Rather ironically, Hal Lindsey, who is one of the most influential premillennial prognosticators, repudiates Dominion Theology on the grounds of not accepting the Olivet Discourse. In a nutshell, following Genesis (1:26) Dominion Theologists believe the world was made plentiful and that they were to have full dominion over the Earth's natural resources. Conservation, resource shortages, environmental degradation and other environmental concepts are confronted with disbelief: God made a perfect world for us to live. Premillennialists, on the other hand, believe the world is in an evil recession falling farther from God with each passing day. Christ will return at the peak of human and environmental violence to destroy the evil armies of the world and bring forth all people to be judged before "Him". Signs of environmental disasters are to the Premillennialist evidence that the world is falling farther from grace and into the hands of the Antichrist. To some, even taking action to reverse polluting the environment is seen as a challenge to God's sovereignty because ecological crisis is part of "His" divine end time plan.

Keywords: Millennialism, Fundamentalism, environment

I-Jhy Su, Professor, Tainan National University of the Arts. Email: suijhy@mail.tnnua.edu.tw; You-Ren Yang, Dr., National Taiwan University. Email: yyren@ms34.hinet.net; Catching-up in the Global Value Chain: The trans-scalar learning dynamics of TFT-LCD clusters in Taiwan

This article aims to investigate the significance of trans-scalar technology collaboration to territorial innovation system by investigating the development trajectories of TFT-LCD industrial clusters in Taiwan, which based on the Tainan and Taichung Science Park, and explore its relevance to the possibility of catching-up in the global value chain. I find that although the industrial clusters rely on extra-territorial technology collaboration to a certain degree in the earlier stage, but local TFT-LCD companies had showed significant absorptive capacities and further engaged on advanced R&D. Moreover, the territorialized learning networks between local companies and foreign component companies in the host regions also took shape, and even launch the knowledge reverse spillover of TNCs in the clusters to their headquarters. Thus I argue that latecomer's companies can grow fast by obtaining new capabilities and thus change the power relations with the leading companies. In other words, I believe that the control of leading companies over the upgrading of latecomer's companies inserted in the global value chains might be limited. Discussions on the upgrading of vendors in the global value chains from the perspective of firm capacity development and formation of new networking relationships beyond those with the former leading companies in latecomers should have certain values. Finally, I try to highlight a missing link of territorial innovation system by emphasizing the complexity and significance of a bundle of trans-scalar learning dynamics.

Keywords: trans-scalar learning, territorial innovation system, industrial cluster, global value chain, local and regional development

Shew-Jiuan Blanka Blanka Su, National Kaohsiung Normal University. Email: shewsu@nknua.edu.tw; The geographical implication of transnationalism in an island of cultural diversity — Taiwan

The paper is to delineate the many geography-implied faces of transnationalism in Taiwan, where the urban and rural boundary is blurred, and the geography of places is dominated by type of family, type of job and type of project, rather than geographical proximity or collective images of places. This paper uses both macro level statistical data and micro level qualitative interviews of migrant workers and their employers to construct how the transnationalism in Taiwan's cities and rural areas are manifest, how the geography of places matters in constructing the cosmopolitanism that is shown through life style, life experience, life-work relations, and even gender relations. Macro level data show the increasing dependence of the national economy on migrant workers and increasing number of household depending on domestic helps from overseas to complete their daily life practice. Qualitative interviews show the cultural and social changes, that are witnessed by the employment of migrant workers, are far more complex than one might have imagined through a daily life base. The

concept of transnationalism is mainly and often focused on interconnectivity between people around the world and blurring boundaries between countries. More importantly, however, this paper argues that the local geographical implication of transnationalism lead to the discussion of locality, cultural changes, social transformation, political negotiation, and economic integration. The overarching issue for all the change and transnationalism is scalar and re-scalar.

Keywords: transnationalism, cosmopolitanism, daily-life, culture-diversity, Taiwan

Pere Suau, PhD Candidate, Universitat Autònoma de Barcelona. Geography Department. Email: pere.suau.sanchez@uab.es; Montserrat Pallares-Barbera, PhD, Universitat Autònoma de Barcelona. Geography Department. Email: montserrat.pallares@uab.es; *New Challenges in Western Europe Airport Planning. Environmental Strategic Assessment in Airport Development Strategies*

The current European airport framework presents socio-environmental and territorial conflicts that have difficult resolution. There is a need for air-infrastructure development; but such development can damage the environment and the interests of the nearest inhabitants. Technical features of the airport infrastructure would not be relevant for increasing air traffic volume. Enlarging airport capacity will depend, in the short term, on controlling environmental impact of such development in surrounding areas. This paper deals with the decision making process of airport planning system based on the Environmental Strategic Assessment model in Catalonia's airports. Environmental Strategic Assessment model (ESA) considers several elements, such as biophysics, economic, social, politic, and territorial variables to evaluate the environmental consequences of several alternative future scenarios. Results of the ESA decision model are to be included as basis for airport policy makers to avoid future social disruptions. Catalonia's airport network has quite a few airports; in which three of them are international and Barcelona's is by large the most important one. Several stakeholders are interested in expanding and developing the current airports. However, this interest for growth and new opportunities is not reflected in airport planning policy. Specifically, the increasing volume of air traffic in low-cost flights and executive aviation that have taken place is making the government to consider new strategies to achieve a good performance with the actual infrastructure, or enlarge the air-infrastructure undertaking the shortcomings of the negative externalities generated to avoid undermining the Catalan economy.

Keywords: Environmental Strategic Assessment, decision-making process, socio-environmental conflicts, airport development

Trudy A. Suchan, PhD, U.S. Bureau Of the Census. Email: trudy.a.suchan@census.gov; *The Demographic Map in the Twentieth Century*

This paper discusses the development in the twentieth century of a sub-genre of thematic maps, the demographic map. A demographic map shows spatial pattern in human characteristics such as age, race, income, language, education, and home ownership. The review of the last century's maps includes a look at significant individuals and institutions, aesthetic and technological shifts, varying styles of symbolization, and general acceptance of the demographic map, for instance, widespread use of population maps in the mass media after Census 2000. The presentation will be a narration with slides of discussion-worthy demographic maps including pages from the Census Atlas of the United States and earlier Census publications. The material is being researched for the History of Cartography, Volume 6, Cartography in the Twentieth Century. Audience critique of material included/excluded will be encouraged.

Keywords: cartography, demography, thematic map

Kazuaki Sugiyama. Email: ksbasebox-research@yahoo.co.jp; *The Juvenile Curfews and the control of public spaces in contemporary Japan*

The trend of entrepreneurship on urban governance is growing phenomena in developed countries. It seems that the process as the global urban strategy have potent influence on young people and their everyday life especially. It is necessary for us to consider the relationship between youth and nation-state in specific context that take different forms in various regions in the world. In Japan, however, there are a few geographers who mention to the significant issues. In these circumstances, the aim of this paper is to illustrate local trend of legal geographies, taking account of the recent revision of the 'Seisyounen-jyousei' (the Juvenile Protection Ordinance) and the use of juvenile curfews in Japan. Firstly, the paper describes theoretical framework and the general political situation in the era of recent dramatic reorganizations of municipalities in Japan. It is important to consider and criticize the problematic aspect of the ordinance because it is related to recent neoliberal political agenda and the transformation of governance. Secondly, the paper explicates the context of the ordinance which has influenced upon legal geographies in local area. Especially, the paper explains the major point of the recent revision of the Juvenile Protection Ordinance in the case of Osaka prefecture and Aichi prefecture. The legislation

provides a legal basis to prepare the policing activities demanding sound social environment for young people. And the paper will clearly show the expansion of such kinds of activities in closer cooperation with crime prevention policy.

Keywords: juvenile curfew, community policing, social policy, voluntarism, regional partnership, Japan

Ramanathan Sugumaran, University of Northern-Iowa. Email: sugu@uni.edu; Nick Phillips, University of Northern Iowa. Email: phillipn@uni.edu; *E-learning: A Web-based Interactive Remote Sensing Education Course using Macromedia FLASH*

One major barrier to federal, state, and local, tribal government agencies and other private sectors in the use of geosciences and related geospatial technology and data is the lack of education, shortage of personnel trained in the acquisition, processing, and analysis of such data and technologies. Thus, there is a great need for basic geospatial education for these agencies. The main goal of this project is to develop web-based interactive remote sensing education materials that allow these agencies to learn about the basic concept and principle of remote sensing. This web-based program was developed using Macromedia FLASH and MySQL. The interactive program allows users to understand the principle step by step on the web. In this paper, an outline of this package, how this course was developed, and some of the limitations will be discussed.

Keywords: Macromedia FLASH, Remote Sensing, Education, Web

Allen E. Sullivan, PhD., Central Washington University. Email: sulliall@cwu.edu; *The Native American Water Right as a Territorial Right*

Discussion of Native American water rights in the United States most often focuses on irrigation rights and instream flow rights. Recently, power production rights and groundwater rights have received increasing attention. However, water rights for Native Americans may also take the form of territorial holdings. Alternately, status as a territorial water has implications on the ability of non-Native Americans to use, or make use of, such water or the resources found within the water. An overview of the evolution of federal Native American policy, the basis for Native American water rights, is provided. A series of Native American territorial water rights issues are presented, along with their precedent legal cases, to illustrate the various forms of Native American territorial water rights within the United States.

Keywords: indigenous peoples, water resources

Donald G. Sullivan, University Of Denver. Email: dsulliva@du.edu; Kevin P. Gilmore, University of Denver. Email: kegilmor@du.edu; *Late Holocene Changes in Peat Humification and Implications for Carbon Sequestration*

We analyzed peat in cores taken from fens (minerotrophic peatlands) on Grand Mesa, in western Colorado, for bulk density, organic content (LOI), humification, and pollen content. The combination of analyses provides high resolution, environmentally sensitive information about paleotemperature, paleomoisture, and vegetation changes. In this paper we focus on the paleoenvironmental record for about the last 3000 years, with particular emphasis on the responses to climate changes associated with Little Ice Age, the Medieval Climate Anomaly, and other similar relatively low magnitude climate fluctuations in the late Holocene. Chronology for the cores is based on AMS dates on the peat. We compare the records obtained from multiple cores within the same fen, and fen to fen results to evaluate replicability. Results indicate that, while rates of peat accumulation within a fen may vary from site to site, changes in physical characteristics and microfossils observed through the core are uniform from one core site to another within the same fen. Comparability between fens in the same region is also very good. Our results show that changes in rates of organic accumulation and peat humification in response to relatively low magnitude climate fluctuations can be readily determined using fairly simple techniques. Pollen data suggest that vegetation changes are consistent with the climate changes, though the pollen signal is often subtle. The well-established chronology on the cores permits us to estimate changes in annual carbon sequestration with decadal to centennial scale temperature fluctuations.

Keywords: peat humification, carbon sequestration, Holocene

Kendra Lynn Sullivan, New Mexico State University. Email: skendra@nmsu.edu; *Conservation and Management Challenges at the Valles Caldera National Preserve*

The 89,000 acre Valles Caldera in Northern New Mexico has been described many ways: an innovative experiment in land management, a national treasure, a working ranch, a geological wonder, and a playground for the rich. As of 2000, the official name changed to the Valles Caldera National Preserve (VCNP). Once a private ranch, it was bought by the government to be managed by a Trust and made a National Preserve to be used and enjoyed by the public. The goals of the Preserve include operation as a working ranch, scientific research, and public use/recreation. Within 15 years, the goal is to operate the VCNP as a financially

self-sufficient entity, essentially as a business, that would profit only from users of the Preserve. This paper explores a new venture in land management, the people and resources that are affected, what it will take to succeed, and why this place is so unique, legally, culturally, and physically. Using personal interviews, media archives, government documents, pertinent literature, and first-hand observation, the story and science of the VCNP is explored and analyzed.

Keywords: Valles Caldera, Conservation, New Mexico

Thomas Sullivan, Louisiana State University. Email: sullyman142003@yahoo.com; *Long Day's Journey into Night: Exploring the Irish American Connection to Place through Literature*

The history of the Irish in American society is well-documented within the literature of Irish American novelists. The beginning of the twentieth-century witnessed a small number of "realist" writers who, by the 1930s, emerged with stories of gritty city life, tales of mobility and desperation, and the constant struggle for acceptance by a seemingly impenetrable Protestant elite. Their stories described an Irish population wanting to leave behind the poverty of inner city neighborhood life for the prosperity of the suburb. In addition, scars left from the famine generation before them exacerbated their vision of Ireland as a destitute place of little hope, deprived of dignity, and devoid of prosperity. Conversely, some contemporary writers of Irish American fiction (and nonfiction) seek to reconstruct these same places as spaces of remembrance?places that generate a romantic sense of nostalgia and an imagined return to the past. Recently, a resurgence of "Irishness" is in evidence within the Irish American community and this is found within the confines of a number of contemporary novels, each emphasizing a reconnection to one's roots either through memories of the urban ethnic neighborhood or ancestral ties to the Irish homeland. Within the literature, these "imagined" connections are reinforced through a number of avenues, whether it be the inheritance of land or long-lost love affairs. By evaluating a number of popular twentieth-century Irish American novels, I explain how the Irish in America have come to view their connection with these places and the multiple meanings they represent.

Keywords: literature, heritage, nostalgia, ethnicity, Irishness.

Farhana Sultana, King's College London. Email: ; *Watery discourses: Community and Participation in Water Resources Management*

Notions of 'community' and 'participation' have become popular in water resources management discourse and practice, particularly in the global South. Greater involvement of people in decision making, implementation and evaluation of water management practices is expected to increase efficiency and equity in water projects. However, scholars have pointed out that such discourses are often problematically used and idealized, leading to exacerbating gender, class, and other social differentiations. Drawing from a case study of drinking water contamination by arsenic in Bangladesh, this paper looks at the mobilization and outcomes of notions of 'participation' and 'community' in water provision and arsenic mitigation. It is seen that there is greater gendered water hardship, exposure to poisoning from arsenic, and conflicts over water because of not only the contamination of erstwhile safe water sources and ensuing water scarcity and poisoning, but also from the ways 'community' and 'participation' notions are conceptualized and practiced. Through the process of this water crisis, while both conflict as well as cooperation emerge around notions of 'community' and 'participation', there is increased differential access to safe water within and between places, and gendered/classed exclusions and marginalization as a result of changing water management institutions and interventions. As such, the research argues that scholars studying 'community' and 'participation' should pay greater attention to changing power relations, the role of nature, and geographical location in how water management interventions fail and succeed, and are thereby critiqued.

Keywords: Gender, Water, Community, Participation, Bangladesh

Selima Sultana, University of North Carolina at Greensboro. Email: s_sultan@uncg.edu; *The Journey to School by K-12 Children: Why Fewer Children are Riding the School Bus?*

Many public school systems in the USA require that each child should attend his or her nearest school, and those that live beyond a specified walking distance will be provided bus transportation. These policies are undermined by low-density residential development. In addition to increasing bus miles and time traveled and placing stress on school budgets, tight household time budgets may often override these policies as parents drive their children to and from school. This research examines these issues in the Guilford County, North Carolina school district, using a survey of parents to identify their choice of transport mode for their child's travel to school. Among children who travel by school bus, those living in newly developed low-density neighborhoods are traveling much greater distances and times than children in older high-density urban areas. As a result, many parents, especially stay-at-home parents, choose to drive their children by car as they can get up later in the morning. Picking them up after school preserves

time for after-school activities. This paper also concludes that parental attitudes toward the car culture and environment influence mode choice for their children's transportation as well.

Keywords: School transportation, low-density development, Mode choices

Rini Sumartojo, Simon Fraser University. Email: wsumarto@sfu.ca; *Community, Ethnocultural Identity, and Multiculturalism: Indo-Canadian Youth Violence in Vancouver*

Violence among youth of South Asian descent in Greater Vancouver has become the subject of widespread public concern following the unsolved murders of over 100 Indo-Canadian young men throughout the 1990s. The local media has often portrayed the Indo-Canadian community as plagued by youth gangs involved in the illegal drug trade. The greatest concern for many within the community, however, is not organized criminal gangs per se, but the popularity of the 'gangster image' and the apparent glamorization of violence among young Indo-Canadians. 'Indo-Canadian youth violence' has become a rallying point for a range of politicians, community organizations, and state institutions. Youth gangs and violence are often framed as problems internal to the Indo-Canadian community and the struggles faced by its youth are often attributed to intergenerational family conflicts arising from the clash between 'Indian' and 'Canadian' norms and practices, which serve to position youth as 'out of place,' or "in-between" cultures." As a result, much effort has been directed at 'bridging' the real and perceived social divides between this community and the 'mainstream.' This discourse has important implications for the Canadian state, particularly for its popular and political understandings of multiculturalism. This presentation will explore some of these implications, in particular how the widespread correlation of a 'displaced' identity with violence impacts ongoing attempts to implement multicultural policies and reduce violence.

Keywords: youth violence, multiculturalism, ethnocultural identity, community

Robert E. Summerby-Murray, Mount Allison University. Email: rsummerb@mta.ca; *Consuming the industrial past: public and private landscapes in the industrial heritage of Nova Scotia mining and steel towns*

In many deindustrialized North American cities and towns, public landscapes have become sites of struggle over memories of the industrial past. While the many forms of public commemoration have been explored in detail as part of cultural interpretations of deindustrialization since the early 1990s, the tension between public and private landscapes of commemoration is rarely broached. This paper draws upon landscape examples, informant interviews, and real and constructed 'artifacts' to provide an interpretation of the tension between public and private commemoration. The paper concludes that interpreting community-initiated industrial heritage (whether public or private) only as a form of local resistance to global restructuring processes or a means of asserting place identity in the face of placeless mobile capital is overly simplistic. Instead, it is noted that these heritage landscapes reflect an ambiguous amalgam of personal motivation and public spectacle for those presently consuming representations of the industrial past.

Keywords: Deindustrialization; public memory; landscape; mining; place identity; heritage

Percy Manuel Summers, Virginia Tech. Email: pesummer@vt.edu; John O Browder, Virginia Polytechnic and State University. Email: browder@vt.edu; Marcos A Pedlowski, Laboratorio de Estudos do Espaço Antropico, Universidade Estadual do Norte FLuminense. Email: ; *Property size dynamics and land ownership patterns in the Brazilian Amazon post-frontier*

Property aggregation and fragmentation processes, as well as farmer ownership changes through time have important implications for the processes of land cover and land use change. However, these have been poorly studied and such changes are yet to be incorporated in conventional theoretical frameworks of frontier studies. Additionally, as most of the original Amazonian colonists reach the end of their life-cycle, these changes should become widespread with important repercussions over the landscape. This paper analyzes changes in property ownership among small landholders in the closing frontier of the Brazilian state of Rondonia. We use a ten year panel survey data set (1992-2002) and a Geographic Information System (GIS) of property boundary grids geo-referenced in the field in 1992 and 2002. These data have been integrated with Landsat TM satellite image analysis of land cover change for each household plot for each year for the entire ten year period of the study. Integrating satellite image analysis with property size and property ownership changes allows us to explore the impact of these changes over land cover and land use change. Furthermore, the use of household demographic and socioeconomic data allows linking changes of household variables over time to the changes in the spatial patterns of the property grid. Understanding the patterns of property size and property ownership changes over time and its impacts over land cover and land

cover change will be important additions to frontier theoretical frameworks and landscape change studies.

Keywords: land use and land cover change, frontier studies, Brazil, Amazonia, Latin America

Mingjie Sun, University of California, Los Angeles. Email: mjsun@ucla.edu; Rural-Urban Migration in China: Some Findings from the 2000 Census

Rural-urban migration in China has greatly increased over the past two decades or so and it now accounts for the bulk of migration in that country. Rural-urban migrants have also been the key to the economic success that China has enjoyed. Much of the literature, however, has tended to lump all types of migration together rather than focusing on rural-urban migration. Based on the 2000 Census, this paper analyzes the geographic patterns of rural-urban migration and selected attributes of rural-urban migrants. Interprovincial rural-urban migration exhibits geographic patterns similar to that of overall migration, namely, the central region is the biggest donor and most migrants moved to the eastern region. Intraprovincial rural-urban mobility is high in the eastern region as well. Zhejiang, Fujian and Guangdong have the highest rates of intraprovincial rural-urban migration. By focusing on educational attainment, the analysis shows that interprovincial rural-urban migrants are quite different from their intraprovincial counterparts. Consistent with existing studies, I found that interprovincial rural-urban migrants are less highly educated than urban residents. Interestingly, intraprovincial rural-urban migrants have educational attainment similar to or higher than urban residents. This discrepancy suggests that moving to more distant places is a strategy by rural migrants to overcome human capital constraints.

Keywords: Rural-urban migration, China

Wanxiao Sun, Grand Valley State University. Email: sunwa@gvsu.edu; Shunlin Liang, University of Maryland. Email: sliang@geog.umd.edu; Gang Xu, Grand Valley State University. Email: xug@gvsu.edu; Hongliang Fang, University of Maryland. Email: hfang@glue.umd.edu; Robert Dickinson, Georgia Institute of Technology. Email: ; Mapping Plant Functional Types from MODIS Data Using Multisource Evidential Reasoning

This study presents a method to infer plant functional types (PFT) from MODIS data. The method first utilizes a suite of improved and standard MODIS products to generate evidence measures for each PFT class. The multiple lines of evidence computed from input data are then combined using Dempster's Rule of combination. Finally, a decision rule based on maximum support is used to make classification decisions. The proposed method was tested over the states of Illinois, Indiana, Iowa, and North Dakota, USA where crops dominate. The Cropland Data Layer (CDL) data provided by the National Agricultural Statistics Services (NASS) of the United States Department of Agriculture (USDA) were employed to validate our new PFT maps and the current MODIS PFT product. Our preliminary results suggest that multisource data fusion is a promising approach to improved mapping of PFTs. For several major PFT classes such as crop, trees, and grass and shrub in the study area, the PFT maps generated with the evidential reasoning method provide greater spatial details compared to the MODIS PFT product.

Keywords: plant functional type (PFT), data fusion, Dempster-Shafer theory of evidence, MODIS data

Wenjie Sun, Carthage College. Email: wsun@carthage.edu; Meta-Comparison of Land-Use/Cover Change Models: Cellular Automata vs. Agent-Based Models- The Case of Indian Creek Township, Monroe County, Indiana

This research compares the ability of a CA model and two Agent-Based Models to reproduce land-cover change occurring in Indian Creek Township, Monroe County, Indiana between 1939 and 1998. In particular, the following research questions are addressed: (1) how well dynamic LUCC models can reproduce observed land-cover change based on different measures, (2) whether selected potential drivers are equally important in determining land-cover change, and (3) what are the comparative advantages and disadvantages of selected CA and ABMs in terms of model objectives, predictive power, complexity, structure, and data requirement. Through the comparison of outputs from different models, we can tell that the ability of different dynamic LUCC models to reproduce observed land-cover change varies across model types, parameter settings, and performance measures. What is significant about this model meta-comparison is that it demonstrates why different models are useful in different applications and under different circumstances. CA models are especially useful for modeling macro level LUCC over time, in particular with respect to the relationship between micro-processes and macro-patterns. Although it is possible to consider the transition rules in CA models as pseudo-decision making, they are still not comparable to ABMs in their capability to represent sophisticated heterogeneity and interactions that characterize real world land-use systems.

Thus most of the time the primary reason that we choose ABMs over CA models may not necessarily be higher predictive power, but rather deeper insights into how the "system" works at the level of actual decision making.

Keywords: LUCC, CA, ABM, modeling

Yifei Sun, Ph.D., California State University, Northridge. Email: yifei.sun@csun.edu; Country Relational Distance, Organizational Power and R&D Managers: Understanding Environmental Challenges for Foreign R&D in China

This paper examines the challenges of foreign R&D in China, based on interviews with 32 senior R&D managers. It confirms the findings from previous studies that many barriers still exist in China for foreign R&D, and such barriers include institutional environment, infrastructure and labor management. Among the three categories, issues related labor management, such as increasing labor cost and mobility, lack of experience and creativity and cultural differences among the research staff, show to be most challenging for management, while China's institution and infrastructure largely have been aligned up with those in many other countries. This study also finds that responses from R&D managers are not consistent, and the differences could be largely explained by three types of factors: relational distance between the parent country and China, the strength and experience of foreign companies, and manager's personal experience and closeness with China. Further studies are needed to explore these issues due to the small sample size of this study.

Keywords: Environmental Barriers, R&D, Globalization, China

Juanita Sundberg, University of British Columbia. Email: sundberg@geog.ubc.ca; "Trashy Transgressions" and the Production of Quotidian Geopolitical Boundaries in the United States-Mexico borderlands

In the mid-1990s, the United States instituted new border enforcement measures to secure its boundary with Mexico. These measures have created a geographical shift in border crossings, from urban areas to remote areas. Undocumented immigrants now walk through remote lands to take up jobs in the U.S. In the process, objects like empty water bottles are discarded, while things like backpacks, shoes, clothes, books, and documents get lost. This paper examines how the objects left behind - overwhelmingly framed as trash - figure in the political mobilizations of diverse citizens groups. As I illustrate, anti-immigrant groups repeatedly equate migrant bodies with trash, inviting visceral, emotional responses characterized by disgust. Such emotional evocations force humanitarian groups like Humane Borders to respond: one of the group's primary volunteer activities is trash clean-ups. These political mobilizations make the body a crucial site of geopolitical imagining. Indeed, I argue, cultural norms about bodily comportment figure prominently in the crafting of quotidian cultural and geopolitical boundaries. In the U.S.-Mexico borderlands, trash has become a new matrix for the elaboration of geopolitical categories like "American" or "those who don't belong in America". Drawing on Lauren Berlant's critique of sentimental politics, I conclude that the politics of trash works to channel public expression in the realm of emotion, thereby privileging the injuries claimed by "Americans" who believe their territory has been trashed and naturalizing the exclusionary measures directed at undocumented immigrants.

Keywords: feminist geopolitics, U.S.-Mexico border, body

Bjoern Surborg, UBC. Email: bsurborg@interchange.ubc.ca; Neo-liberals or New Liberals? Urban Development and Bourgeois Structures in an Olympic City

The hosting of mega events such as the Olympic Games rarely proceeds without substantial controversy amongst different interests in the host locale. Boosterist factions of the urban political establishment are usually most supportive if not the initiators of bids for hosting mega events, while social advocates and grassroots organisations tend to be considerably more cautious regarding the expected benefits of the anticipated urban spectacles. In the current preparation phase organisers of the 2010 Olympic Winter Games in Vancouver are claiming to prepare the most sustainable Games ever and substantial rhetorical attention is paid to the idea of creating long-term legacies from the games. The Vancouver Games are also supposed to be the most inclusive games with a strong emphasis on people with disabilities, aboriginal people and other groups. At the same time, there are substantial business interests in hosting the Olympics. Using the 2010 Games as a case study, I am arguing in this paper that there are many facets of the mainstream political agenda that are often summarised as neo-liberal policies. Specific nuances, however, mark a departure from the neo-liberal project of the last two decades or so. These nuances resemble in their philosophical basis as well as their practical implementation the liberal bourgeois traditions of the 19th century. While the policies associated with these liberal traditions serve the established middle and upper class, the class aspects of this new liberalism are much better disguised than in the neo-liberal project characterised by Thatcherism and Reganomics.

Keywords: neo-liberalism, liberalism, urban geography, Vancouver, Olympics

Krisna Suryanata, University of Hawaii. Email: krisnawa@hawaii.edu; Kem Lowry, University of Hawaii. Email: lowry@hawaii.edu; *Framing Changes: The Transformation of Nature and Culture in Rural Hawai'i*

This paper examines the struggles over competing uses of agricultural and rural lands in the State of Hawai'i. Hawai'i, which was once a magnet for investment capital for large-scale coastal resorts, has recently become one of several jurisdictions experiencing rapid growth of new homes in rural areas. This influx of 'amenity migrants' has resulted in numerous controversies that concern the rights of land owners, developers, local residents, and Native Hawaiians, as well as raising questions about the appropriate policy mechanisms, about property relations, the impacts of growth, and about the proper scope of government authority to minimize development impacts on resources. We focus on the interface between micro-politics of resource use and formal regulatory framework to understand the cultural and political processes that influence rural transformation. We direct particular attention to the processes that shape the "framings" - the principles and assumptions that underlie political debates and actions of rural management policies in Hawai'i. Unlike other areas of high amenity values in the United States where the narrative of 'nature' dominates the discussion on rural planning, we posit that other equally powerful competing frames have played important parts in policy processes that shape rural transformation in Hawai'i. By evaluating rural management tools that have been developed by state and county officials in Hawai'i, we seek to understand how policies derived from alternative frames affect diverse constituents that include indigenous groups and poor working class residents.

Keywords: rural geography, political ecology, planning, amenity migration, Hawai'i, United States

Arvind S. Susarla, Dr., Department of Geography, Texas A&M University. Email: asusarla@geog.tamu.edu; *Mass Media's Construction of Risk: A comparison of media reporting on hurricanes Katrina and Rita by a newspaper and citizen journalists*

Mass media reporting of hurricanes Katrina and Rita episodes was intense in the United States, and this flow of risk information shaped, in part, peoples risk perception and responses to the hazard. To better understand media's role in the aftermath of risk events I analyze content of media reporting by the Houston Chronicle, a newspaper published from Houston, TX. Furthermore, for this event the newspaper had facilitated flow of risk information directly through citizen journalists, and I examine the content of this initiative also. To provide a sharper interpretation on media coverage of the risk events the focus of this paper is to compare reporting by the newspaper and citizen journalists. For example, how was assignment of blame different in the news reports of the two sources? Similarly, I discern, for instance, description on nature of risk in these media reports. Both quantitative and qualitative methods were employed in the analyzing media reports. The results contribute in advancing theorization on media's construction of risk events and subsequent consequences over space and time.

Keywords: hurricane, mass media, citizen journalism

Laurel Suter, University of California, Santa Barbara. Email: laurel@geog.ucsb.edu; *Modeling Pasture Establishment in the Agricultural Frontier: Sierra de Lacandón National Park, Guatemala*

Forest conversion to agriculture is counted one of human's most significant impacts upon the earth's surface, with rural-rural migrant farmers acting as the primary direct agents of this change, especially along colonization frontiers in Latin America. This presentation explores farmer land use in an agricultural frontier, the Sierra de Lacandón Park (SLNP), in the departamento (equivalent of a state) of Petén, Guatemala. In particular, I examine hierarchically nested, spatially explicit demographic, political, social, economic, and ecological variables acting on decision makers located within the current agricultural frontier to determine under what circumstances smallholders invest a portion of their land in cattle pasture, an understudied land cover given its increasingly dominant role in terms of relative and absolute areal extent, its high growth rate, and its implication for further land cover change, both on site and elsewhere. To this end, I examine pasture as a categorical outcome in a logistic multilevel regression model, with independent variables derived from a Community and Household Survey administered in the SLNP in 1998-1999. Additionally, female partner survey responses, which have yet to be analyzed, are examined in relation to their influence on this possible land use outcome.

Keywords: Land use, pasture, agriculture, Latin America, deforestation

Lindsey McSherry Sutton, Arizona State University. Email: lindsey.sutton@asu.edu; *The Border Experience: a narrative cartographic approach*

As part of my dissertation research, this poster contributes to a larger dialogue on transborder networks and transnational spaces. My goal is to employ a narrative cartographic approach that could potentially allow a targeted audience to experience the border through an interactive web-based map interface. Through a series of links, a potential map-user has access to timelines, historical thematic maps, current thematic maps, and photographic analysis of Palomas, Chihuahua-Columbus, New Mexico and Naco, Sonora-Naco, Arizona from a central base-map. A comparative mapping study of these small rural U.S.-Mexico border towns will analyze how day-to-day contact across the border creates transnational spaces, multidimensional planes of social, cultural, political, and economic interaction occurring across international boundaries (Jackson et al. 2004, Pries 2001, Vila 2000).

Keywords: U.S. Mexico Border, Transnationalism, Narrative Cartography

Paul C. Sutton, University of Denver. Email: psutton@du.edu; *Coastal Wetlands and Storm Protection: A spatially explicit estimate of ecosystem service value*

In this study we estimate the extent to which coastal wetlands in the United States reduce the damages to built capital from storms and hurricanes and how much this storm protection service is worth. The following datasets were assembled for the analysis: 1) tracks of cyclones, hurricanes and typhoons from 1980 to 2005, which included wind-speed; 2) National boundaries with year 2000 GDP as an attribute; 3) Nighttime light imagery of the USA; 4) The 30 meter resolution National Landcover dataset. Total damage was obtained from the EM-DAT (2005) database. With these, spatially explicit GDP and wetland cover were mapped and then hurricane swaths were overlaid within a 100km x 100km area. The GDP calculated within each hurricane swath and the reported total economic damage (TD) were used to generate a ratio of TD/GDP, which was used to represent the relative economic damage caused by each hurricane. A multiple regression model with TD/GNP as the dependent variable and wind speed and wetland area as independent variables was highly significant ($P < 0.01$) and explained 48% of the variance in TD/GNP. The model shows that damage increases with wind speed but decreases with wetland area. A spatially explicit estimate of the value of storm protection service at 1 km² resolution was developed using spatial regression based on the GDP and wetland area in the neighborhood of the pixel and the historical frequency of hurricanes over that pixel.

Keywords: Coastal protection, Ecosystem Service, Hurricanes, Coastal Wetlands

Martin Svensson Henning, Lund University. Email: martin.svensson-henning@keg.lu.se; Karl-Johan Lundquist, Lund University, Sweden. Email: karl-johan.lundquist@keg.lu.se; Lars-Olof Olander, Lund University, Sweden. Email: lars-olof.olander@keg.lu.se; *Creative destruction and economic welfare in Swedish regions. Spatial dimensions of job-less growth?*

Evolutionary theories on regional economic growth stress the importance of structural transformation and change to long-term economic growth. At national level, research results from evolutionary economics, economic history, and innovation studies show the relevancy of modernized versions of the Schumpeterian theories to understand the relationship between innovation, restructuring and economic growth. Renewal is seen as central in the learning or post-fordist economy, but similar arguments could also be made with reference to previous capitalist growth regimes. Aiming to explore some of the concrete consequences of regional renewal, this paper deals with the question to what extent dramatic structural transformation and renewal in Swedish regions is paralleled by favourable developments of household income, employment growth and total growth in value added. We study the period of 1978-2004, building on previous research concerning the regional consequences of the dramatic technology shift process that has been taking place in Sweden. We analyse long-term changes in the relationships between Swedish regions by establishing conceptual connections between regional long-term economic transformation and welfare. It is argued that there are time-lags as well as systemic spatial asymmetries when it comes to technology-induced restructuring, overall regional economic growth, employment creation, and income growth. We use data from the DEVIL (Databases of EVolutionary economic geography In Lund) combined with additional data sets from Statistics Sweden. The results of the paper should also be of interest to policy makers interested in the connections between innovation and industrial restructuring on the one hand and its welfare results on the other.

Keywords: Technology shift, regional economic growth, job growth, Sweden

Joseph B. N. Swain, M.A., The University of Oklahoma. Email: jbn_swain@yahoo.com; *The Resettlement of Oklahoma: An Examination of Source Areas for White Pioneer Migration, 1889-1907.*

In 1988, geographer John Hudson published an iso-latitude map showing the birthplaces of early North American white settlers moving into the Middle West. He found what he termed a "latitudinal zonation" where the general result was a latitudinal occupation of the mid-continent U.S. ordered along the same lines as their places of origin. In following Hudson's general methodology, this research suggests a similar settlement pattern for the state of Oklahoma with some significant exceptions. Our Hudsonian iso-latitude map shows the full resettlement pattern in the twin territories at statehood (1907). A north-south latitudinal ordering does exist for Oklahoma, but gradients are steep and radially twisted in several places. Also, Oklahoma emerges with more isolines and, it might be inferred, more diverse origins than any of the states in Hudson's Midwest. In conducting this research, we compiled a database of the origin locations for 10,808 white settlers to Oklahoma. An examination of these data utilizing standard deviational ellipses indicates significant regional patterns in the diaspora from the South and the Midwest. As suggested by the previously established westering process, standard deviational ellipses generally trend east to west along the same lines suggested by the previously examined iso-latitudes. In those cases of radial twisting and concentration, these ellipses will provide a more detailed measure of directionality and dispersion.

Keywords: settlement, U.S., historical geography, plains

Mary Swalligan, Kent State University. Email: mswallig@kent.edu; *Memorializing Flight 93: a Changes in the Landscape*

When United Airlines Flight 93 crashed in Shanksville, Pennsylvania on September 11th it not only marked a tragic day in American history, but it also transformed the land use of the crash site. A once tranquil plot of farmland changed overnight into a national historical memorial park, and with it, the surrounding quarry and hunting reserves were opened up for development. Various actors are attempting to support this development. These actors range from local mourners who make the pilgrim to the site to federal government representatives who are pushing for memorialization. All of these various actors involved can be examined through Cox's interpretation of scale, or more precisely, Cox's spaces of dependence and engagement. Furthermore, these agents interpret the story of Flight 93 by constructing memorials within the local vicinity. The area of Shanksville, in a sense, then becomes a stage that tells the story of United Airline's Flight 93 through various memorials and monuments. Although their main focus concentrated on urban development, Lefebvre and Harvey also have explored the transformation of landscape and the abstract meaning behind these changes. Because the story of Flight 93 is dramatically changing the use of the surrounding environment, I will explain such changes through Lefebvre and Harvey's interpretation of space.

Keywords: Monuments, Memorials, Terrorism

John D Swann, Portland State University. Email: jswann@pdx.edu; *Norwegian Memory Crisis of the Second World War: Collective Memory versus the Forgotten Groups*

This paper is part of a larger social history / cultural geography study in progress that examines how memory of the German occupation of Norway has recently diverged between the war generation, the current generation, and historians. Today, places of commemoration constructed during and after the war have become sites of contestation between the authors of the country's collective memory (such as partisans) and those who have traditionally been forgotten or purposely excluded from the accepted narrative of German occupation and Norwegian resistance during WWII. This paper will consider how monuments (including place names) and resistance museums have physically commemorated a war story that has excluded a number of groups including Norwegian Jews, Tyskerbarn (Norwegian children fathered by German soldiers), communist partisans, and Soviet POWs. Based on very recent research in Norway, this paper will use specific case studies to illustrate how forgotten groups are entering the memory debate and have generated a crisis of collective memory.

Keywords: Cultural Geography, Historical Geography, Norway, Scandinavia, Collective Memory, Places of Memory, Commemorative Landscapes, Nationalism, War, Late Modern Europe

Kate Swanson, PhD, University of Glasgow. Email: kate.swanson@ges.gla.ac.uk; *"Do you have a cure for our faces?" The racialization of indigenous youth in the Ecuadorian Andes*

In this paper, I explore the racialization of indigenous youth in Ecuador through an 18 month case study on migrant indigenous street vendors and beggars. Since the construction of their first road in 1992, young women and children from a rural Andean community have been migrating to work on the streets of both Quito and Guayaquil. As this community's young people become

increasingly engaged with the urban sphere, they are forced to negotiate their identities through everyday encounters with racism - a racism that inferiorizes Ecuador's indigenous peoples by ascribing both physical and cultural differences. Perceived as 'out of place' in the urban sphere through imaginative geographies that construct rural/urban racialized boundaries, indigenous youth have begun to internalize the racist discourses that inscribe their 'othered' bodies. This deeply affects their understanding of themselves and their place in Ecuador's racialized hierarchies. However, given few other options within Ecuador's social and racial hierarchies, I also explore how begging has become an entrepreneurial way for indigenous women and children to capitalize upon gendered and racialized readings of their bodies. In this paper, I examine how indigenous children and youth actively negotiate, traverse, embrace and resist racialized constructs to weave their individual identities.

Keywords: Ecuador, indigenous, racialization, youth, begging

R. J. Swap, Dept. of Environmental Sciences, University of Virginia. Email: swapper@virginia.edu; S. C. Walther, Dept. of Geography, University of Oregon. Email: swalther@uoregon.edu; C. M. Terni, Dept. of Anthropology, University of Virginia. Email: cct4c@virginia.edu; H. Sabea, on-leave at American University of Cairo. Email: hs4b@virginia.edu; *Interdisciplinary Experiential Learning in the form of Summer Study Abroad and the Longer Term Influences on Participants*

To transform the type of international educational experience commonly undertaken by undergraduates, we have developed a summer study abroad program in southern Africa that utilizes collaborative teaching and experiential learning. The objective is to provide students from the U.S. and Africa with firsthand experience of the environmental and social complexity of southern Africa. The course is an intensive introduction to the physical geography, history and culture of the region, involving a blend of in-class lectures, field trips, and daily discussions. During the month-long program, students are exposed to physical and human geography, geology, ecology, hydrology, and atmospheric science in order to understand how the interconnectedness of these different aspects of the physical and social environments help shape the history and culture of the people in the region. The study abroad program builds on over 15 years of relationships developed during regional scale research programs involving UVA and southern African researchers. Participants operate out of northern South Africa and southern Mozambique. The small class size (15 students from the US; 6-8 students from southern African) and pairing with in-region students provides a unique, 'round-the-clock' learning experience. Former participants have pursued a variety of related interests, both domestically and internationally, including the creation of a University wide service organization focused on the developing world. Program alumni have also gone on to join Peace Corps, Teach for America, Americorps, as well as to volunteer both domestically and in South Africa, and have pursued graduate degrees often related to various aspects of their experience.

Keywords: Africa, Culture, Environment, Interdisciplinary

Robert J Swap, University of Virginia. Email: rjs8g@virginia.edu; Kelly C Caylor, University of Indiana. Email: caylor@indiana.edu; Karla Longo, CPTEC, INPE, Brazil. Email: longo@cptec.inpe.br; David L Richardson, University of Virginia. Email: dlr2n@virginia.edu; Saulo Freitas, CPTEC INPE, Brazil. Email: sfreitas@cptec.inpe.br; David Roy, South Dakota State University. Email: ; Hong Guan, NASA ARC. Email: ; Steve Platnick, NASA GSFC. Email: Platnick@climate.gsfc.nasa.gov; Deborah Stein-Zweers, University of Virginia. Email: ; Robert Chatfield, NASA ARC. Email: ; Christelle Hely-Allemaume, CEREGE, France. Email: ; *Intercomparison of Ground-based, Airborne and Remotely Sensed Data to Produce an Integrated View of Regional Aerosol and Trace Gas Emissions for Southern Africa*

This presentation focuses on the combined use of ground-based, airborne and remotely-sensed data, primarily from NASA Terra, to provide insight into the physical processes associated with aerosol and trace gas emissions over southern Africa, a region of significant biomass burning. Issues concerning the up-scaling of point data required to inter-compare observations made at specific points in time and space with remotely-sensed observations over regional landscapes will be presented with focus on three areas: 1.) The complexity and difficulties inherent in scaling up of in-situ observations derived from aircraft profile flights as compared with vertically-integrated estimates from airborne lidar transects and ground-based single point observations, and how these different approaches compare with remotely-sensed and modeled data. 2.) The manner by which landuse/landcover, fuel loads, and fire frequency due to human activities might be incorporated into the predictive models, and comparisons between ground-based point observations, model predictions, and remotely-sensed estimates of vegetation structure, net primary productivity, and fuel load. 3.) The optimal conditions and regional settings for estimation of biomass burning emissions using remotely-sensed measurements of burn scar extent versus using

active fire count and intensity products. Understanding gained from explorations of these three topics will be synthesized and presented as a case study to show how the local ground-based or aircraft observations can be tied in with regional satellite coverage data via transport models.

Keywords: Aerosols, Biomass Burning, Regional Studies, Remote Sensing, Southern Africa

Elizabeth Sweet, PhD, University of Illinois Urbana Champaign. Email: esweet1@uicu.edu; *Spy or Feminist: "Grrrila" Research on the Margin*

The marginalization faced by many feminist scholars in terms of teaching assignments, research opportunities, conference presentation times, representation in faculty unions, and publication opportunities is still a factor and a burden in many disciplines, even though we are more than 30 years into the recognition and study of these discriminatory and sexist environments in which we try to grow and develop as scholars (Etzkowitz, Kemelgor, Neuschatz, and Uzzi 1994; Stout, Straiger and Jennings, 2002, Svarstad, Draugalis, Meyer, and Mount, 2004). Even in the context of marginalization, agency as a feminist academic exists and, in some cases, the marginalization enables us to continue our feminist projects. This paper describes my experience as a marginalized feminist academic. It is based on fieldwork practice, academic training, and encounters as a professor at several universities in the United States, Russia, and Latina America. Currently, in the milieu of the USA Patriot Act, when academic freedom seems to be on the cutting block, we must, more than ever, continue to be grrrila fighters in order to continue our feminist projects and move feminist perspectives from the margins to the center.

Keywords: feminist scholarship, gender research, Russia, Urban Planning

Andrew Swift, University of Cincinnati. Email: andrew.swift@uc.edu; Lin Liu, University of Cincinnati. Email: lin.liu@uc.edu; Jim Uber, University of Cincinnati. Email: jim.uber@uc.edu; *The Effect of Confounding Variables and MAUP Bias on Correlation between Water Quality and GI Illness*

A systematic bias on correlation statistics due to the Modifiable Area Unit Problem (MAUP) has been demonstrated using public health data. Illness event patterns were simulated using a linear dose-response model based on drinking water quality data. This theoretically modeled association should yield a correlation of 1.00. However, alternate spatial aggregation using standard methodology produces an average correlation of 0.35, demonstrating a MAUP bias of .65. So, MAUP is an important factor in the spatial analysis of illness event patterns. Also, the spatial structure of these patterns is an important factor. Consideration of the 'network constrained' structure of geocoded illness data has shown a 41% reduction in this MAUP bias. This research will provide new insight into the magnitude of the MAUP bias when a confounding variable is present. Systematically introducing a confounding variable to a dose-response illness simulation model should demonstrate that MAUP bias decreases as the theoretical correlation between two variables changes from one to zero. Consideration of network constraints should still provide some reduction of MAUP bias in the presence of confounding variables.

Keywords: GIS, confounding, aggregation, MAUP, EPANET, hydraulic modeling.

Jennifer N Swift, Ph.D., University of Southern California, Dept. of Civil and Environmental Engineering. Email: jsweet@usc.edu; Travis R. Longcore, University of Southern California. Email: longcore@urbanwildlands.org; Jennifer R. Wolch, University of Southern California. Email: wolch@usc.edu; John P. Wilson, University Of Southern California. Email: jpwilson@college.usc.edu; *Decision-Support Web Tools for the Green Visions Plan for 21st Century Southern California*

Sophisticated online decision-support tools are currently being developed for the Green Visions Plan (GVP) for 21st Century Southern California. These planning tools are essential for the full realization of the GVP, providing governmental agencies tools to evaluate proposals for grant funding, and increasing the capacity of local, grassroots organizations to identify properties to restore or acquire scientific data and analysis in support of such proposals. The tools are designed to allow end-users to investigate the existing conditions in this region and to evaluate potential sites for their suitability in achieving habitat, watershed, and recreation goals. The tools are basically a highly customized, interactive map interface. The GVP data layers include hydrological information (watersheds, stream networks), habitat information (target species and their linkages), and parks information. The tools analysis functionality will include both display of "static" layers such as network-based park service areas, watershed features and habitat potential relative to surrounding parks, and innovative "dynamic" tools that will perform analyses related to park access, integration of park and watershed analysis tools, and coordination of park planning with habitat features. These advanced geospatial tools are custom coded

using a combination of web scripting languages, and Microsoft and ESRI proprietary software. It is anticipated that these online tools will be available by Fall 2007. The GVP is funded by a consortium of public agencies led by the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy and implemented by the USC Center for Sustainable Cities and GIS Research Laboratory.

Keywords: online, web map, decision-support, planning, park, open space, watershed, habitat, conservancy

Martin Swobodzinski, San Diego State University. Email: mswobodz@mail.sdsu.edu; *The demolition of the memorial for the victims of the Berlin Wall: Implications for the commemoration of the communist past in reunified Germany*

In academic work centered on post-totalitarianism or the politics of memory in relation to Germany, the focus often falls on the Nazi period and the Holocaust. Less work examines how Germany is today dealing with two periods of post-totalitarianism that affect public commemoration and its material expressions in the landscape. In this paper, by looking at the debate surrounding the demolition of a memorial for the victims of the Berlin Wall, I explore how the fall of the Berlin Wall and the subsequent reunification of East and West Germany have impacted memory and forgetting of both Germany's Nazi and socialist past, creating tensions between what is remembered and commemorated in the landscape.

Keywords: Germany, reunification, commemoration, memory, Holocaust, post-totalitarian

Jon Swords, University of Newcastle upon Tyne. Email: j.g.swords@ncl.ac.uk; *The Northumberland Heritage Cluster: Beyond the Economic*

The Northumberland Heritage Cluster is theorized as an embryonic cluster formed at the intersection of five heritage related sectors. These include tourism, land-based industries, regional food and drink, cultural industries and heritage in its more traditional forms. It is at this intersection where one can find the institutions and relationships on which clusters are formed. Four case studies have been examined to delve further into the workings of the cluster: Northumberland National Park Authority; Northumbria Larder; the Northumberland Cultural Strategy; and Hadrian's Wall. The preliminary results seem to show that the various crises this area has suffered in the past (whether it be the decline in heavy industry and coal mining or more recent events such as foot and mouth) have created a culture of cooperation within and between the heritage industries. People are incredibly willing to work together and possess the drive to get things done because they know nobody else will. Perhaps most the most interesting outcome of this, in the light of the growth of many clusters which focus primarily on economic gains, is that the heritage cluster in Northumberland, both implicitly and explicitly, embraces community and environmental benefits alongside economic growth. This presentation will present the finding of this research to date as well as the process which lead to this point.

Keywords: clusters, regional development, heritage, crisis, cooperation

Ludek Sykora, Charles University in Prague. Email: sykora@natur.cuni.cz; Jakub Novak, Charles University in Prague. Email: kubanov@natur.cuni.cz; *The paradox of post-socialist transition: decreasing residential differentiation in the context of ongoing segregation processes*

We analyse the whole Prague metropolitan region using population data from Censuses 1991 and 2001 for 1307 basic settlement units. First, we identify which population characteristics decisively contributed to the socio-spatial variation in 1991 and 2001 and for which types of characteristics there was major change during first 10 years that followed departure from centrally planned economy. Second, using indexes of segregation we answer whether there has been growth or decline in spatial variation for particular population characteristics. As title suggest and against expectations, the overall residential differentiation diminished during capitalism. Third, we identify concentration areas of subpopulations with particular characteristics (such as university educated, elderly or Roma) that exhibited highest levels of segregation indexes, through the identification of basic settlement units with the highest shares of these subpopulations on the total population. We especially focus on those areas that exhibited major changes between 1991 and 2001. The analysis shows that the level of concentration in these geographical areas has increased between 1991 and 2001. Finally, we place the results of previous analyses to a wider context of changes in socio-spatial structure in post-socialist Prague with an emphasis on ongoing processes of segregation pointing to the paradox of post-socialist urban change, when segregation processes lead to decline in the segregation understood and measured as residential segregation while leading to increasing spatial concentrations of particular social groups and in some cases producing distinct forms of segregated and separated localities.

Keywords: postsocialist, city, segregation

Marie-Eve Sylvestre, University of Ottawa. Email: Marie-Eve.Sylvestre@uottawa.ca; *Ensuring Homeless Persons' Rights: Law, Soft Law and Police Discretion in Montreal, Canada*

Despite their relatively old history, policing practices emphasizing enforcement of criminal laws against disorder enjoyed a renewed popularity in the 1990s and continue to draw a lot of public attention in different cities around the world. Drawing on insights from American broken-window theorists, Canadian cities participated in reaffirming and developing these policing trends as they resonated with local and national concerns. In Montreal, contrary to other Canadian and American cities, the provincial legislature and the municipal council did not adopt new legislation in order to fight against antisocial behavior. The police rather decided to adopt a directional statement or policy on disorder, agreed on a list of antisocial acts to be closely monitored and followed at a regional level, included 26 new operational codes and asked every neighborhood station to establish their own priorities and enforced existing pieces of legislation related to such priorities. In this paper, I look into how homeless people's rights and access to public spaces are negated by law enforcement, but more importantly by internal policies, operational codes and directives (sometimes joined under the label of soft law) and daily use of police discretion. I show how a general concept such as disorder takes on a very specific meaning in the field focusing on public disorders (as opposed to private) and on certain groups or individuals, chief among them, the homeless and the poor. I finally point out to some of the consequences for ensuring homeless people's rights.

Keywords: Rights, Space, Homelessness

Kristin M. Sziarto, University of Minnesota. Email: szia0001@tc.umn.edu; *Spacing negotiations in religion-labor alliances: the Twin Cities Workers' Interfaith Network*

The Twin Cities Workers' Interfaith Network (TC-WIN) is one of seventy religion-labor alliances in the U.S. that have formed since the early 1990s. This paper investigates the co-constitutive practices and spatialities that characterize these emerging political actors. First, the paper outlines the formation and socio-spatial practices of TC-WIN. Then, through a case study of TC-WIN's support of a hospital workers' contract campaign, this paper examines how the progressive agenda of the group has been thwarted by the space-times of contract negotiations and knowledge production (on the union side), and the space-times for creating legitimacy (on the faith side). The union's well-crafted strategy included rank-and-file intensive organizing and a corporate campaign?the latter demanding public accountability of a non-profit hospital system providing inadequate health insurance to its own workers. TC-WIN's campaign role required negotiation of not only the power relations within religious adjudicatory bodies, but also of allied clergy and core alliance members' commitments to faith-tradition-based criteria for 'respectful' interaction, to particular standards of truth verification, and to maintaining their legitimacy (in the eyes of congregants, religious leaders, and other faith-based organizations). This analysis is based on participant observation throughout the campaign, interviews with coalition members and other union staff, and internal documents and public reports from the campaign.

Keywords: alliance politics, labor, religion, health care workers, Minneapolis

Gregory Taff, Univ of North Carolina. Email: gtaff@email.unc.edu; *Drivers of Landuse and Landcover Change in Gauja National Park, Latvia*

The fall of the Soviet Union has led to new patterns of landuse and landcover change (LU/LCC) throughout the former Soviet Union and Eastern Europe. Differing post-Soviet land reform policies and differing social and economic conditions within the region have led to a diverse array of landscape dynamics in protected areas throughout the region. To identify influential drivers of LU/LCC in the region, a case study of Gauja National Park, Latvia is studied, and multivariate statistical models are employed to assess the effects of geographic variables, land management zones, political boundaries, and geo-referenced social survey variables on LU/LCC within the Park. A time series of Landsat TM satellite images spanning from the late Soviet era (1985) through recent times (2002) is used to create outcome regression variables representing LU/LCC. Multiple data layers in a Geographic Information Systems (GIS) database are used to represent the aforementioned independent variables explaining variation in the LU/LCC variable. Results may be used to identify commonalities in landscape dynamics in post-Soviet countries, determining likely drivers of landscape changes throughout the region.

Keywords: remote sensing, GIS, landuse change, landcover, Latvia, post-Soviet, drivers

Derek James Tait, Northeastern Illinois University. Email: djtjune3@hotmail.com; *Consumption of Place: Exploring the Sociospatial Implications of the Coffee Trail and Agrotourism in North Central Nicaragua*

In recent years there has been an increase in the promotion and development of rural tourism in Nicaragua. The growth in foreign aid to foster "sustainable development", rural tourism, and tourism marketing has led to an increase in various sectors of tourism, including agrotourism. More specifically, this growth can be evidenced in phenomenon like the nascent coffee trail in the north central highlands of Nicaragua. This poster explores the sociospatial and cultural implications of coffee agrotourism.

Keywords: coffee, tourism, Nicaragua

Lois M. Takahashi, UCLA. Email: takahash@spa.ucla.edu; *Disruptive Social Capital: Exploring (Un)Healthy Socio-Spatial Interactions among Filipino Men living with HIV/AIDS*

Social capital has become widely accepted as a means for addressing a large range of issues. Its popularity is due in large part to its commensurability with community-centered strategies on the one hand, and neoliberalist state retraction on the other. But, as scathing critiques have asserted, expanding trust and reciprocity in resource poor communities cannot enhance economic opportunity and overcome social inequality precisely because of limited access to resources. But more importantly, there has been little engagement with the spatial dynamics of social interactions. This paper uses these critiques as a starting point to offer a conceptual framework assuming socio-spatial disruption in daily and life paths. The disruptive elements of social capital provide an opportunity to understand how the simultaneous advantages and disadvantages argued by scholars presented by social capital results in both enhanced coping with life disruptions, but also increased illness, injury, or death. HIV/AIDS among Asian Pacific Islanders (APIs) provides the focus for exploring disruption in social capital. While HIV/AIDS is recognized as critical for communities of color in the US, APIs are characterized as underrepresented in reported AIDS cases, and therefore, at low risk by both policy makers and by the communities themselves. Qualitative analysis of interviews with 52 Filipino men living with HIV/AIDS in Los Angeles highlights the particular socio-spatial dimensions of disruption influencing the linkages between social capital and health. The paper concludes with suggestions about ways to move research forward to highlight the disruptive dimensions of social capital.

Keywords: social capital; HIV/AIDS; disruption; Asian Pacific Islanders

Richard Taketa, San Jose State University. Email: rtaketa@email.sjsu.edu; *GIS Support for Habitat for Humanity-Guatemala*

Geographic information systems are widely applied to many aspects of hazards research. These include identifying hazardous locations, assessing vulnerable populations, and designing and evaluating mitigation, response, and recovery plans. Often, we have to take what data we can get and use it to address problems of interest. For example, data to examine Hurricane Stan's impacts on houses built by Habitat for Humanity in Guatemala are limited. However, the USGS performed a detailed examination of Guatemalan mudslides in the aftermath of Hurricane Mitch in 2000. This presentation will discuss how data gathered for Hurricane Mitch is being integrated with other data, more recently acquired data to provide information supporting Habitat's location planning.

Keywords: gis, guatemala

Christine Tamasy, The University of Auckland, SGGES. Email: c.tamasy@auckland.ac.nz; *Regional Entrepreneurship Dynamics in a Neo-liberal Context*

The presentation analyses entrepreneurship dynamics in New Zealand's Territorial Authorities over the 2001-2005 period. Using the Business Demographics Statistics (BDS) database, it first examines the variation of entries and exits of firms over space and time. The empirical investigations show that New Zealand exhibits marked spatial differences in entrepreneurship dynamics, while the entry and exit rates are rather steady over time at the level of Territorial Authorities. The second part of the presentation is devoted to the impact of entrepreneurship on spatial variations in employment growth figures of the whole business population in New Zealand. Theory-based linear models are developed to explain regional economic performance over a five-year period. The level of entrepreneurial activity, concentration, firm size, industry intensity and business density are significantly associated with differences in employment growth rates at the regional level, while business diversity and the level of skilled entrepreneurs have no explanatory power. Implications of the findings for policy makers and politicians in New Zealand are discussed.

Keywords: Economic geography, entrepreneurship dynamics, employment growth, New Zealand

James D Tamerius, University of Arizona. Email: james.tamerius@gmail.com; Andrew C Comrie, Ph.D, University of Arizona. Email: ; *Subregional Winter Precipitation Variability in US Southwest*

Winter precipitation in the US Southwest is highly variable both temporally and spatially. Ocean-atmosphere teleconnections can cause large inter-annual variations in winter precipitation, while topographic features play a pivotal role in the spatial distribution of precipitation through orographic processes. General climatological rationale suggests that the ratio of winter precipitation accumulation between neighboring sub-regions in the US Southwest to be relatively consistent from year to year since large scale synoptic systems are the source of such precipitation. However, recent analyses of fine-scale precipitation has indicated that neighboring sub-regions within the Southwest often experience precipitation anomalies that significantly differ from one another. Utilizing PRISM 4km-gridded precipitation data and fine-scale atmospheric data from the North American Regional Reanalysis (NARR), we identify local and regional atmospheric factors that cause the anomalies, and highlight sub-regions most prone to deviations from broader regional patterns. Understanding these phenomenon may lead to improved seasonal climate predictions for the US Southwest.

Keywords: Climate, Precipitation, Winter, Subregional

Ilona Tamminen Moore, University of Minnesota. Email: moorei@umn.edu; Rethinking Responsibility: the question of the subject of ethics

This paper is a theoretical engagement with conceptualizations of space and the ethical subject; particularly, the aporia of social justice (as it is a liberal framework with implicit universals that is necessary to appeal to while recognizing that it constantly violates) in postcolonialism. In postcolonial studies, questions of historicist time and the universal subject have been widely written on; the role of conceptualizations of space has been less discussed. Taking up the issues of time and the universal subject in the context of liberal justifications of empire, I discuss the work of geography and conceptions of space in producing certain understandings of responsibility. Questioning the roles of history, geography and the subject in liberalism and in colonialism, I follow the work of Spivak to ask the question of the subject of ethics (particularly the aporia of social justice in postcolonialism). Spivak's writings on responsibility, which emphasize it as a right not a duty, make the subject of ethics a question while posing the ethical as never fully knowable. This approach allows me to draw out aspects of what discussions of the ethical subject can bring to conceptualizations of space and geography, and thus in turn what rethinking space (with Massey) can bring to engagements with ethics and responsibility. Questions of space and responsibility tie into postcolonialism, because to rethink the subject and the ethical, we must also reconceptualize our understandings of space.

Keywords: postcolonial, geographies of responsibility

HungJen Tan, . Email: brucetan@ntnu.edu.tw; Regionalizing tea development or developing tea region: a case of the Formosa Oolong tea

Longtan and Peipu are two rural areas situated in separate counties. Their developmental processes would be introduced about how tea industry regionalized the two areas, and how the areas binds each other and forms a production network where resources are utilized and network relations are conditioned by conventions. These areas are Hakka settlements and Hakka cultural is the stereotypical image of the areas. Hard-working, diligent and solidarity are the most well-known conventions of the Hakka people. These conventions also show that the people-place relations in these areas, which are still common, play an important part in agricultural production. Tea has been one of the main agricultural products in these areas. It had been the main export from the Japanese colonial period to the late 80s and dominated local economy. However, since it had been overridden by its foreign competitors, the local tea industry has been shrunk as a local food providing for local people only. Not until recently, some quality changes occurred and the tea soon gains high reputation and market price. Not only has it revived local economy but also connected other areas as more tea farmers take it as the resolution to the depressed local economy. The paper would examine how the northern rural Taiwan restructures itself and forms a new region. It is argued that relational proximity has been as important as, if not more important than, geographical proximity in forming a region.

Keywords: Tea, relational proximity, ANT

Serene Tan, York University. Email: serene@delightt.com; Chinatown: Clashing Cosmopolitan Civilisations?

Vinay Dharwadkar named, "the empowerment of new immigrant communities in the national public spheres of the North and the West, as diasporic populations from the South and the East attained an economic and demographic critical mass in their host societies" as one of the "three large-scale developments around the world between about 1975 and 1995 [that] contributed directly to [a] transformation of cosmopolitanism" (2001:1). In this paper, I

name Chinatown an "immigrant communit[y]" that has evidently "attained an economic and demographic critical mass" (ibid.). I posit that the distribution of Chinatowns over the world is an example of globalisation as it is commonly understood. Pheng Cheah notes that "the Chinese diaspora in Southeast Asia - cosmopolitans in the colloquial sense of rootless merchant sojourners - have become the best example of Chinese cosmopolitanism in the normative sense" (2001:135). This paper explores the creation and propagation of a 'Chinatown identity' that is informed via geographical imaginations. A comparative analysis of case studies from both North America and Southeast Asia will draw out a preliminary conception of the nature of Chinatown identities and explore how the constructed imagery of each locale informs these identities. These myriad identities contribute to create a globality that informs its geographical imagination.

Keywords: Chinatown, globalisation, Chinese diaspora, cosmopolitanism

May Tan-Mullins, National University of Singapore. Email: maymullins@yahoo.com.sg; Re-mapping the politics of aid: The changing structures and networks of humanitarian assistance in post-tsunami Thailand

The 26 December 2004 Indian Ocean Tsunami caused massive human and economic destruction. In this paper we argue that the international response to the tsunami exemplifies a shift in the way humanitarian aid is sourced and delivered, and tease out a framework for understanding the continuities and discontinuities that led to differential distribution across a range of sites in Southern Thailand. On the one hand we examine the degree to which we can understand differential aid distribution in terms of persistent characteristics in the political economy such as lack of transparency and corruption. We also consider the importance of 'traditional' structures, networks and resiliences and their role in influencing aid distribution. But these sorts of explanations must be nuanced in light of the emergence of new aid linkages and networks, particularly the move from formal organisations to individualised and direct donations. We suggest these patterns reflect new abilities of communities to mobilise transnational networks, a more participatory approach to aid donation and an opportunity to re-map the multi-scalar politics of aid.

Keywords: Politics of Aid, Boxing Day Tsunami, Southern Thailand, Networks, Structures, Power Relations.

Junmei Tang, Texas State University - San Marcos. Email: jmtang@txstate.edu; Modeling urban landscape dynamics through fuzzy CA model

Understanding the extent, distribution and evolution of urban landscape provides key information in analyzing and explaining urban structure. The most commonly used data for the spatiotemporal model is the crisp classification results from satellite data. These results are often not valid for urban landscape process model due to the complex spatial arrangement of artificial and natural material in the urban. In this paper, we focus on the development, implementation, and evaluation of a new fuzzy Cellular Automata (CA) model to measuring the urban landscape change in downtown area of Houston, Texas using Landsat ETM+ imagery. Particularly, we will investigate how the input data affect the model development, calibration, and validation and attempt to provide a research linking the advanced remote sensing method and the urban process model. The validation results indicate that the fuzzy CA model performs better than the crisp CA model. Further, this research indicates that the fractions maps from the fuzzy classification can also be integrated into a wide range of model concerned with physical and socioeconomic phenomena in cities.

Keywords: fuzzy, CA model, Urban

Kathy Xiaoyu Tang, . Email: ktang28@uwo.ca; Jason Gililand, . Email: ; Isaac Luginaah, . Email: ; Using a GIS-Based Floating Catchment Method to Measure Spatial Accessibility to Family Physicians

It is well known that primary healthcare service especially access to family physicians is an important form of healthcare for the overall population health. The national family doctor shortage and unbalanced geographic distribution of family physicians has long been recognized as a problem in Canada. In the province of Ontario, over one million people do not have the services of a family doctor. Traditional measures of geographic accessibility to healthcare service, such as a straight line distance to nearest provider, and a simple supply level within bordered area, do not consider either real travel distance or the interaction between supply and demand across administrative borders. With GIS technology, better measures of spatial accessibility can be achieved. This research mainly presents a GIS-based floating catchment method for measuring spatial accessibility to family physicians based on 2006 Census and family physicians' data in London, Ontario, Canada. A sensitivity analysis is also conducted by experimenting with various threshold values ranging from 15 to 30 minutes travel times in the GIS-based floating catchment method.

Keywords: GIS, spatial accessibility, floating catchment method

Sheng-Jung Tang, Texas A&M University. Email: dudu0726@yahoo.com.tw; Hongxing Liu, Texas A&M University. Email: liu@geog.tamu.edu; Kenneth C. Jezek, Ohio State University. Email: jezek@frosty.mps.ohio-state.edu; Derivation of Ice Motion measurements of the Antarctic Glaciers from Sequential SAR Images using Hierarchical Image Matching Method

This research studies the glacial dynamics of the Antarctic Ice Sheet using sequential orthorectified Radarsat SAR images respectively acquired in 1997 and 2000. We have improved an image matching algorithm using hierarchical strategy to track ice motions and to derive their velocities. The hierarchical strategy is based on an image pyramid processing. The earlier image correlations are performed with coarse-resolution images. Then the matching at a coarse-resolution will be propagated to guide the later high-resolution searches. It achieves the computation efficiency and high matching density by reducing search space. In addition, the introduction of interesting points operator also increases the matching rate and improves the density of velocity measurements. The ice motion velocities for a number of major glacial systems have been measured using our algorithm.

Keywords: remote sensing, radar image, image matching, ice dynamics antarctic, cryosphere

Wenwu Tang, University Of Iowa. Email: wenwu-tang@uiowa.edu; David A. Bennett, University of Iowa. Email: david-bennett@uiowa.edu; Agent-based modeling of adaptive spatial decision-making in complex geographical systems: a reinforcement learning approach

The objective of this paper is to investigate the significance of reinforcement learning in an agent-based model of spatially adaptive decision-making entities within a complex adaptive geographical system. To test the utility of this approach elk in the Northern Range of the Greater Yellowstone Ecosystems are modeled as geographically-aware intelligent agents, which often play a key role in driving complex systems dynamics. Reinforcement learning is a machine learning approach that uses temporal difference learning and delayed reward mechanisms for problem-solving and it is well-suited to modeling the adaptive behavior of decision-making entities that interact in complex systems. To maximize winter survival during migration, elk agents employ reinforcement learning strategies to develop adaptive migratory behavior. This behavior is based on spatiotemporal knowledge developed through interaction with dynamic biophysical processes (e.g., biomass and snow). We use observed and simulated biomass and snow datasets to test our model and gain insight into the complex ecosystem dynamics within which elk interact. We examine the performance of different reinforcement learning algorithms in modeling the adaptive behavior of elk within a spatial and temporal context. Experimental results from Monte Carlo simulation show that reinforcement learning efficiently support the exploration of spatial adaptation of individuals in response to landscape heterogeneity.

Keywords: Intelligent agents, adaptive behavior, reinforcement learning, elk

Yanbing Tang, University of Georgia. Email: ytang@uga.edu; Exploring Atlanta's Urban Poverty by Spatial Regression Models

The majority of existing statistical analyses on urban poverty assume spatial stationarity, which in reality may be inappropriate. This research investigates spatial nonstationarity of urban poverty by using spatial econometrics. The causal relationships among poverty, demographic, and socio-economic variables in the Atlanta metropolitan area are investigated. This research has two objectives: the first is to enhance statistical methodology in the analysis of urban poverty and the second is to identify those variables that affect poverty rate and determine the strength of the influences. Exploratory spatial data analyses are first used to describe spatial association and spatial heterogeneity of poverty distribution. After spatial weights matrix is constructed, several spatial statistical models (including the spatial autoregressive-regressive model, the spatial autoregressive error model, the spatial Durbin model, and the general spatial model) are employed and the best model is identified based on several criteria. Since spatial models can catch some spatial dependence, they generate better coefficient estimates than conventional statistical models. A general spatial model, which takes the spatial lag and spatially correlated disturbance into consideration simultaneously, is found to be the best model. While generally racial residential segregation, female-headed families, movers, kids and elders, unemployment rate, and low educational attainment have positive influence on poverty rates, household income and employment in primary and secondary industries have negative effects on poverty rates. Surprisingly, higher percentages of African Americans are correlated with lower poverty rate, which raises an issue that needs further research.

Keywords: Atlanta metropolitan area, urban poverty, spatial regression models

Sirpa Tani, University Of Helsinki. Email: sirpa.tani@helsinki.fi; Lieven Ameel, University of Helsinki. Email: lieven.ameel@helsinki.fi; Re-interpreting Urban Public Space: the Case of Parkour

Parkour is a physical discipline created in the late 1980s in the suburbs around Paris. Key figures in its development were David Belle and Sebastien Foucan. Its aim: to move as efficiently, fast and smoothly as possible from one place to another by jumping, vaulting and climbing, using obstacles on the way as a means to reach further. Although parkour can be practised in all kinds of environments, it is usually connected with urban spaces. From the viewpoint of geography, parkour raises some interesting issues. First, it can be seen as a new way to 'read' everyday urban environments. It attaches positive meanings to spaces that have usually been seen as banal, boring or even ugly. Practitioners of parkour (traceurs) interpret their environment by paying special attention to physical structures of space. Buildings, fences, rails and walls offer challenges for traceurs. Modern urban areas, especially suburban neighbourhoods with concrete buildings, rundown industrial areas and business districts, which can usually be seen as non-attractive environments, are valued as the most interesting areas for parkour. Secondly, traceurs' encounters with other people, for example with passers-by, security guards and the police make the unwritten rules of how to use public space visible. In this presentation, the everyday aesthetics of banal landscapes, as well as the possible conflicts in traceurs' ways to use public space, will be discussed.

Keywords: parkour, urban space, banal landscape, public space, everyday aesthetics

Kathryn Tanner, Sarah Lawrence College. Email: ktanner@slc.edu; Networks and Economic Exchange

In what ways are seashells traded internationally for the political and economic advantage of individuals or communities? What implications and global dimensions does this trade involve? While baseline studies have been conducted about seashells in Tanzania (Marshall 2001, Richmond 1997, Spry 1961), this paper will focus on the socio-economic and global dimensions of this trade issue. The global value chain of seashells, traced from production in Tanzania to ultimate user in India, is a deeply embedded economic activity within social networks at every link in the chain. While more formal and large-scale industries rely on other means for vertical coordination systems within the value chain, the seashell value chain relies on personal, familial or religious networks to facilitate trust and confidence in economic exchanges. The link between the export sector in Tanzania and the import sector in India is also socially embedded. These business relationships are formed along ethnic, religious, and (in some cases) familial lines. This paper will show that social networks are essential for the functioning of the seashell trade between Tanzania and India. This essay will demonstrate the connections between power and trade through access, quality, and legislation. While trade is typically considered strictly in the realm of the 'economic', this research shows that the seashell trade is embedded in the 'social', 'religious', 'cultural', and 'political' at every node in the chain.

Keywords: Value Chain Analysis, Networks

Teresa C.H. Tao, University of Waterloo. Email: c2tao73@gmail.com; Geoffrey Wall, University of Waterloo. Email: gwall@fes.uwaterloo.ca; Sustainable Development, Sustainable Tourism, and Sustainable Livelihoods

Since sustainable development was publicised in 1987 by the World Commission on Environment and Economy, it has been incorporated in the regulations of international organizations and the legislation of many jurisdictions throughout the world. Nevertheless, it has not proven to be easy to implement the concept. Also, when conceived as mediating tensions between environment and economy, the role of culture is often underplayed. Nevertheless, many economic sectors have embraced the concept and, in this vein, sustainable tourism is a term that is commonly used. However, in focussing on a single sector and attempting to sustain that, it is possible that sustainable development more generally conceived may not be achieved. The notion of sustainable livelihoods offers a more practical way forward because livelihood is a much more tangible concept than development and it is easier to comprehend and use to guide research and practice. In marginal communities in peripheral locations many individuals are sustained by multiple strategies, both within and outside of the market economy, rather than specific jobs. In such situations, it is especially important that tourism complement rather than replace existing livelihood sources leading to livelihood diversification. Studies of sustainable livelihoods in two aboriginal communities in Taiwan illustrate the relevance and utility of the sustainable livelihoods framework and also suggest modifications that are required if the sustainable livelihoods approach is to be made even more useful.

Keywords: Sustainable livelihoods, indigenous people, culture, Taiwan

Wendy Tao, University of California, Berkeley. Email: wendytao@berkeley.edu; Shomik Mehndiratta, World Bank. Email: ; Elizabeth Deakin, University of California, Berkeley. Email: ; *Pedestrian Negotiations on Road Space: Crossing Behavior on Urban Arterials in Fushun, China*

Nearly 100,000 died in road traffic accidents in over 450,000 traffic incidents during 2005 in China. Based on accident characteristics, 26 percent of all deaths occur with pedestrians conflicting with a motor vehicle. This study focuses on pedestrian safety issues in medium-sized cities in China, taking the case study of Fushun. The paper examines the Chinese arterial as a contested space emerging amidst China's fast-paced development, using focus groups, pedestrian count data, and surveys to elucidate pedestrian movement in these spaces China's urban fabric has become textured with arterials of eight lanes or more that efficiently circulate vehicular traffic, but simultaneously create wide crossing distances for pedestrians, increasing conflict exposure, affecting pedestrian safety and having potential longer-term effects on traffic flows. Pedestrians cross mid-block on large arterials because of personal convenience, long distances (300-500 meters) to crosswalks, and perceived crossing safety. With regards to infrastructure, pedestrians dislike skybridges and strongly agree that cars do not slow down at designated physical zebra crossings. Instating fines, barriers and enforcement are all mechanisms which surveyed participants believe would change crossing behavior. Despite perceived danger of arterials, pedestrians also believe that wide streets are symbols of modernization and should not be narrowed. Given crossing behavior and attitudes of pedestrians, investment in road infrastructure must include design for motorized and non-motorized vehicles, but also for pedestrians. Examining how road space is negotiated on a microscopic scale provides an analysis of urban form on pedestrian activity in Chinese cities and lessons for effective long-term transportation planning.

Keywords: transportation, china, planning, urban development, infrastructure, pedestrian

Dana H Taplin, Ph.D., City University of New York. Email: dhtaplin@earthlink.net; *Different Geographies: Imagination and Practice in Geographical Discourse*

What is a geographical imagination? We think, for example, of the mapmaker's survey-like image of geographical space, the planner's color-coded expanse of ordered land uses, and the designer's three-dimensional images of space and mass, or of landscape. Harvey wondered whether the sociological imagination and the geographical imagination could understand each other. I wonder about the different varieties of geographical imagination. How do you get people who incline toward the appearance of things to wonder about social difference and inequality? How can rationalists be made interested in the content and psychological value of people's attachment to places? The answer may lie in exploring the difference between imagination and practice: the mapmaker makes representations, planners rationalize systems of activity and communication, and designers shape masses and give detail to the surfaces. A real estate development controversy such as the Atlantic Yards development proposal in Brooklyn offers an example of different geographical imaginations. The pro-development camp imagines a self-contained urban space on an exhilarating super-scale rising on an ugly rent in the parochial 19th century rowhouse landscape. Opponents, nearly all residents rooted in the pleasant sensibilities of place, fear the disruption likely to result from a new space of colossal size and abstract scale. The different sides in the conflict imagine geography differently in part because of different practice. I hope to give a paper that uses everyday conflicts over urban space like this one to explore the differences in geographical imagination and the possibilities of coming to multiple understandings.

Keywords: geographical imagination, urban geography

Tuna Tasan-Kok, 90019477, Dr.. Email: tuna.tasankok@asro.kuleuven.be; Tom Coppens, KU Leuven. Email: tom.coppens@asro.kuleuven.be; *Complexities of multi-level governance, diverse coping strategies, and implementation processes of waterfront projects: Cases of Rotterdam and Antwerp*

Within the European context, general characteristics of urban policy for regeneration are the overwhelming emphasis on small-area regeneration; discrete projects and output related funding instead of strategic visioning and long-term perspective (Carter, 2000). In addition, the involvement of multi-actors with different expectations makes the implementation of strategic projects very complex. While increasing emphasis is put on developing governance regimes at city (or regional) level, partnerships between public and private actors arouse as policy instruments for implementation. Each city develops a different strategy for coping with these complexities at different levels of policy making and each has different implementation experiences, either long or short. This paper focuses on how complexities of multi-actor governance influence the implementation process of strategic waterfront projects. We start from a game-theoretical theory of collaboration as a foil to explore real collaboration processes in inter-

organisational settings. This allows us to highlight some critical collaboration problems. Next, we examine successful and less successful strategies of different actors to cope with these common issues in different regeneration projects. We compare old-port regeneration projects of Kop van Zuid in Rotterdam and Het Eilandje in Antwerp to see how similar issues were approached in different institutional contexts. Belgium has a federal state system where responsibilities are decentralised to regions (Flemish, Walloon and Brussel regions) whereas in the Netherlands the central government is the strongest and unified authority. These macro level regulatory differences, together with the differences in social, economic and political characteristics, are reflected to the urban policy level.

Keywords: governance, regeneration, waterfronts

Jeremy Tasch, University of Alaska, Anchorage. Email: Jeremy@uaa.alaska.edu; Graeme Auton, University of Redlands. Email: Graeme_Auton@redlands.edu; *Nivkhi, Oil, and Justice on Sakhalin Island*

The simultaneity of Russia's on-going restructuring, which includes rebuilding the economy, rewriting legislation while contending with intergovernmental relations, and recreating federal center-periphery relations, effects and further complicates the relations between civil society, international capital, and resource management. The past 80 years of oil development on Sakhalin Island have contributed to environmental disruption, indigenous people's loss of territory, and uneven development. In its current charge into the modern, driven by an international thirst for oil and a Russian eagerness for capital, to whom is Sakhalin's environmental health of critical concern? Have the Nivkhi of Sakhalin managed to redirect Soviet-inflicted misfortune to post-Soviet territorial enfranchisement? How is the current and evolving geopolitical and socioeconomic matrix of interests on Sakhalin shaping rights, investment, and development? With respect to both environmental concerns and indigenous populations, rights are negotiated, often produced through resolution of conflict in specific places and times. Rights can be understood as a counterbalance to the uneven distribution of power in society. This research, by investigating a specific case of international oil, multinational finance, environmental suspicion, and Nivkhi self-determination, addresses the distinctive character of an emerging environmental justice movement on Sakhalin Island.

Keywords: Indigenous, Oil, Justice, Russia

Amanda S Tattersall, Ms, University of Sydney. Email: amandatattersall@gmail.com; Amanda S Tattersall, University of Sydney. Email: amandatattersall@gmail.com; *Coalitions in Global Cities*

Coalitions between unions and community organisations are increasingly used by unions to enhance their power and advance social change, and have become a focus of scholarship on union renewal and labour geography. Yet the elements and dynamics of successful long term coalition practice are not well understood. Similarly, there is little international comparative scholarship on the similarities or variations between coalitions as a strategy for renewal. This paper explores long term coalitions in three global cities, Sydney, Toronto and Chicago. Coalition studies often focus on best practice forms, and present a spatially blind understanding of how context affects coalition practice. In selecting three global cities I seek to locate coalitions as a strategy that can operate as a powerful agent for social regulation in global cities. Methodologically, selecting global cities as a site to explore coalitions provides for some control in case selection to assist comparative research across borders. It also begins to make explicit the geography of those coalitions. The paper identifies three common elements of coalition practice - common concern, structure of organisational relationships and the spatial context. The paper considers how coalitions have common features across these countries, and by developing a framework that seeks to dialectically explore the affects of both context and strategy, argues that there are common practices in coalitions between unions and community organisations across global cities.

Keywords: Global cities, labor geography

Emariana S. Taylor, M.A.G., Texas State University-San Marcos. Email: et1011@earthlink.net; *Perceptions, Risks, and Opportunities for Human/Wildlife Interactions in Urban Environments: An Examination of Bats and Rabies in Texas*

The morphology of modern American urban systems encroaches on natural areas presenting some wildlife species with ready access to food resources, habitat diversity, and safe harbor from natural predators. Consequently, cities have become home not only to growing human populations, but also to thriving populations of urban wildlife. Additionally, cities have become sites of increasing interactions between people and wildlife. Urbanites perceive the presence of urban wildlife populations in myriad ways, ranging from nuisances or hazards to welcomed guests. One strategy to mitigate any negative interactions, and to reduce risks for both humans and wildlife, is through public education. In the absence of a focused public education program, news coverage of human/wildlife interactions becomes a source of public information. In this way, the news media

has the potential to influence public perception, and ultimately, the nature of public perception can influence wildlife management strategies. This research examines the risks and opportunities presented by the close proximity of urban human and wildlife populations through a case study of bats and rabies in Texas. Rabies, a potentially lethal disease, is transmitted to humans through interactions with infected mammals, including dogs, cats, coyotes, foxes, raccoons, skunks, and bats. I use a content analysis of Texas newspapers to compare the portrayal of bat-human rabies transmissions to the portrayal of human rabies transmissions from other urban wildlife. I then compare the news portrayal of bat-human transmission incidents to factual data. Results provide ideas and implications for mutually beneficial management of urban wildlife populations.

Keywords: animal hazards, bats, rabies, urban wildlife, urban ecology, Texas-central

Janis L. Taylor, Scientific Applications International Corporation.
Email: jltaylor@usgs.gov; *Land Cover Change in the Erie Drift Plains, 1973 - 2000*

The U.S. Geological Survey's Land Cover Trends project is documenting land cover change in the conterminous United States from 1973 to 2000. The results are based on the geographic framework of the U.S. Environmental Protection Agency's Level III (1999) Omernik ecoregions. The estimates of land cover change for the Erie Drift Plains ecoregion were derived from analysis of 30 randomly selected 10x10 kilometer blocks. The 30 blocks were analyzed with Landsat imagery, supplemented by historical aerial photography, to interpret land cover for five distinct dates within the 1973 to 2000 study period. The Erie Drift Plains ecoregion is located in northcentral Ohio, northwestern Pennsylvania and southwestern New York. The ecoregion, a mix of agricultural, forested, and developed land, covers approximately 30,500 km² (11,776 mi²). Low rounded hills, scattered end moraines, kettles, and areas of wetlands are all common features in the Erie Drift Plains. Areas of urban development include Cleveland, Akron, Mansfield, Youngstown and Canton, Ohio. The overall spatial change?the percentage of land area within the ecoregion where land cover changed at least once between 1973 and 2000?was fairly low. Land cover changed on a total of 6.2 percent of the land area within the ecoregion. The most common conversions were forest and agricultural land converting to developed land. During the entire study period, three percent (925 sq. km.) of agricultural and forested land combined was developed. Other conversions were associated with agricultural and mining abandonment.

Keywords: land cover change, Ohio, Erie Drift Plains, agricultural abandonment

Jonathan Taylor, PhD, California State University - Fullerton. Email:
jstaylor@fullerton.edu; *Okinawa: The Political Ecology of a Military Colony*

Okinawa is a subtropical island halfway between the southernmost main island of Japan, Kyushu, and Taiwan. Its location between Southeast and Northeast Asia gives it a distinctive flora and fauna and the highest level of biodiversity of any region of Japan. However, it is currently experiencing an environmental crisis which is endangering many of its unique terrestrial and marine endemic species. Deforestation, soil erosion, the siltation of rivers, non-point pollution from agriculture, public works projects, and residential development are all contributing factors. Underlying these biophysical problems and processes are a host of political-economic issues related to Okinawa's peculiar situation as the host of a large number of US military bases covering some 20% of the island's land area. While the activities of the US military are directly responsible for only a small percentage of the island's environmental problems, the larger problem is the indirect effects the base situation has had upon Okinawa's political, economic, and environmental history. Environmental controversy is continuing with the planned construction of a heliport facility near a sensitive coral reef area.

Keywords: political ecology, military, environmental, Japan

Laura Taylor, University of Toronto. Email: laura.taylor@utoronto.ca;
The ideology of the country and the city in planning for urban expansion

The city's edge is a cultural landscape of conflicting and competing meanings. The visible, physical edge of rapidly urbanizing cities is emotionally charged, representing prosperity to some, and sprawl and environmental destruction to others. This paper is drawn from my dissertation: a cultural landscape study of city expansion at the edge of the Toronto-centred region, where urban growth pressures are as intense as anywhere in North America or Europe. My research reveals the interplay of cultural processes in geographical space and moves beyond contemporary debates of sprawl and smart growth to analyze discourses around urban growth boundary expansion. What cultural values are revealed when country and city collide? On one hand, the social and economic forces behind urban growth are based on embedded cultural values such as single family home ownership, full employment, personal mobility, and engagement with nature. On the other hand, as cultural landscape "countryside"

has agency, by virtue of its material thereness—be it farmland, forests, or plains, it has a powerful presence. In the debate about urban growth, the countryside is valued differently by different individuals and groups. Using discourse analysis (text analysis of public planning process documents and popular media), participant observation of public meetings, and interviews with informants, my analysis reveals that cultural attitudes toward growth and conservation are informed by symbolic landscapes of country and city and these are implicated in the production of real landscapes and places.

Keywords: cultural landscape; urbanization; suburbs; exurbs; culture/nature

Lowry Taylor, Ph.D, U.S. Department of State. Email: taylorlx@state.gov;
Geospatial Information Management and Humanitarian Response

Geography has long served American foreign policy by providing a perspective on issues that are best seen in a spatial context. The themes of location, place, human-environment interactions, movement and region all have bearing on how humanitarian responses to crises are managed in the international context. This paper examines the variety of international and USG venues for harnessing geospatial information management and tools that lead to a dynamic approach to the analysis of humanitarian problems, such as natural disasters (earthquakes and tsunamis) and man-made disasters (Darfur and infectious diseases). Over the past several years, the United Nations has deployed Humanitarian Information Centers in remote locations to support geospatial information management during humanitarian crises. The Department of State has created a new geographic unit composed of geospatial and humanitarian affairs analysts drawn from a spectrum of agencies to identify, collect, analyze, and disseminate humanitarian-related information and data for decision support. This unique character of the unit allows it to draw together information from diverse sources and to provide information to an array of customers. This process of geospatial information management, geographic/humanitarian analysis, and dissemination is invaluable to policy makers and to countries experiencing crises.

Keywords: GIS, Humanitarian, Environment, Hazards

Mark Patrick Taylor, PhD, Macquarie University. Email:
mark.taylor@mq.edu.au; *Contamination of natural and human-related environments with heavy metals: an assessment of the exposure and risk to the urban population of Mount Isa, Queensland, Australia*

This paper discusses the storage, transfer and cycling of heavy metals within soil, sediment and water systems around Mount Isa, Queensland, Australia. Mt Isa Mine is a major Pb-Zn-Cu mine that lies immediately adjacent to Mount Isa City that has a population of ~23,000. The ephemeral flowing Leichhardt River bisects the City and the Mine, contributing to Lake Moondarra, the City's primary basin for water capture and storage. Some 200 soil, sediment and water analyses of the river system and the urban area reveal that in many cases heavy metals (Cd, Cu, Pb, Zn) grossly exceed the safe guideline values set by the Australian Government for ecological health and resident housing. Local residents are exposed to potentially harmful doses of heavy metals via a range of pathways: indigenous communities recreating in the contaminated river bed; swimming in contaminated ephemeral pools; consumption of metal-enriched fish caught in Lake Moondarra and inadvertent ingestion of metals within the urban residential area. Presently, there is an absence of knowledge or Government advice relating to any of these potential hazards. This paper discusses the spatial and temporal distribution of soil, sediment and water-associated heavy metals and evaluates the risks they may pose to the environment and population of Mount Isa.

Keywords: Contamination, heavy metals, rivers

Matthew John Taylor, University Of Denver. Email: mtaylor7@du.edu;
Return Refugees and Biodiesel Feedstock Production on Guatemala's Pacific Coast

Even though biomass provides a vital source of energy to millions of families around the world in places like Guatemala, it is often ignored by politicians and energy analysts who focus on more sophisticated forms of energy. Indeed, thirty to forty percent of the world's population (mainly in less developed countries) already employs a form of renewable energy - biomass, and because alternative forms of affordable renewable energy are not going to reach the rural poor any time soon, it is vital to examine the potential of biomass fuels to alleviate energy poverty in rural areas of the developing world. This paper discusses how return refugee communities on Guatemala's Pacific coast have become involved in the cultivation *Jatropha* (*Jatropha curcas* L.). Seeds of *Jatropha* contain high levels of oil, which is easily extracted. Oil from *Jatropha* can be burned directly in simple stoves or sold to local biodiesel producers. The cultivation of *Jatropha*, which grows in soils not suitable for cash crops, can help alleviate a reliance on woodfuel for cooking and space heating. Moreover, *Jatropha* cultivation can also contribute to household budgets should households choose to sell the oil as feedstock to local biodiesel producers. This paper also discusses the political and economic factors that communities members overcame

to begin their participation in the cultivation of *Jatropha*.

Keywords: Guatemala, biodiesel, return refugees

Matthew G Taylor, University of North Alabama. Email: mgtaylor@una.edu; William R Strong, Ph.D., University of North Alabama. Email: wrstrong@una.edu; *Securing the Future: Sustainable Development in the United Arab Emirates*

In contrast to many other Arab countries, the United Arab Emirates (UAE) is experiencing remarkable economic growth. Formerly known as the Trucial States under British colonial rule, the region merged the individual states into the UAE in 1971. After the formation of OPEC and the divestiture of foreign companies' control of strategic oil fields, the UAE began to gain substantial income from petroleum sales. Under the leadership of Sheik/President Zayed, the UAE developed a plan for a wide variety of economic development activities funded primarily by income from petroleum sales. A huge and growing success is the Jebel Ali Free Zone which was implemented in 1985. There have been other developments in the basic infrastructure including roads, utilities, housing, and airports. Building upon this infrastructure, the UAE has invested in real estate development, hotels, and the tourist trade. As oil reserves dwindle in the future, the UAE is positioning itself to be a major economic and trade center in the Middle East with connections worldwide. This research traces the economic and geographic infrastructure developments since the country's formation.

Keywords: Sustainable Development, United Arab Emirates

Mike F Taylor, University of Brighton UK. Email: M.F.Taylor@bton.ac.uk; *Spacial Patterns of Touring Circuses Within Europe*

The main goal of this study has been to investigate a selection of present European circus tour routes. This area of study is conspicuously absent of any academic or trade literature. In addition the research, which has taken over four years and included field study interviews with circus proprietor's in eight European countries, analysis's circus tours patterns strategy. It also has examined the effects the European Union liberalisation policy has had on circus show content and subsequent tour routes development across national frontiers within Europe. Results indicate that the European Union has had little effect on circus tour route patterns, and although some minor liberation in sub regions has taken place the European Union liberalisation strategy has had little effect. Further new constraints will affect touring circuses, which could actually further inhibiting the free movement of touring circuses within the European Union. Implications for management and future research are included

Keywords: European touring circuses, tour routes, route patterns, European Union

S. Martin Taylor, University of Victoria. Email: vpr@uvic.ca; Sulan Dai, University of Victoria. Email: sdai@uvic.ca; *Socio-economic Restructuring and Health in BC Coastal Communities*

Communities on Canada's east and west coasts have experienced profound changes as a result of environmental and economic restructuring associated with the decline of traditional resource-based industries. These have significant implications for the health and well-being of individuals and communities. This study examines the relationship between socio-economic restructuring and health in four BC coastal communities - Port Hardy, Prince Rupert, Tofino and Ucluelet - using data from 66 in-depth interviews conducted to explore factors that influence people's ability to cope with the impacts of restructuring on individual and community health. The findings suggest that differences in health status are attributable to restructuring processes and major events in each community. Economic downturn is clearly linked to poorer health. Employment opportunities are central to the vitality of communities, key to the quality of life of their residents, and related to individual and community resilience or vulnerability. The study concludes that socio-economic restructuring has had an impact on the health of BC coastal communities. While traditional resource-dependent industries have declined, the emergence of new alternative economic activities has not been sufficient to counter the economic decline and associated employment and income stress brought about by the restructuring process. This study adds to the understanding of the complex relationships between socio-economic change in coastal communities and the health and well-being of their residents.

Keywords: restructuring, stressors, community, health, British Columbia

Yvette Taylor, Dr, Newcastle University. Email:

Yvette.Taylor@newcastle.ac.uk; *Turf Wars: Working-class lesbians and scene spaces*

Drawing on an ESRC funded project 'Working-class lesbians: Classed in a Classless Climate', this paper considers working-class lesbians' views, experiences and exclusions from commercialised scene spaces in the UK (Glasgow, Edinburgh, Highlands, Manchester and Yorkshire). The socio-economic inequalities operating in scene spaces have been given attention in terms of the structuring of scene space, via commercialism, regeneration and 'sophistication', serving to

produce upmarket and 'classy' scene space. Scene spaces are being recast as non-threatening commercialised sites and are accordingly hetero/homo-normalized, yet there has been virtually no attempt to understand such processes from the perspective of the meaning that working-class lesbians find in scene spaces. Devaluations occur through 'failure' to display, via appearance, the 'correct', 'gay' signifiers and so the use of these leisure spaces is rarely experienced as pleasurable reclamations. However, the women I interviewed were far from passive and in charting their responses I highlight their significant critiques of scene space(s) as 'middle-class', 'pretentious' and 'male'. Such sentiments ultimately affected a sense that it was not really 'their' space - even if, fraught and fragmentary, entitlement claims were still made upon it. The non-passive stance of interviewees can be seen to challenge and move beyond ideas of homo/heteronormativity and, in turn, confront wider discourses of the normalisation of lesbian and gay scenes/identities: many cannot and will not 'buy into' such processes.

Keywords: class, scene spaces, inclusion/exclusion, Post homo/hetero-normativity

Zachary P. Taylor, University of Tennessee. Email: ztaylor1@utk.edu; Chad S. Lane, University of Tennessee. Email: clane@utk.edu; Sally P. Horn, University of Tennessee. Email: shorn@utk.edu; Claudia I. Mora, University of Tennessee. Email: cmora@utk.edu; David Finkelstein, University of Tennessee. Email: dfinkels@utk.edu; *Lake Sediments as Archives of Spatially Varying Terrestrial Carbon Production: A High Resolution Test Using Surface Sediments from a Small Farm Pond in West Tennessee*

Lake sediment studies have traditionally relied on a single core, taken near the center of the lake, in the hope that it is representative of inputs originating from the entire watershed. This assumption may be true for microfossils such as pollen that may be well mixed by wind prior to deposition, and then subsequently mixed by lake sedimentation processes. However, larger particles of terrestrial organic matter that contribute to sedimentary isotope signals are less likely to be affected by mixing processes so the lake may preserve spatial variations. With this in mind, we hypothesize that stable carbon isotope values may vary spatially in the lake basin due to differences in sedimentation patterns, terrestrial carbon inputs, and autochthonous carbon production. In this paper, we evaluate this hypothesis using stable carbon isotope ratios of surface sediments collected in a high resolution grid from Myracle Pond, TN (35° 38' 19" N, 88° 09' 48" W, 124 m elevation). We chose this pond because of its small drainage basin, rapid sedimentation rate, and watershed neatly divided between hardwood forest, C3 grass, and an agricultural field rotated between corn and soybean cultivation. Preliminary analyses reveal up to 3 ? intra-basin variations in stable carbon isotope values, which correlate spatially with the spatial distributions of these land uses. Compound specific isotopic analyses will allow for the separation of allochthonous vs. authochthonous carbon isotope dynamics and further refinement of our understanding of terrestrial carbon delivery and stable carbon isotope dynamics in small watersheds.

Keywords: stable carbon isotopes, lake sediments

Carmen Tedesco, MA, Academy for Educational Development. Email: ctedesco01@yahoo.com; Laurine Thomas, PHD, Academy for Educational Development. Email: lathomas@aed.org; Frank Lawrence, MPH, Academy for Educational Development. Email: flawrence@aed.org; *Childhood Obesity Environmental Scan in Poor Urban Areas of Washington DC*

An emerging body of research examines how sociocultural and environmental characteristics of places influence the risk and occurrence of obesity, especially within children. Correlations exist between poverty and obesity and there is a rising prevalence of obesity in African American children. This formative research explores these issues through a case study of Ward 8 in South East Washington, DC, the section of the city containing the largest number of poor people, mainly African American, in the District. While fast food options are numerous, there is a dearth of quality nutritional options available. We examine the neighborhood in depth through an environmental scan, identifying access to fresh fruits and vegetables, and physical activity through parks, playing fields and recreational programs, as well as the safety of the blocks. The block-by-block observational surveys, a canvassing of every establishment selling food, and short surveys to store owners reveal an inadequacy of fresh foods and eating options, as well as a pattern of consumption of junk food amongst local youth. Focus groups with parent/guardians and surveys of youth will further illuminate structural and environmental characteristics of place and the association among environment, culture, nutritional and physical habits of youth.

Keywords: childhood obesity, community mapping, environmental scan, urban poverty, african american, Washington, DC

Carlos Teixeira, University of British Columbia Okanagan. Email: carlos.teixeira@ubc.ca; *Housing Experiences of Black Africans in Toronto's Rental Market: A Case Study of Angolan, Mozambican and Cape Verdean Immigrants*

Since the Second World War, Canadian society has been transformed by demographic, economic, social, and cultural changes. Immigration has played a prominent role in these processes, particularly Toronto - Canada's major urban area and traditional "port of entry" to immigrants. In recent years, the "internationalization" of immigration to Canada has increased the cultural, linguistic, religious and racial heterogeneity of Toronto's population. But while this immigration has been a significant engine of economic growth for Toronto, it has also contributed to the city becoming the most expensive housing market in the country, where new immigrants face the greatest affordability problems. This paper examines the housing experiences of three relatively recent African immigrant groups - Angolans, Mozambicans and Cape Verdeans - in Toronto's rental housing market through an analysis of their settlement experiences, housing search processes, and ultimate outcomes.

Keywords: Rental Housing; Black Africans, Toronto

Jana Temelova, Universita Karlova. Email: janatem@natur.cuni.cz; Martin Ourednicek, Universita Karlova. Email: slamak@natur.cuni.cz; Jakub Novak, Universita Karlova. Email: kubanov@natur.cuni.cz; *Forms of segregation in Czech cities*

Relatively homogenous Czech society started to differentiate during the post-socialist transformation. Economic conditions created by increasing income differences and diversification of housing supply as well as cultural factors stemming from internal heterogeneity and especially from immigration of foreign professionals as well as workers resulted in increasing socio-spatial differentiation in Czech cities. Although segregation has not reached levels comparable to American and West European cities the processes of transformation from previous socially-mixed pattern to more heterogeneous socio-spatial configuration has been shaping the urban social environment since the beginning of 1990s. The voluntary separation and enforced segregation of social, ethnic, cultural or other groups of population from the rest of society creates various forms of concentration. The main aim of this paper is to reveal and investigate the major forms of segregation and separation emerging in the Czech Republic. We summarise the main features of each type of segregation and separation and discuss factors that lead to the establishment and reproduction of identified forms of concentration. We demonstrate that different conditions in various Czech cities give rise to distinct sets of forms of segregation and separation. The research relies mainly on a questionnaire survey among local authorities and non-governmental organizations, fieldwork in selected case areas. We discuss specific features of segregation and separation in Czech cities in the context of theoretical debate of segregation in American and West European urban literature.

Keywords: segregation, forms, Czech cities

Cristina J Temenos, Simon Fraser University. Email: ctemenos@sfu.ca; *Talking Trash: The Politics of Waste Management and Sustainability in Whistler, British Columbia*

There is a growing body of literature that examines the use of the term "sustainability" and of sustainability-influenced policy frameworks as a "fix" for problems of economic, environmental, and social governance. Ideas surrounding economic, social, and environmental responsibility are often a prime motivator for the adoption of sustainability frameworks. The Resort Municipality of Whistler, British Columbia is one local government with a sustainability framework. Yet, in 2005 it began shipping its solid waste to a landfill in Redmond, Washington. According to the municipality this practice is in line with Whistler2020, its fifteen-year comprehensive sustainability plan that follows The Natural Step framework for sustainability. Whistler's waste management policy and practices raise questions of municipal, citizen, and visitor responsibility regarding waste management and the motives behind implementing a sustainability framework in resort communities. Using Whistler as a case study, this research explores the motives and practices involved in implementing municipal sustainability initiatives with particular emphasis on examining the ways in which notions of environmental, economic, and social responsibility are implicated in local policy-making; and clarifies the role that conceptions of responsibility by interest groups and institutions have in the creation of local ideologies surrounding sustainability. It seeks to unpack the mutually constitutive relationship between these ideologies and local policy discourse and practice. The paper will present preliminary research conclusions while considering their implications for the role of responsibility in the adoption of sustainability policies in other resort communities.

Keywords: waste management, responsibility, sustainability frameworks, British Columbia

Barbara Tempalski, PhD, MPH, National Development & Research Institutes, Inc. Email: tempalski@ndri.org; Risa Friedman, MPH, Universidad San Francisco dQuito, Quito, Ecuador. Email: risa_f@yahoo.com; Marie Keem, Doctoral Candidate, Teachers College Columbia University, New York, N.Y.. Email: mariekeem@yahoo.com; Hannah Cooper, Sc.D, National Development and Research Institutes, Inc. Email: cooper@ndri.org; Samuel R Friedman, PhD, National Development and Research Institutes, Inc. Email: friedman@ndri.org; *NIMBY localism and national inequitable exclusion alliances: The case of syringe exchange programs in the United States*

Background: People who acquire HIV through injection drug use (IDU) carry a double stigma - that of HIV and that of injector. The social and moral distance such stigma creates differs from place to place. This can carry over to HIV prevention services for IDUs, such as syringe exchange programs (SEPs). Opposition to facilities for stigmatized populations in need of services exemplifies the notion of NIMBY. We present empirical evidence that resistance to SEPs can be rooted in higher macro processes, than that of NIMBY, explicitly defined as LOCAL. This research examines socio-cultural and political processes that shape community and institutional resistance toward SEPs. Methods: Ninety-three interviews were conducted in 32 large metropolitan areas with community experts to explore existence, size, timing, and sources of opposition, support, and controversy regarding services to IDUs. Results: Emergent themes include: 1) repressive drug and syringe distribution laws; 2) harassment of drug users and resistance to services for drug users by local politicians and police; 3) government (in)action; and 4) stigmatization of drug users and location of SEPs in neighborhoods and business districts. Conclusion: Rather than being explained by NIMBY localism, such resistance seems best conceptualized as an "inequitable exclusion alliance" that institutionalizes national and local stigmatizing of drug users. Thus, what SEPs are confronted with is an attitude of rejection and resistance that is firmly entrenched in socio-cultural and national perceptions toward drug users. Thus, we have found, and often is the case, that this is a script by which action can be organized.

Keywords: syringe exchange programs, injection drug use, harm reduction, socio-spatial stigma, NIMBY, inequitable exclusion alliance

Travis Tennesen, University of Wisconsin-Madison. Email: tptennesen@wisc.edu; *Saving the Ranch to Save the Range: Cooperative Conservation in the American West*

Public land ranchers and environmental activists have a long history of conflict over the management of America's public rangelands. Sadly, many recent land use trends in the West?oil and gas development and the conversion of ranches into hunting cabins and hobby ranches, for example?often undermine both the cultural landscape of ranching and the natural amenities that conservationists seek to defend. Though the interests of environmental activists and ranchers may seem aligned in these cases, instances of cooperation between these two groups remains fleeting. My research focuses on several case study locations where ranchers and environmental activists have a history of conflict but recently have worked in cooperation to create land management plans that secure the interests of both groups?plans where both the ranching landscape and the natural landscape are protected. I explore the differences between the social, political, and economic conditions that initially created conflict and those that allowed cooperation, and suggest ways that cooperative relationships can be fostered in other areas of the West. I conclude with a proposal for fostering a cooperative conservation model in Little Missouri Badlands of western North Dakota.

Keywords: conservation, ranching, wilderness, environmental conflict

Jeremy C Tensen, Graduate Student, West Virginia University. Email: jtensen@mix.wvu.edu; *Assessing the Accuracy of Vegetation Abundance Mapping using Linear Spectral Unmixing of Field Collected Endmembers and EO Hyperion imagery in Northwestern New Mexico*

Vegetation abundances mapped at the landscape scale using conventional multi- and hyperspectral image classification approaches may be inaccurate due to the typical assumption that each pixel comprises only one cover class. Spectral mixture analysis acknowledges this scaling problem and seeks to estimate the proportion of each spectral class within each pixel. Linear spectral unmixing in particular is based on the assumption that the spectra combine linearly in proportion to the relative abundance or area occupied by spectral endmembers in the instrument's instantaneous field of view. A linear spectral unmixing model was applied to field collected spectral endmembers and EO1 Hyperion hyperspectral imagery to evaluate the accuracy of sub-pixel mapping of pinyon/juniper and sagebrush abundances for a study site in northwestern New Mexico. Model endmembers were derived in the field using a portable spectrometer. Multiple spectra of sagebrush, juniper/pinyon pine, soils and rocks were averaged over 83 sample sites covering a 1km² subsection of the study area. Accuracy of the spectral unmixing models was assessed using 0.60 m panchromatic and 2.4 m

multispectral QuickBird imagery. Only moderate agreement was found between the Hyperion unmixed data and the QuickBird imagery. Nevertheless, the results of this study are encouraging, given the challenges of scaling up from field collected spectra to the 30 meter Hyperion pixel.

Keywords: remote sensing, hyperspectra, subpixel unmixing, vegetation, abundance, mapping

Peggy Teo, National University of Singapore. Email: geoteop@nus.edu.sg; TC Chang, National University of Singapore. Email: geotc@nus.edu.sg; Singapore's Postcolonial Landscape: Boutique Hotels as Agents

Scholarly work on the connections between the imperial core/metropole and periphery city/colony has focused mainly on the unequal economic relations between them (Forbes 1997; King 1990; Simon 1984). Less is understood about the socio-cultural implications of this binary, and their geographic or landscape expressions. This paper explores how a particular urban tourism landscape - that of boutique hotels - render new, fluid postcolonial geographies of Singapore. By deploying past architectural distinctions and entwining these with the consumer needs of the present, new and innovative environments are fashioned by these hotels to serve as counterfoils to the island's colonial past. In this paper, the tropes of 'hybridisation', 'transculturation' and 'simultaneity' are used to demonstrate that landscapes of alterity represented by postcolonial possibilities are indeed open and discursive for the context of Singapore. By focusing on the "material practices, actual spaces and real politics" (Yeoh 2001: 457) of Singapore's landscapes, we extend alterity in the postcolonial tourism literature beyond the traditional focus on discourses and representations (e.g. representations of the exotic). We do this through the paper's tripartite emphasis on hotel landscapes (entrepreneurial and commercial inventions of new spaces), government ideologies (policy makers and nationalist concerns in urban and tourism development) and social profiles (consumer needs and ownership patterns of the hotels).

Keywords: Singapore, Boutique Hotel, postcolonial landscape

Sin Yih Teo, University of British Columbia. Email: ; Canadian "Sea Turtles" in China: The Return of a Chinese Diaspora?

The term diaspora commonly evokes the idea of a population away from its homeland. In the case of Chinese diasporas, a dominant tendency has been to imagine this homeplace as China. The cultural theorist, Ien Ang, has highlighted the danger of such an approach, arguing that the hierarchical centring back to an imagined ancestral home ultimately homogenizes otherwise heterogeneous diaspora narratives, creating a "prison-house of Chineseness". While acknowledging the differences between Chinese diasporas, I take her argument to another level by questioning what happens when a diaspora actually returns to its supposed place of origin. In other words, I am suggesting that even for a group whose homeland is self-acknowledged to be China, the narrative is one that further challenges the essentialization of Chinese migrants. Specifically, I focus on Canadian "sea turtles" in China - skilled Chinese migrants who previously immigrated to Canada, and are now residing in China. My first concern is to explore the meaning of return. Could it involve processes of re-settlement and re-integration? Might there be transnational movements? Second, what does the relocation reveal about this particular Chinese diaspora's relationship with China - and Canada? Drawing on in-depth interviews conducted with Canadian "sea turtles" in Beijing and Shanghai, my findings suggest that "return" is not a linear process. Instead, there is a circularity that develops out of the wider contexts of "sending" and "receiving" countries as well as the changing expectations of a migrant over his or her lifetime.

Keywords: Diaspora, migration-return, immigration, transnationalism, China, Canada

Adam Terando, Pennsylvania State University. Email: terando@psu.edu; Detection and Attribution of Anthropogenic Climate Change in an Agricultural and Regional Context

Climate is a dominant control on U.S. agriculture. Therefore, there is a strong likelihood that anthropogenic climate change can have a large impact on agro-ecosystems in the U.S. For example, changes in agro-climate indices such as growing-degree days or heat-stress days will have substantial effects on biomass production. Much work has been done to be able to detect and attribute recent climate change to human activities. In addition, recent works have also examined changes in agro-climate indices in the 20th century to provide an agricultural context to climate change. However, little has been done to combine these two approaches. The goal of this research is to determine the magnitude and extent of agriculturally pertinent, anthropogenic climate change in the U.S. during the 20th century. Toward this end, this research hypothesizes that an ensemble of agro-climate indices is an optimized fingerprint for climate change detection in this region compared to surface temperature alone. Indices to examine include thermal time, frost-free period, and heat-stress days. An empirical orthogonal

function (EOF) analysis will be used as a data-reduction technique to determine whether any identified temporal trends are statistically significant and constitute a departure from the expected natural variability of these measures of agricultural climate. Comparisons are then made between the ensemble of agro-climate indices and the raw temperature data to determine whether these indices are superior in their ability to detect regional changes in the climate system.

Keywords: climate change, agriculture, detection, attribution

Carmelle J. Terborgh, Ph.D., ESRI. Email: cterborgh@esri.com; A New Sense of Place - youth, sustainability, and geographic learning

Inspiring the minds of youth is perhaps one of the most rewarding and challenging tasks that one can undertake. Children have a natural curiosity in exploring the boundaries of their world. Exposure of youth to geography is perhaps one of the best ways to give them positive, exploration skills and to prepare them for future careers that address issues of importance to our globe. The future sustainability of our planet will rely on the geographic education of our youth today and their preparation to find innovative solutions for sustainability and regeneration of our Earth's resources. Programs such as the My Community, Our Earth: Geographic Learning for Sustainable Development (MyCOE), which was established over five years ago in preparation for the World Summit on Sustainable Development (WSSD), provide unique opportunities for students, youth groups, and educators to analyze sustainable development challenges with the tools of geography. In addition, youth are developing geographic skills and experiencing ways to explore our world that were hardly imagined just a decade ago; they are creating a new sense of place. This paper will provide an overview of the educational and recreational opportunities for youth and geographic learning.

Keywords: education, sustainability, youth, learning

Theano S. Terkenli, University of the Aegean. Email: t.terkenli@aegean.gr; Landscape as a Matter of Life and Death: Crossing the Sahara

This essay rests on and develops from the experience of the crossing of the Sahara desert by the Canadian contemporary adventurer/ geographical explorer, Jorge Correia. With the aid of qualitative content analysis, the landscape of the Sahara is composed and conceived, indeed enacted, through Correia's personal description and written account as a landscape of alterity. Alterity here lies in the degree of remoteness and distance of the reader/ traveller or subject from the landscape itself and manifests by its enactment through the practice of crossing. The essay brings together two disciplinary areas little so far academically explored: that of contemporary adventure travel writing and more-than-representational cultural geographies, as applied to personal perspectives of landscape embodiment, experience and practice. The disjuncture and distance between the familiar and the 'exotic'/ other here are extended to their extreme level and substantiated at their purest form through the adventurer's contact, experience, embodiment and practice of the landscape of the Sahara: landscape as a matter of life and death. Affirmation of life and death is brought to bear on and articulated in the Saharan landscape through and beyond various themes explored in this work: life as the known and familiar and death as the unknown and the distant; alterity as the landscape of the inner world yet unexplored and death as home, salvation and catharsis; landscape as the reconciliation of life and death through numerous life-affirming and death-skirting practices of everyday collective rituals and rhythms of life in the Sahara, and other.

Keywords: landscape, alterity, Sahara

Travis C. Terpkosh, University of California - Los Angeles. Email: Islandtrees@gmail.com; Species Richness, Floristic Composition, and Structure of Tropical Dry Forests in the Marquesas Islands, French Polynesia

Tropical dry forest is one of the most threatened ecosystems worldwide. Globally, tropical dry forest occurs in frost free regions with an annual rainfall between 500-2000 millimeters and a pronounced dry season of four to seven months with less than 50 millimeters of precipitation. Historically, tropical dry forest was found throughout the tropical world, but today the forests have reached critical status. The isolated Marquesas Islands in French Polynesia lie within the Micronesia/Polynesia Hotspot and contain fragments of the endangered dry forest. Scientific studies of these fragments have the potential to provide information valuable to the conservation of dry forests worldwide. Six of the large and most well preserved dry forest fragments on the islands of Nuku Hiva and Hiva Oa were surveyed in order to compare species richness, floristic composition, and structure. Within each site, 10 transects measuring 2 meters by 50 meters were constructed in which all plants with a diameter at breast height of 2.5 centimeters or greater were identified and recorded. Plant heights were also recorded for all individuals within the transects. Due to isolation and small area, there appears to be very low species richness levels in the Marquesas Islands dry forest. A number of exotic species occur within the transects suggesting that the remaining forest fragments may be degrading. However, there are few endemic

species within the transects, suggesting a low conservation priority for the Marquesas dry forest at a global spatial scale.

Keywords: Islands, Forests-Tropical, Biogeography, South Pacific

Chris Catherine Terry, Department of Geography and Human Environmental Studies, San Francisco State University. Email: cterry@sfsu.edu; Miguel Fernandez, Department of Geography and Human Environmental Studies, San Francisco State University. Email: ; Ricardo Kriebel, Department of Biology, San Francisco State University. Email: ; Frank Almeda, Department of Botany, California Academy of Sciences. Email: ; Healy Hamilton, Center for Biodiversity Research and Information, California Academy of Sciences. Email: ; *Expanding uses for ecological niche modeling: a bridge between systematics and biogeography*

Ecological niche modeling is a rapidly expanding technique that predicts the geographic range of a species from occurrence records and environmental data layers. These models are finding increasing applications in biogeography, conservation, ecology and evolution. We used two methods of ecological niche modeling, Bioclim and MaxEnt, to compare the geographic distributions of two *Arthrostemma* congeners (Family Melastomataceae) that differ in ploidy. Locality data were retrospectively georeferenced from specimen collections housed in natural history museums. Based on a known phylogeny, we compared the morphological, cytological, and environmental variables that separate these species. Preliminary results show that the tetraploid species *A. ciliatum* tolerates a broader set of environmental conditions, and has a larger geographic range, than its diploid sister species *A. primaevum*. This is consistent with the hypothesis that polyploidy confers greater environmental flexibility in plants. Our results suggest that ecological niche modeling may be a useful tool for exploring the relationship between systematics and biogeography.

Keywords: Biogeography, Melastomataceae, Niche modeling, Polyploidy

Christopher Terry, Professional Geography Undergraduate Student, University of North Alabama. Email: crterry@una.edu; Greg G Gaston, PhD, University of North Alabama. Email: gggaston@una.edu; Karst Topography: Influence of Drainage Patterns on the Physical and Human Landscape in North Alabama

The physical landscape of North Alabama is a prime example of Karst Topography. Sinkholes and the associated surface drainage have a significant impact on the development in the area of Florence, Alabama. The purpose of this research is to identify sinkholes in Lauderdale and Colbert Counties of North Alabama and to discern the patterns in their: orientation, proximity to streams, rivers, ponds, and wetlands. The relationship with specific soil types and geologic formations, frequency, and size of sinkholes will also be examined. In examining the human landscape, this research will focus upon the affect that sinkholes and their related surface drainage have had upon urbanization in the area. The methodology involved includes data collection, use of GIS software to create maps and conduct analyses, the creation of a grid overlay to discover patterns in the orientation of the modeled sinkholes revealing a distinct regional joint pattern, and the organizing of the results into tables, graphs, and text. This research illustrates the impact which natural processes can have upon both the physical landscape and upon human activities and development.

Keywords: gis, geomorphology, karst topography, Alabama-northwest

Sean P. Terry, Ph.D., Drury University. Email: sterry@drury.edu; Toby Newcomer, Tobynewcomerphoto. Email: tobynewcomer@yahoo.com; Colombian Cuisine, a Geography of Food

Columbia, South America is a hidden gem of cuisine. The distribution of agricultural products, and historical connections to trade routes have led to a geography of food that is unique. This paper traces the products that are important to Colombian food today and defines the geographical connections to its cuisine.

Keywords: Columbia, food, cuisine

Christian Tettey, University Of Akron. Email: christettey@yahoo.ca; Urbanization Problems In Africa: A Strategy For Solution

Urbanization is a problem in Africa and this has its roots from the colonial era, where centers were established at the coast for exploiting resources. These centers grew to become urban centers in Africa. The post colonial era followed the same trend, by means of focusing developments in these centers. These few urban centers are beset with problems such as congestion, sanitation and housing. Efforts have been made by various governments to solve these urban problems to no avail. The paper therefore attempts to provide an alternative solution to the urbanization problem in Africa by using an approach quite a different approach. The research is quantitative in nature using socio-economic data from the United Nations, the World Bank and other sources. Statistical methods were used to analyze the data and GIS used to spatially display the data. This paper believes

that emphasis on the development of social facilities may do the magic more than the usual emphasis on economic facilities.

Keywords: Regional Development, Urban Geography, Africa, Urbanization

Eugene Tettey-Fio, SUNY-Binghamton. Email: fio@binghamton.edu; Mark E Reisinger, Binghamton University. Email: mareisin@binghamton.edu; Puerto Ricans and Other Latinos in Berks County, PA: Migration, Settlement, and Employment

The Latino population of Berks County and Reading has increased dramatically over the past 20 years. This paper examines migration, settlement, and labor market patterns of Puerto Ricans and other Latinos to the area. It was found that the origins for the greatest number of Latino migrants are counties in the northeast U.S. Substantial numbers also come from Puerto Rico and other foreign countries. Puerto Ricans and other Latinos in Reading are highly segregated from Anglos and the vast majority has settled in the central city area. Puerto Ricans in Berks County are employed in secondary sectors of the labor market and have higher unemployment rates than Anglos. As a result of residential concentration and a relatively poor position in the labor market, high levels of socioeconomic inequality exist between Puerto Ricans, other Latinos and the Anglo population.

Keywords: Puerto Ricans, migration, Latinos, Reading

Victor B. Teye, Arizona State University. Email: teye@asu.edu; International Involvement in Tourism Development in a Peripheral Region: Lessons from Ghana

While most African countries use short, medium or long-term planning instruments for internal economic development at the regional and national levels, many of these plans exclude specific tourism development components. Some of the reasons advanced for this situation include low priority assigned to tourism, lack of domestic investment capital, and limited local human resource capacity to support the planning and development of the tourism sector. Some of the few countries that have successfully developed tourism have initially depended on external agencies, foreign expertise, foreign investment capital and technical assistance. This paper examines the involvement of several international development organizations in an integrated nature-based and heritage tourism project in the Central Region of Ghana. It analyzes the role of the international agencies; the objectives of the project; some of the project's unique aspects with respect to funding, capacity building and transfer of technology; and some of the direct outcomes, as well as problems at the local community level.

Keywords: Keyword: Central Region, Tourism, International, Development, Ghana

Baleshwar Thakur, Delhi School of Economics, University of Delhi. Email: chandathakur2003@rediffmail.com; Thirst for Water in Indian Megacities

The megacities of India, Mumbai (16.37 million), Kolkata (13.21 million), Delhi (12.79 million) and Chennai (6.42 million) form the apex of Indian urban system and are characterized by strong diversified economy. The concentration of 24% of urban population in the four megacities has significant consequences for the quality of life of urban residents. The biggest problem associated with megacities dynamism is the provision of an adequate and safe quality supply in the face of greatly accelerated demand. The megacities not only lack adequate supply but also well distributed supply of water. Due to phenomenal growth of the population, water supply did not keep pace with demand. There is a constant demand-supply gap of about thousand million liters of water everyday. Therefore, efforts are made to obtain city water from distant areas and at a great cost. In the past, residential water use was primarily limited to drinking and cooking in the home, but today vast quantities of water are also used for clothes washes, baths and showering, sewage disposal, low sprinkling and car washing. Industrial and commercial uses have changed as well. The use of water for industrial cooling processes, air conditioning and waste removal has grown rapidly. Due to rapid population growth coupled with inadequate infrastructure, the problem in the megacities is getting worsened and requires immediate attention.

Keywords: Water and Indian Megacities

Rajiv R. Thakur, Indiana State University. Email: rthakur@indstate.edu; Jay D Gatrell, Indiana State University. Email: jgatrell@indstate.edu; Science and Technology Indicators: A Policy Geography

Since the late -1980s, strategic science and technology (S&T) planning at the state-level has been considered a key of successful economic development. Focused S&T initiatives have been used to expand nascent industries within states and/or fuel the development of emerging technologies within a state further the competitiveness of local economics. According to policy-makers and academics alike, the technology-based economy is dependent on factors such as: access to venture capital, the highly developed spatial division of labor associate with

metropolitan areas, and the existence of a critical mass of existing industries and associated research & development (e.g., articulated agglomeration economies). Unfortunately, the distribution of these individual resources varies across space and the observed geography of these collective resources complicates S&T planning. In this poster, we will examine key S&T technology indicators for all 50 states since 1995 as well as consider the implications of targeted S&T initiatives, such as the Experimental Program to Stimulate Competitive Research (EPSCoR), in selected states.

Keywords: Science & Technology Planning, EPSCoR, Policy Geography

Sudhir K. Thakur, California State University Sacramento. Email: thakurs@csus.edu; Identification of Regional Development Patterns in North Dakota: Potentials, Prospects and Policy Implications

North Dakota is one of the lagging regions in the US with a slow growing manufacturing output, ageing population and low per capita personal income. The booms and busts cycles of North Dakota's agriculture and energy industries have rippled through the regional economy. The state government has sought to attract new sources of jobs and income and has paid much attention to tourism, historic and recreation attractions. Major contributors to the region's growth are: agriculture, federal government, professional and technical services, oil and gas extraction and information sectors (Economic Brief, July 2005). Given a decelerating trend why should the government invest in a sound development policy? A good regional development policy would encourage the environment of balanced growth, provide a reliable source of high quality agriculture output, provide incentive for population retention and growth, encourage industry location, and attract businesses to the region. Published secondary data from the North Dakota State Data Center and County Business Patterns will be utilized for analysis for the period 1980-2000. A multiple regression analysis will be utilized along with Geographic Information Systems (GIS) for visualization of development patterns and reporting of results. This research examines three questions: (1) What are the trends of regional development patterns in the North Dakota economy? (2) What are the development constraints in the agriculture, manufacturing and service sectors? (3) What are the trends of population movements within the state and between the state and rest of the country?

Keywords: North Dakota economy, regional development

Denis Thalson, PhD, . Email: dtholson@earthlink.net; Bay Area Memorial Shrines: A Typology Based on Place

There are two dominant types of individual memorial shrines in the San Francisco Bay Area. Each type functions through place differently, and their various distinct interfaces with place are the primary distinguishing factors between the two types of memorial. As Charles Collins and Charles Rhine (2002-2003) and others have noted, rural roadside versions of memorials, usually commemorating traffic accident victims, seem to function through the place of death, using it a mediator between the shrine builders and deceased to whom the memorial is dedicated. A new type of individual memorial, dedicated to murder victims, is now emerging in inner city neighborhoods of the Bay Area. Unlike the roadside versions, which can persist for years, these urban memorials are usually highly ephemeral, because authorities do not tolerate them. Because they are usually removed after a very short time, inner city memorials cannot be reliable mediators at the place of the murder. In compensation, more portable memorial customs, such as the use of R.I.P t-shirts, and memorial statements written on car windows, often substitute for, or augment, any of these shrines built at the place of death. Additionally, memorial wall murals in inner city neighborhoods, and the frequent use of secondary and tertiary memorial shrine locations, make the entire immediate neighborhood a diffused memorial place, redefining the home and the reach of the original memorial shrine. The complex layers of address seen at these urban memorials, often emphasizing community involvement, supports this contention.

Keywords: geography of religion, place

Brian Thayer, University of Wisconsin - Milwaukee. Email: bpthayer@uwm.edu; Developing a Community Information System (CIS) to Assist Neighborhood Revitalization Efforts: Case Study of the Harambee Community Milwaukee, WI

Public participation GIS (PPGIS) literature has recently explored using community information systems (CIS) in marginalized neighborhood organizations to allow the community itself to play a larger role in the planning and decision-making processes that impact its citizens. Having primary control of a GIS will allow these organizations to ask meaningful questions relevant to their own community and conduct analyses using spatial data without relying on costly experts - a major barrier in developing successful PPGIS initiatives. However, the potential of using CIS to create a more democratic practice of GIS and to provide communities with equitable access to spatial data is poorly understood due to a lack of empirical research on the subject. Drawing upon past studies investigating the local political context of PPGIS initiatives and organizational structure in the

City of Milwaukee, an internet GIS website was implemented and customized for the community-based organization of Harambee. This research explores the factors and conditions that fostered effective use of this technology by the community organizers through ethnographic field research including semi-structured interviews and document analysis. Taking this bottom-up approach and incorporating local knowledge were strongly emphasized and ultimately became the foundation for building the CIS. This research has created an awareness of the value of public information in neighborhood revitalization efforts and contributes to existing PPGIS literature as it has allowed for a better theoretical understanding of university-community partnerships and organizational structure.

Keywords: Community information systems (CIS), public participation GIS (PPGIS), neighborhood revitalization, Milwaukee

Jonathan Thayn, University of Kansas. Email: jonhayn@ku.edu; Kevin Price, Ph.D., University of Kansas. Email: price@ku.edu; William Woods, Ph.D., University of Kansas. Email: woods@ku.edu; Locating Amazonian Dark Earth Soils using MODIS and Harmonic Wave Analysis

Accurate estimates of local to regional scale vegetation biophysical factors and serial developmental stages are required to improve models of terrestrial ecosystem carbon exchange and climate-biosphere interactions. This proposal outlines a robust methodology for generating these estimates in the Amazon Basin using 250-m resolution Enhanced Vegetation Index (EVI) high-frequency multiyear time series data sets collected by NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) and harmonic wave analysis. Advantages of the method include resilience to interference from noise in the data (including cloud and aerosol contamination), the ability to succinctly summarize annual and multiple year patterns of vegetation dynamics, sensitivity to the effects of abrupt stochastic disturbance on vegetation, and sensitivity to gradual trends in climate and forest succession. A literature review indicates that the methodology is novel and a likely improvement on existing methods. The final products include models of moist tropical forest cover, based on vegetation response to yearly and interannual perturbations and cycles, that can be related to below and above ground carbon storage, climate change and biodiversity.

Keywords: Tropical Forest, Amazon, Harmonic Wave Analysis, Terra Preta

Paporn Thebpanya, Towson University. Email: pthebpanya@towson.edu; The Comparison of Topographic Profile Drawings between Sighted and Non-Sighted Individuals Using Chain Code Differentiation

For learning geographic environments from primary or secondary sources such as maps, vision is the most effective sense and sight is often quoted as the sense par excellence. It is generally contended that people with visual impairment or blindness experience a world different from those who are sighted because they must rely on other senses as the modes of learning, which are sequential in nature. Nevertheless, our understanding of the spatial world experienced by people with visual impairments remains relatively limited. Cognitive mapping research and other allied techniques enable an insight into the mental landscape of people with blindness. They also provide clues as to how spatial information is learned, processed, and stored. This experiment investigated the use of multimodal information for exploring topographic data. Both haptic and auditory modalities were integrated as a means of presenting spatial information for those who are visually impaired. Two sound variables, pitch and duration, were utilized to facilitate the interpretation of contour lines on topographic maps. Because higher pitched sounds have more vibrations per second, the 'higher pitch is up' metaphor was used to associate the perception of sound with elevation. The participants were asked to listen to different sets of sounds and draw topographic profiles based on the sounds they heard. The similarities of these drawings were compared with the actual profiles using the cross chain correlation technique. The results revealed that the integration of sound variables and different modalities enhanced the interpretability of topographic maps for both sighted and non-sighted individuals.

Keywords: Cartography, visual impairments, disabilities

David M. Theobald, Colorado State University. Email: davet@nrel.colostate.edu; Evaluating the conservation value of alternative land use policies using build-out scenarios in Ouray County, Colorado

Scientists are challenged to connect information about conserving biodiversity with the land use planning process. One aspect that has gained increased attention recently has been the need to provide more and better information about the effects of land use change on biodiversity targets. A second challenge is to provide information to inform debate about possible changes to land use planning policies to minimize possible effects from future land use changes. A powerful approach to think proactively is to use spatial modeling techniques to express a series of alternative build-out scenarios. These scenarios are subsequently evaluated against a range of indicators, also developed by community stakeholders to quantify differences in the possible effects associated with different planning options on economic as well as ecological values. I will

present results from a recent study to compare alternative land use policies, including clustered development, transfer of development rights, and preservation of agricultural lands, in Ouray County, Colorado.

Keywords: land use, conservation planning, GIS

Rebecca Theobald, University of Colorado. Email: rebecca.theobald@colorado.edu; International Early-Career Faculty in American Higher Education: "I'm Canadian - should I be included in the study?"

Foreign-born scholars and scientists who pursue careers in geography at American colleges and universities have increased in number and diversity over the past three decades. Canadians comprise over ten percent of these academics; in addition, many individuals from other countries receive graduate degrees in Canada and then migrate to American institutions, bringing with them Canadian-influenced perspectives. While the primary needs and concerns of these foreign-born faculty tend to be similar to those of their native-born counterparts, the international faculty may suffer consequences of poor structural support more quickly or to a greater degree than other members of the professoriate. Canadians are sometimes ambiguous as to whether they contribute to the international population in the United States. This study describes the results of a web-based survey detailing the experiences, abilities, attitudes, and concerns that foreign-born faculty face during the critical early-career period?the time between the doctorate and tenure?when many professional and personal decisions are made about continuing in academic life, categorizing issues specific to individuals from Canada as well as all early-career faculty. Examining the perceptions that Canadians and Canadian-educated early-career faculty bring to the United States demonstrates the degree to which Canadians consider themselves in alien territory when living south of the border. Institutional strategies that support international faculty, particularly those early in their careers, are identified in order to maintain a highly qualified scientific workforce and diversify the U.S. professoriate. Knowledge of these policies is also of benefit to Canadians considering employment in the United States.

Keywords: immigration, migration, higher education, faculty development

Sotiris Theofanis, Rutgers, The State University of New Jersey. Email: stheofan@rci.rutgers.edu; Maria Boile, Rutgers, The State University of New Jersey. Email: boile@rci.rutgers.edu; Virtual Container Yard: An Innovative Approach in Handling Container Transportation Adverse Impacts in Metropolitan Areas

A Virtual Container Yard (VCY) is an Internet based technology platform, which enables users to share information and interchange container equipment, off-dock. A VCY makes freight logistics more efficient by means of street-turns, meaning direct empty container moves from a consignee to the next consignor. Trucking companies would be able to locate an empty container close to the site where they have an export pick-up. This would eliminate an unnecessary trip to a port terminal where empties are typically stored, and alleviate the need for a trucker to return an empty container to the port. Using a VCY system as a platform for sharing and providing information among different port players, such as ocean carriers and trucking operators, is increasingly being considered as a viable option to reduce the adverse impacts of container traffic in major port regions. Implementing a VCY has the potential to reduce the number of truck trips and associated transportation costs, truck miles and diesel fuel consumption, saving truck operators time and money. Other benefits for local communities include emission and commute time reduction. These benefits are expected to multiply as trade volumes continue to grow. The paper presents results from a simulation modeling approach that captures the process of matching empty containers through a VCY system. Results for different scenarios of input parameters, system environments and practical constraints are analyzed, and potential benefits to the users and the general public are estimated.

Keywords: IT, VCY, empty container, simulation

Thomas Thevenin, University of Burgundy - THEMA / CNRS - France. Email: thomas.thevenin@u-bourgogne.fr; Bob Schwartz, Mont Holyoke College. Email: rschwartz@mtholyoke.edu; Estimating Historical Population Densities in Areal Units over the "longue durée" in France

How can geographers and historians construct and analyze population density over time in units whose boundaries change? This paper discusses how the problem is being addressed in a collaborative study of railways and uneven development in Britain and France during the nineteenth and early twentieth centuries. The method being used in the French part of the comparative study applies raster surfacing modeling to estimate population densities within the communes of France from 1836 to 1911. This approach can be then evaluated in relation to an alternative method developed notably in UK by Ian Gregory.

Keywords: Density, Historical GIS, Raster modeling, France

Jeanne M Thibeault, PhD Student, University of Connecticut. Email: jeannethi@hotmail.com; Spatial Patterns of Oxygen-18, Deuterium and Deuterium Excess in Precipitation over Lowland Europe

The isotopes of oxygen in precipitation are important in the study of global climate change because they are reliable indicators of the natural hydrological cycle. The isotopic content of precipitation becomes increasingly depleted with increasing distance from the coast. Long-term monthly means of isotopes in precipitation at low-altitude sites in western and central Europe having a common time period of data collection (1980-2001) were mapped. With the exception of summer, the long-term monthly means of isotopes in precipitation become more depleted inland from the North Sea coast along a NW to SE gradient. During June and July, the isotopic gradient over western Europe runs more directly from the west towards the east. East of the Alps, it runs from the southwest towards the northeast. During August, the isotopic gradient over the entire study region runs from the west-southwest towards the east-northeast. The North Atlantic Oscillation (NAO) is an important influence on climate variability for Europe, especially from December through March. Maps of $\delta^{18}\text{O}$ in precipitation during high and low phases of the NAO suggest that relationships between the NAO and $\delta^{18}\text{O}$ in precipitation affect the direction of the isotopic gradient across Europe as well as the isotopic content of precipitation. Although few statistically significant differences were found between $\delta^{18}\text{O}$ averages in high and low NAO months, NCEP reanalysis data support the idea that variations in the NAO affect the spatial patterns of $\delta^{18}\text{O}$ in precipitation from December through March.

Keywords: isotopes stable, precipitation, Europe, NAO

Claudia Hanson Thiem, University of Wisconsin-Madison. Email: thiem@students.wisc.edu; Charter schooling and the restructuring of U.S. urban governance: towards a socially entrepreneurial city?

This paper uses the phenomenon of charter schooling to advance and critique theories of urban governance and politics. These hybrid public-private schools - now championed by an influential group of 'education mayors' - are a strong and growing presence in the landscape of U.S. urban education. Drawing on examples from a variety of U.S. cities, I use the charter schooling sector/movement to revisit two prominent concerns of urban political theory: (1) the role of the third sector in various governance activities, and (2) the relations between 'elite' and 'grassroots' politics. First, an examination of the charter sector reveals a far more robust, autonomous, and spatially-extensive 'shadow state' than that portrayed in most contemporary scholarship. Chartering's intensive culture of social entrepreneurialism and dense network of parastatal intermediaries (consultants, philanthropies, etc.) signal the development of deep and enduring forms of multi-institutional and multi-scalar governance. Second, the charter movement problematizes popular analytic distinctions between 'neoliberal' political projects and moments of progressive resistance. Its creative blending of economic growth and social justice agendas necessitate a reconsideration of the means and ends of governance projects. In the context of a search for more nuanced conceptual vocabularies around urban governance, I use these features of charter schooling to suggest the emergence of a socially entrepreneurial city. This term - which encompasses the institutional, political, and discursive foundations of urban governance - both elaborates and extends recent discussions of 'soft' and 'partnering' forms of neoliberalism.

Keywords: urban governance, charter schools, third sector, social entrepreneurialism, neoliberalism

Deborah Thien, California State University, Long Beach. Email: dthien@csulb.edu; Spaces of Depression

Keywords: mental health, emotion, well-being, gender, women

Alain Thierstein, Munich University of Technology. Email: thierstein@raumentwicklung.ar.tum.de; The changing value chain of the knowledge economy. Spatial impact of intra-firm and inter-firm networks within the Mega-City Region of Zurich

The knowledge economy is faced more and more with complex forms of corporate collaborations and division of labour - work is no longer neatly organised within intra-firm structures. One of the reasons is the segmentation and growing industrialisation of the value chain of the knowledge economy. Zurich's international reputation is based on its major role within the knowledge-based economies. Based on a general analysis of Zurich's position within the knowledge-based economy, the article focuses on the empirical findings about the spatial behaviour of companies of the knowledge economy and their relevance for polycentricity in the Mega-City Region of Zurich. The paper takes a particular look at the inter-firm and intra-firm interactions of advanced producer services based on quantitative and qualitative empirical analyses. In order to reveal patterns of spatial development and the driving forces behind them, the paper investigates the functional division of labour within the Mega-City Region of Zurich and with the rest of the world. The article concludes with the core

challenges for territorial governance deriving from emerging polycentric mega-city regions.

Keywords: Knowledge economy, value chain, intra- and interfirm connectivity, polycentric spatial development

Jean-Claude Thill, University of North Carolina at Charlotte. Email: jfthill@unccl.edu; Han-Ju Tsai, SUNY-Buffalo. Email: ; *JetBlue Is Coming to Town! Should We Rejoice or Run for Cover?*

JetBlue Airways is part of a new breed of low cost air carriers that have entered the domestic market over the past few years. In many ways, JetBlue has emulated Southwest Airlines, the archetypical low cost carrier. In other ways, it has sought to establish its own brand of low-cost air travel. By all accounts, it has been successful at it, in contrast to many of its predecessors. In this paper, we analyze the impact JetBlue has had on markets it entered. Three complementary perspectives are adopted. First, we look at the market share the airline secures within two quarters of its entry. Second, the growth in ridership induced by JetBlue's entry is investigated. Finally, the magnitude of the deflationary effect of fares is quantified. We seek to explain the effects of the new entrant in relation to market conditions and market structures.

Keywords: Air travel, JetBlue, Low Cost carriers

John Thistle, Geography, University of British Columbia. Email: jthistle@geog.ubc.ca; *"They claim them in an indefinite sort of way": Wild Horses, Rangeland Conservation and Settler Colonialism in British Columbia, Canada*

In the semi-arid interior of British Columbia where fingers of bunchgrass reach into an otherwise forested landscape native people, ranchers, and provincial range managers are debating the future of the region's "wild horses." Indeed, they have been doing so for over a century, albeit from vastly unequal social and political vantage points. In 1891, for example, cattle rancher John Saul complained that "wild horses" were ruining the region's rangelands. "I believe they are descendents of Indian horses and I am told they lay claim to them in an indefinite sort of way." Nevertheless, Saul suggested the horses be shot off, as was being done "to great effect" in Australia. Others echoed Saul's complaint connecting deteriorating rangeland with "the wild or nearly wild horses the Indians own," and despite strong protests from native people in the early twentieth century provincial grazing officials began shooting the "worthless" animals in order to "conserve the range resource," sparking the conflict that continues today. The context, of course, has changed considerably. Yet there are still horses and debates about their relative "wildness;" still Native people who lay claim to them in "an indefinite sort of way" (from the perspective of western legal tradition); and still ranchers and range managers who want to "manage" them to conserve forage for cattle. Drawing on a range of archival sources this paper draws connections between wild horses, conservation and settler colonialism, and assesses the possibilities for a "post-colonial" wild horse policy in the British Columbia interior.

Keywords: rangelands, conservation, colonialism

Anne Thomas, University of Nevada Reno. Email: aesthomas281@yahoo.com; *Landscape Transformed: A Field Tour South of the Slot*

San Francisco's South of Market district adjoins the Financial District, and the two share an historical urban growth timeline that includes the city's founding, explosive population increase as the result of the Gold Rush, devastating earthquake and resulting fire of 1906, pressures of growth and the scarcity of land, and the effects of advances in transportation, industrialization, and globalization. These events, however, have shaped the built environments of the two districts differently. While the Financial District became the site of towering office buildings, South of Market, the site of the city's earliest industries and working class housing, became the subject of intense political and ideological debate, bringing redevelopment plans to a standstill. During the mid-20th century the area became in some ways frozen in time, as land and buildings sat vacant and deteriorating. Redevelopment has been increasing over the past few decades, however, and the South of Market area is now experiencing an explosion of investment. The results are a confounding mix of old and new, commercial and high-tech office, industrial, and high-and low-income residential. My research goal is to unravel and present the puzzle as a field tour of the South of Market landscape today, putting it into a context that is historical and contemporary, physical and cultural, from an urban landscape analysis perspective.

Keywords: San Francisco, redevelopment, landscape analysis

Mary E. Thomas, Ohio State University. Email: thomas.1672@osu.edu; *Is the Unconscious Only Collective In Qualitative Research? The Limits Of Psychoanalysis In Work On Identification and Identity*

What are the limits of psychoanalysis for social identity research that primarily draws on human subjects and their narratives? To what extent can psychoanalysis be utilized when analyzing narrative data obtained, for example, through interviewing? While I advocate an ontology of the psychoanalytic subject, I argue that social science researchers must avoid psychoanalyzing our research subjects. The implications of avoiding analytic practices (given the lack of training or time) therefore restrict researchers' abilities to treat unconscious processes as highly individual; rather, the unconscious to those untrained in analysis must be kept at the aggregate level of the collective or the social. Therefore, the distinction between ontology (what constitutes social practice, for example) and analytic practice limits the ways in which scholars can 'read' personal narratives for unconscious processes. I will draw on the example of racial melancholia from cultural studies to explore the issue of how and to what extent researchers can 'listen' to the unconscious in narratives derived from qualitative research.

Keywords: psychoanalysis, qualitative methodology, race

Ren Thomas, University of British Columbia. Email: rae.thomas@gmail.com; *Ethnic food on the decline: the preservation of immigrant diets in the postcolonial era*

In Canada, where immigration accounts for 70% of our population growth, the food choices of new immigrants should be a concern. As immigrants settle into their new lives, they go through a process of acculturation to Western diets. Studies show that acculturation to the US is associated with shifts from traditional ethnic diets featuring vegetables and whole grains to the more processed, high-fat and high-sugar foods that are popular and easily available in the US. As a result, second- and third-generation immigrants are at greater risk for obesity, heart disease and hypertension. In Canada, the vast majority of immigrants settle in Vancouver, Toronto, and Montreal. Historically, ethnic food stores in these cities have provided a means for new immigrants to buy their traditional foods within their own neighbourhoods. The variety and location of ethnic food stores in Canada's three largest cities may influence immigrants' diets. There is growing concern that neighbourhoods without supermarkets may not have easy access to healthy food choices. This paper explores the link between diet and neighbourhood food choices, including the location of grocery stores and ethnic food stores. The policies of several municipalities to encourage the establishment of local grocery stores highlights the planner's role in protecting a variety of food choices. The extension of these policies to support local ethnic stores could help new immigrants to access their own traditional foods more easily. The preservation of these diverse diets could have profound impacts on the future health of our communities.

Keywords: immigrant health planning neighbourhood food

Sarah L. Thomas, University of California, Berkeley. Email: slthomas@nature.berkeley.edu; Sally K. Fairfax, CA-B. Email: sally@nature.berkeley.edu; *Equity in Land Conservation and Land-use Planning after the New Deal: The Durable Influence of the Outdoor Recreation Resources Review Commission*

This paper argues that both current land conservation strategies and recent debates about equity in land conservation have their origins in the work of the Outdoor Recreation Resources Review Commission, appointed by Congress in 1958. Most scholars and policymakers have forgotten ORRRC, yet the Commission's work was fundamental in shaping the institutions, approaches, and ideas that have guided land conservation for the past fifty years. ORRRC's recommendations led to the passage of key pieces of state and federal conservation legislation in the 1960s, prompted the creation of the Land and Water Conservation Fund, and helped to institute widely used conservation strategies such as open space acquisition, conservation and scenic easements, and flood-plain zoning. The Commission's work also heightened the role of land-use planning at a state and local level in both urban and rural areas, informing many of the institutions and policies that drive today's planning process. Most importantly, ORRRC grappled with issues that continue to confound land management today, namely the need for equity in the allocation of environmental benefits and costs.

Keywords: Land Conservation, Land-use Planning, Environmental Equity, Recreation

John M Thomason, University of Tennessee. Email: Jthoma40@utk.edu; Chad S Lane, University of Tennessee. Email: Clane6@utk.edu; Sally P Horn, University of Tennessee. Email: Shorn@utk.edu; Kenneth H Orvis, University of Tennessee. Email: Orvis@utk.edu; *Modern and Fossil Ostracods and Charophytes in Lake Sediments from Las Lagunas, Dominican Republic*

Fossil ostracod valves and charophyte oospores have proven to be effective paleolimnological proxies in many settings. We have investigated the distribution of ostracod valves and oospores in surface sediments and sediment cores recovered from four lakes located near 1000 m elevation on the south slope of the Cordillera Central, Dominican Republic. Our sediment cores from Laguna Castilla, Laguna de Salvador, Laguna de Felipe, and Laguna Clara each span the last 2000-3000 years. Despite the close proximity of the four lakes (< 2 km), each lake offers unique limnological conditions. The four lakes provide an ideal testing ground for determining the environmental constraints on modern ostracod and charophyte distributions, and then applying surface relationships to downcore samples. Our dredge and core top samples from the four lakes reveal that ostracod valves and oospores are only present in the near-surface (modern) sediments of Laguna de Felipe and, to a lesser degree, Laguna de Salvador. However, both ostracod valves and oospores are present in deeper sediment samples from our core recovered from Laguna Castilla, as well as cores recovered from Laguna de Salvador and Laguna de Felipe. Our preliminary analyses indicate that water chemistry, specifically calcium ion concentration, is likely the primary limiting factor for ostracod valves and oospores in modern sediments of the Las Lagunas lakes. We are now examining downcore changes in ostracod and charophyte presence with this relationship in mind. Our work complements other ongoing analyses of the Las Lagunas cores, including oxygen isotope analyses of these carbonate fossils.

Keywords: Dominican Republic, ostracods, charophytes, lake sediment

Mary C. Thompson, University of South Carolina. Email: maryluvmountains@yahoo.com; *Gendered Aspects of Ecotourism*

In this paper I will explore gaps in the current literature on the gendered aspects of ecotourism and consider how such gaps might be addressed. Specifically, I will examine differences in the roles of men and women in the development, implementation, and operation of ecotourism ventures with regard for the ways in which gender roles affect, are conditioned by, or sustain the power relationships surrounding these operations.

Keywords: women-development, gender, ecotourism

Samuel Thompson, Western Illinois University. Email: S-Thompson@wiu.edu; *The People Change in West-central Illinois*

In west central Illinois, an area with historically homogeneous population, it is now commonplace to hear spoken languages other than English in small towns. An excursion through the region reveals why migration is changing the character of the region. This paper explores the nature of migration in the region, the manner by which immigrants learned of opportunities in the region, and the reasons for choosing the area.

Keywords: Population, migration, small towns

Wiley C Thompson, Oregon State University. Email: wiley-thompson@us.army.mil; *Success in Kashmir: A Positive Trend in Civil-Military Integration During Humanitarian Assistance Operations*

The global community is paying greater attention to natural disasters and their subsequent relief efforts. The modern cast of disaster relief actors includes non-governmental organizations, private-volunteer organizations, and military organizations. Each group, civilian or military, has valuable skills and experiences that it can bring to bear in an attempt to solve the problems encountered in today's ever-increasing complex humanitarian environment. Military organizations possess critical capabilities and civilian organizations bring vast experience from the humanitarian realm. However, civilian relief organizations may fear that an alliance with the military will taint their organizations, make them less welcome in other regions, or discourage donor contributions. Military organizations are concerned that focusing on humanitarian tasks may strain training resources, decrease combat capabilities, or lead to protracted entanglements. In the October, 2005 Kashmir earthquake disaster relief effort, members of the United States military integrated with civilian and other national military organizations to create a cooperative environment and lent their unique capabilities to the relief effort. This ad hoc coalition did a tremendous job of providing relief to the desperate earthquake victims. The Kashmir model, when combined with lessons learned in other civil-military relief efforts, creates a framework in which future successful operations can be executed.

Keywords: disaster relief, humanitarian assistance, military, NGO, Kashmir, earthquake

Christopher A. Thoms, Ph.D., Colby College. Email: cathoms@colby.edu; *Nepal's Community Forestry Program: Promise and Pitfalls*

Nepalese Community forestry is one of the world's most ambitious and highly regarded examples of community natural resource management (CNRM). There is considerable enthusiasm for Nepal's community forestry program among government foresters, bilateral aid projects, conservationists, and development workers. Given this high regard, the program is often presented as a model for community-based conservation. As such, critical understanding of the program is important to a broader understanding of comparable CNRM approaches. Building on previous work, in this paper I describe particularities, at the national level, in the history, design, implementation, and outcomes of community forests in Nepal. Briefly, the current community forestry program was developed with the assistance of bilateral donor agencies. A user group approach was piloted and adopted as a way to overcome entrenched, local elite capture of benefits in previous panchayat forestry. Today, community forests are constituted by government foresters who enroll local forest resource users into Community Forest User Groups (CFUG). Even though communities in community forestry are explicitly constructed, government officials and foreign donors frequently "black-box" CFUG communities - ascribing them a false homogeneity. Once formed, Community Forest User Groups have rights of access, use, and exclusion, but no rights of tenure to their forestland. The government's user group formation process, supported in part by foreign financial and technical assistance, reflects and exacerbates existing divisions within communities, leading to or at least maintaining user group domination by local elites. Outcomes are mixed, with the potential for poverty alleviation limited but forest conservation being generally successful.

Keywords: Community forestry; Nepal; community; conservation; forest; poverty alleviation; cross-scale

Curtis N. Thomson, Croft Institute for International Studies. Email: cthomson@olemiss.edu; *Environment, Development, and Environmental Security in Cambodia*

Countries of the developing world face constant dilemmas surrounding the allocation of their limited fiscal resources, the protection of their environment, and the pressing desire for economic growth. Although perhaps better off than many of the world's least developed countries, Cambodia's abundant natural resource base is rapidly being depleted. This study assesses environmental security threats to Cambodia as a result of population pressures, resource demands from its neighbors, and government policies and actions which serve to undermine the sustainability of the country's environment. Rapid population growth, illegal Vietnamese immigration, and questionable business practices are pushing both the agriculture and fishing industries to levels which are not sustainable. Although there is a relatively high proportion of forest cover in the country, current logging practices will deplete the high-value forests within the coming decade. Fisheries provide the most important source of animal protein in the country, but they are now at a point of diminishing per-capita catch. Effective management of these resources could allow them to be maintained at sustainable levels; however, while there is a minimal level of environmental laws and regulations in the country, the capacity or will to enforce them is inadequate.

Keywords: Environmental sustainability, environmental policy, corruption.

Craig Thorburn, Monash University. Email: Craig.Thorburn@arts.monash.edu.au; *The Arthropod Revolution: Community IPM in Indonesia*

Indonesia's rice intensification program is the country's single most important development effort of the past four decades. In 1965, Indonesia was the largest importer of rice in the world. Only twenty years later, the country achieved technical self-sufficiency in rice, representing a major success story for 'green revolution' seeds and technologies. Soon after achieving self-sufficiency, Indonesia began experiencing serious outbreaks of rice brown planthopper (BPH), destroying hundreds of thousands of hectares of crops. BPH is a classic insecticide-induced resurgent pest. There is no evidence to show that increased insecticide use leads to measurable increases in rice yields. In spite of this, more pesticides are applied to rice than any other crop grown. The ecological complexity of wet-land rice agro-ecosystems is unrivalled by any other in the world, with arthropod species surpassing that of most natural temperate systems. Spraying kills generalist predators, allowing rice pests to flourish. The Indonesian National Community Integrated Pest Management (IPM) Program, initiated in 1989, promoted an entirely different approach of working with farmers to find solutions to rice "pest problems." The Farmer Field School model combines concepts of adult non-formal education and an agro-ecosystem approach, enabling farmers to make management decisions based on observation and analysis. Even more impressive than the IPM Program's remarkable technological achievements - in terms of reduced pesticide use and increased yields - are the

sociopolitical shifts that have taken place as the IPM 'movement' transforms the way rice is grown.

Keywords: rice, agriculture, integrated pest management

Casey Thornbrugh, MA, PhD student, University of Arizona. Email: caseyt@email.arizona.edu; *Global Climate Change & Implications for Native American Communities of the Southwest*

Arctic Indigenous communities are experiencing impacts of climate change on cultural resources and traditional subsistence economies. Research projects in Arctic communities using applied traditional ecological knowledge (TEK), and quantitative methods have placed Arctic communities in the forefront in developing culturally relevant mitigation strategies. Scant research exists on the current and anticipated effects of climate change in American Indian/First Nation communities over the U.S. lower 48 states and southern Canada. A meta-analysis was done to examine the current and anticipated impacts of 21st Century climate change in American Indian communities focusing on the Arctic, the U.S. Southwest, northern Great Plains, and the Atlantic Eastern Seaboard. Peer reviewed articles, American Indian media sources, interviews, international agreements, and legal documents were used to assess the current and anticipated impacts of climate change, the mitigation strategies to climate change, and the development of renewable energy sources across Indian Country. In the Southwest and northern Great Plains severe droughts affecting agriculture, water availability, and cultural resources have initiated the development of drought response plans and the development of wind and solar energy in communities. On the Atlantic Eastern Seaboard development, urbanization, and pollution have, historically been the highest stressors on cultural resources. However, anticipated increases in sea level and concern for existing culturally important plant and animal species have generated interest in developing climate change mitigation. Disseminating information on climate change projections, applying traditional ecological knowledge, and planning for climate change will be essential actions to ensure cultural resources for future generations across Indian Country.

Keywords: Climate change, Indigenous peoples, American Indian, Indian Country

Rod Thornton, MS GIS, AAG member. Email:

rod_thornton@institute.redlands.edu; *Geographic Database for the Santa Ana River Trail*

A Geographic Database for the Environmental Analysis of the Santa Ana River Corridor The Santa Ana River is the largest river system in Southern California and it flows to the southwest in an arc from the San Bernardino Mountains to the ocean at Huntington Beach. Since 1915, when the idea for a recreational trail paralleling the river originated, the watershed has been under relentless encroachment by urban growth. Despite this pressure, the vision of the trail has grown as well. Its supporters now embrace the concept of a recreational parkway: The Santa Ana River Trail (SART). When complete the trail will serve multiple uses by providing public access into open space areas that can withstand human activity such as hiking, bicycling, equestrian use, camping, environmental education, and health and fitness. Additionally its supporters plan to provide interpretation of the Inland Empire's rich history and natural environment. Ultimately, the trail will parallel the river from its headwaters at the Pacific Crest Trail to its mouth at the Pacific Ocean at Huntington Beach. The purpose of this study served to create a geographical database to improve data access and analysis capabilities for research from all entities (governmental agencies, advocacy groups, etc) involved with the SART planning process.

Keywords: gis

Thomas Thornton, Portland State University, Anthropology. Email: tthornto@pdx.edu; *Conflicting Topophilias and Historias: Parks and Indigenous People in Southeast Alaska*

At heart most disputes between indigenous people and non-Native managers and constituents of parks and protected areas stem from strong affective ties to place based on opposing constructions of space and time, or more precisely, conflicting topophilias (loves of places) and historias (atlases of now and then). Much of the literature to date has confined itself to conflicts over material resources, which often elides this more fundamental time-space dimension to indigenous-state tensions in parks that goes well beyond resource management to notions of progress, ethics, and metaphysics. Drawing on the pioneering work of Yi Fu Tuan, Anthony F.C. Wallace, and others, as well as my own ethnographic research in three Southeast Alaska National Parks, I examine how conflicting topophilias and historias have played out in contemporary disputes over management of both natural resources (bird eggs in Glacier Bay National Park) and historical resources (Russian and stampeder colonial heritages in Sitka National Historical Park and Klondike Gold Rush National Historical Park). In particular, I evaluate why some Tlingit communities have proven more effective in realizing their senses of place and time within parks than others, and draw lessons for the future development of indigenous-park relations based on these

three case studies.

Keywords: parks, indigeneous peoples, conservation

Jocelyn Thorpe, PhD Candidate, York University. Email:

jthorpe@yorku.ca; *Moose head guaranteed: 'Indian' guides, white tourists, and the politics of race and nature in Temagami, Ontario*

In the late nineteenth century, only a few tourists made it all the way to Lake Temagami to experience canoe trips guided by members of the Teme-Augama Anishnabai, the Aboriginal inhabitants of the area. But by 1905, Temagami had become a prominent tourist destination for upper class white Canadians and Americans, and guides were in such high demand that Aboriginal people came from other areas to work as guides in Temagami. White men, and occasionally white women, wrote about their trips in popular magazines like *Rod and Gun*. They devoted many pages to 'the Indian guide,' representing him not only as singular and male, but also as inhumanly strong, instinctively knowledgeable about the ways of nature, and the key to the success of a wilderness vacation. Writers urged fellow tourists to secure an Indian guide, for as well as paddling, portaging, cooking, and preventing tourists from becoming lost, the guide was said to guarantee tourists a good look, and a good shot, at a moose. This paper examines early twentieth century relationships among guides, tourists, and the Temagami 'wilderness' by analysing tourist literature and the oral histories of members of the Teme-Augama Anishnabai. I argue that while these encounters were full of contradictions and ambivalences?particularly when guides refused to fulfill their prescribed role as subordinates?the encounters themselves and the stories told about them in popular magazines played a fundamental role in constructing Temagami as a white space of national nature, and of rendering illegible Teme-Augama Anishnabai claims to land.

Keywords: race, nature, nation, gender, Temagami, 'Indian' guides, tourism

Grant I. Thrall, Ph.D., Professor, University of Florida. Email:

thrall@geog.ufl.edu; Phillip A Morris, Graduate Student, Geography, University of Florida. Email: morrispa@ufl.edu; *Business Geographic Analysis For Colleges And Universities With An Example Of St. Petersburg College, Florida*

Geographic analysis has been adopted by businesses, especially the retail sector. Higher education can receive the same benefits as have businesses by adopting business geography analysis and technology. The commonality between business geography and institutional research for higher education is that both have trade areas, both provide services to clients (students), and clients can be geographically identified by their addresses as well as their psychographic profile. Among the valuable information that institutions of higher education can create using business geography are psychographic profiles of the student body, commuting patterns, and potential enrollment based upon the underlying demographics of the institution's trade area. A benefit of this analysis is the ability to anticipate the needs of the market. Understanding these geographic characteristics can assist in evaluating institutional objectives, and identify constraints on implementing these objectives. St. Petersburg College, Florida, data is applied to illustrate these concepts.

Keywords: Business Geography, GIS, Higher Education Policy, Public Policy, Applied Geography

Yong Q Tian, University of Massachusetts - Boston. Email:

yong.tian@umb.edu; *Spatial and temporal modeling the fate and transport of dissolved organic carbon (DOC) from landscapes to coastal waters*

Marine dissolved organic carbon (DOC) is one of the largest reservoirs of organic carbon (about 680 gigatons) at the Earth's surface. However, the dynamics of carbon cycle at the land-sea interface are not well understood due to complex mixing processes, multiple sources of organic carbon, high biogeochemical reactivity in estuaries, and a lack of the high temporal and spatial resolution data needed to assess these fluxes at a global scale during times of rapid (decadal) changes in source and transport mechanisms. This presentation introduces an integrative modeling approach to quantify the sources and transport mechanisms of DOC in the coastal oceans. Dissolved organic matter (DOM) in seawater is one of the largest reactive reservoirs of carbon on earth. The fraction of the DOM that absorbs light is called chromophoric or colored dissolved organic matter (CDOM). Under certain conditions, CDOM can be used as an indicator for DOC concentration. This paper discusses two study results: 1) in situ measurements of freshwater CDOM endmember variability due to watershed and rainfall properties and seasonal cycling; and 2.) use a GIS approach to develop a predictive model of CDOM sources from terrestrial watersheds and groundtruth the predictive model in watersheds of various sizes.

Keywords: colored dissolved organic matters

Michael Tiefelsdorf, U of Texas at Dallas. Email: tiefelsdorf@utdallas.edu; Jielai Ma, . Email: forgp2002@yahoo.com; Jennifer Hubenig, . Email: jmh055000@utdallas.edu; Eigenvalue Spectra Approximations of Spatial Link Matrices

Spectra of eigenvalues from spatial link matrices have broad applications in statistical analysis of spatial data. While the largest and the smallest eigenvalues are functionally linked to the possible limits of stationary spatial processes, the full set of eigenvalues allows the examination of spatial autocorrelation statistics and the calculation of maximum likelihood estimators. Technical and numerical impediments, though, make the exact evaluation of eigenvalue spectra for large tessellations beyond several thousand observations infeasible. This research focuses on the approximation of eigenvalue spectra of spatial link matrices first by identifying the smallest and largest eigenvalue and second by filling in the remaining eigenvalues with a mixture of beta distributions. Parameters of the mixture of beta distributions are linked to particular characteristics of empirical and regular spatial structures in their different coding schemes. In addition, numerical aspects are addressed such as utilizing the sparsity of the spatial link matrices and the implementation in high level statistical software packages.

Keywords: spatial autocorrelation, spatial statistics, eigenvalues

John P. Tiefenbacher, Texas State University. Email: tief@txstate.edu; Hazard in Space, Geometry and Landscape: The Role of Visibility, Design and Speed in Water Crossing Hazards in the Hill Country of Texas

Since 1950, more than 250 people have died (and many others rescued) in Texas when their automobiles unexpectedly encountered flooded roadways. Though the "low water crossing" on Texas roadways has analogies in other parts of the U.S., the phenomenon is ubiquitous in the karst topography of the Hill Country region and presents particularly unique challenges. This paper reports the results of a project to study a four-county portion of the Hill Country to map and evaluate the risk and hazard of 196 crossings. Particular emphasis is on the evaluation of vulnerability of drivers in a three-dimensional context of the crossings. Using field-collected data in combination with LIDAR and statistical analysis, this paper highlights the roles that road design (slope and linearity), travel speed, and visibility play in the production of hazard.

Keywords: hazards, transportation, floods, Texas

Bryan Tikalsky, Brigham Young University. Email: bryan_tikalsky@yahoo.com; Matthew F. Bekker, Dr., Brigham Young University. Email: matthew_bekker@byu.edu; A Millennial-Scale Precipitation Reconstruction for the Wasatch Mountains near Salt Lake City, Utah

Mountain water resources are essential to those living along the Salt Lake City urban corridor. This study seeks to better understand variability of mountain precipitation in this region on a millennial time scale by utilizing dendrochronology. It is the first climate reconstruction of its kind for this region. A GIS model was used to identify potential sampling sites where tree growth would be sensitive to climate. We obtained over eighty samples from ancient limber pine (*Pinus flexilis*) and Douglas-fir (*Pseudotsuga menziesii*) to perform the reconstruction. Results indicate significant correlation between tree-growth and precipitation from both the current and previous years. They also show a significant inverse correlation with early-summer temperatures in both the current and previous year, indicative of sensitivity to snowpack and soil moisture.

Keywords: Biogeography, Dendrochronology, Climatology, *Pinus flexilis*, Wasatch Mountains, Utah

Karen E Till, Associate Professor of Geography, University of Minnesota. Email: ktill@umn.edu; Julian Jonker, Department of Private Law, University of Cape Town. Email: julianjonker@gmail.com; Thanatopolitics and Transition: Haunted Archaeologies of the Postcolonial City

Prestwich Place was one of many construction sites in the heart of Cape Town, South Africa, until the skeletal remains of more than 1400 slaves and members of the colonial lower classes were unearthed by unsuspecting construction workers in 2003. The unearthing of human remains at Prestwich Place gave rise to discussions about the priority of property rights and urban renewal over ancestral burial site; soon disputes emerged about what should count as national heritage, and whose knowledge and interpretations of human remains should be privileged when evaluating claims to descendancy and belonging. In this paper, we argue that postcolonial sites constitutively marked by violence and injustice might be better understood through their spectrogeographies. By mapping the memorial cartographies and haunted archaeologies of Prestwich Place, we explore the spatial contours of a city historically inscribed through the legal management of death. This colonial thanatopolitics resulted from an excessive biopower that not only regulated life, but also the dead through the spatial management of the very corpse of the colonial subject. The recent 'discovery' of Prestwich Place thus disrupted established zones of social belonging in the contemporary city by invoking repressed pasts, allowing descendants of slaves

and apartheid subjects to reimagine how they might inhabit the urban spaces from which they and their ancestors were displaced.

Keywords: Cape Town, postcolonial memory, thanatopolitics, haunted archaeologies, memorial cartography

Benjamin F. Tillman, Ph.D., Texas Christian University. Email: b.tillman@tcu.edu; From Tahiti to Trujillo: An historical geography of the breadfruit tree's Caribbean dispersal.

This study examines the breadfruit tree's Caribbean dispersal. During the late 18th century the British commissioned Captain Bligh to transport breadfruit trees from the South Pacific to feed the slave population of the West Indies. Bligh's first attempt to bring breadfruit to the West Indies failed when his mutinous crew tossed the trees overboard after gaining control of the H.M.S. Bounty. Bligh's second voyage, lasting from 1791-1793 on the H.M.S. Providence, was successful. After retrieving 2,126 breadfruit trees from Tahiti he sailed to the West Indies, arriving at Kingstown Bay, St. Vincent, January 23, 1793, and in Port Royal, Jamaica, on February 5, 1793. Historical documents deposited in the Royal Botanic Garden in Kew and the National Archives in London give a general picture of the breadfruit tree's subsequent diffusion to other Caribbean locations. Breadfruit trees were immediately distributed to plantation owners in Jamaica and St. Vincent, and were subsequently introduced to other British possessions within the next few years. Breadfruit was also introduced to the east coast of Central America no later than 1801, at Trujillo, Honduras. Ironically, breadfruit was initially rejected by the very same slave population it was intended to feed. The non-native tree ultimately spread throughout the Caribbean and today its fruit is an essential part of the diet in many countries, especially in rural areas.

Keywords: Caribbean, historical geography, breadfruit

Michael Timberlake, University of Utah. Email: timber@soc.utah.edu; Xiulian Ma, University of Utah. Email: xiulian.ma@soc.utah.edu; Shanghai's Increasing Centrality in Airline Passenger Networks: The Making of a 'World City'

One finds important world cities in all major economic regions, and we expect dynamic regions, such as China, to have cities that become increasingly important to the overall network of world cities. Which cities in China are emerging as important world cities? How do they compare to other cities in the global system of cities? Are there dynamic tendencies that suggest what future patterns will be? This research contributes to answering these questions, and in the course of doing so it contributes to the debates on which of China's great cities is its leading "global city." Our formal network analysis of air passenger flows shows that over the past twelve years, Shanghai has gained steadily on Beijing to finally become the leading city in China. We also examine Shanghai's position in the global system of cities, showing how it has become increasingly central to this network as well. Over the past sixteen years, both Beijing and Shanghai have become more globally central. Between 1995-2000, Beijing and Shanghai climbed from about 160 and 195 (of more than 300 large cities in the world) to about 40th and 60th, respectively, in 2000. Over the next 5 years, both cities rose to join the top 20 -30 cities, and Shanghai finally replaced Beijing as the leading Chinese world city. Both cities rose from the periphery to the semi-periphery (or semi-core) position in the world city network. We interpret Shanghai's rise in the global network of cities through the lens of world city research.

Keywords: world city, globalization, social networks, airlines

Benjamin F. Timms, Cal Poly. Email: btimms@calpoly.edu; Rebalancing the Peasant Ecology? Responses to Relocation from Celaque National Park, Honduras

In traditional peasant studies the survival of the peasantry is threatened by capitalist primitive accumulation which leads to semi-proletarianization and, eventually, full proletarianization through social differentiation. Here the study of peasant groups is expanded through the theoretical framework of peasant ecology, which ties the traditional peasant social relations of production with their ecological relations of production. It is argued the nexus of these relations is the key to the survival of the peasantry and upsetting the balance leads to environmental degradation and social impoverishment. As the global environmental movement, and its' practice of exclusionary nature protection, becomes increasingly involved in the global political economy it serves as a powerful vehicle for a new round of primitive accumulation. The practice of exclusionary protected areas can disrupt the peasant ecology of excluded groups, resulting in ecopolitical conflicts antithetical to the goals of protected areas and the socio-ecological situation of the peasantry. However, structural forces responsible for the imposition of exclusion have left niches through which peasant agency can be applied to resist social and ecological degradation. In this paper strategies employed by peasant groups relocated from Celaque National Park, Honduras serve as examples of such resistance. Peasants are not simple recipients of

structural changes, they are actively attempting to resist and survive through exploiting the spaces left available to them in the process.

Keywords: Honduras, Peasants, Peasant Ecology, Political Ecology, Protected Areas

Dallen J. Timothy, Arizona State University. Email: dtimothy@asu.edu; Kevin Schmidt, Arizona State University. Email: ; *Tourism and the Mormon Culture Region Periphery: Heritage Tourism and the LDS Colonies of Mexico*

This paper examines the characteristics of personal heritage tourism in the Mormon colonies of Mexico from the perspective of core-periphery relationships and peripheral people's connections to their 'homeland'. Based on surveys of residents of Colonia Juarez, Mexico, and people in the United States who have personal connections to the Mormon Colonies in Mexico, this paper discusses community member connections to their 'core region' or 'homeland' (the United States) in relation to their travel patterns and activities. Likewise, the paper examines the role of Colonia Juarez as a personal heritage tourism destination on the LDS periphery for people from the core region of the western United States.

Keywords: heritage tourism, Mexico, Mormon tourism

Abbie Hilary Tingstad, M.Sc., University of California - Los Angeles. Email: abbiel@ucla.edu; Glen M. MacDonald, University of California-Los Angeles. Email: macdonal@geog.ucla.edu; *Perspectives on drought across the Uinta Mountains, Utah: Evidence for climatic variability and implications for the prediction of widespread drought in the American West*

The Uinta Mountains are an east-west trending range located in the northeastern corner of Utah and are a source area for the Green River, which, in turn, feeds the Colorado River. Given their geographical position and importance to the water budget in the western United States along with the availability of fairly substantial instrumental and proxy climate data archives for the area, the Uinta Mountains afford a unique opportunity to study both drought on inter-annual to multi-centennial timescales as well as climatic processes such as the North American Monsoon and Pacific frontal activity that affect moisture delivery to areas in the western United States. Multi-centennial chronologies based on ring-widths from drought-sensitive *Pinus edulis* and *Picea engelmannii* demonstrate the presence of recurring severe drought ($PDSI < -3$) along with variability associated with the El Niño/Southern Oscillation (ENSO), the Pacific Decadal Oscillation (PDO), and changes in the strength of the North American Monsoon. These chronologies also highlight environmental changes associated with the continental-scale mega-drought that occurred during the mid- and late-1600s and the Little Ice Age (ca. 1600-1850). Instrumental data for precipitation and stream flow are used to test the hypothesis that the east-west trend of the Uintas shifts monsoonal and frontal precipitation to the West. Seasonal precipitation maps derived from weather station data for the 1982-1983 and 1997-1998 ENSO events indicate that these climatic 'anomalies' impacted precipitation patterns across the Uintas, in some cases augmenting moisture differences across the range.

Keywords: Dendroclimatology, drought, Uinta Mountains, ENSO, PDO, North American Monsoon

Chetan Tiwari, University Of Iowa. Email: chetan-tiwari@uiowa.edu; *Spatial Data Handling Challenges in Developing a GIS-based Disease Surveillance System for Environmental Health*

Disease surveillance is the process of reporting, collecting, analyzing and exchanging information about diseases with the objective of planning and managing control and prevention activities. An important component of this process is the ability of surveillance systems to manipulate and analyze large volumes of disparate geospatial health and environmental hazard data. Although high quality data is increasingly being collected, current surveillance systems have limited capabilities to process and analyze such data in a manner that is generalizable across different geographical regions and different kinds of environmental hazards. Developing such generalizable systems not only requires new strategies for storing geospatial data, but also methods of representing knowledge about those data within the system. In this presentation, I address these issues of spatial data interoperability and knowledge representation for the purposes of developing a disease surveillance system for environmental health that is capable of (a) integrating disparate spatial data from existing data repositories, (b) capable of modeling different kinds of environmental hazards in many different environments, and (c) providing tools to help determine relationships between disease outcomes and environmental hazards.

Keywords: Disease Surveillance, Environmental Health, GIS

Phuc Xuan To, Humboldt Uni. Berlin. Email: txphuc2001@yahoo.com; To Xuan Phuc, Humboldt University Berlin. Email: txphuc2001@yahoo.com; *Rural Producers and Urban Consumers in Vietnam*

In the late 1980s, the Vietnamese government decided to implement the renovation policy by which it shifted central-planning economy to market-oriented one. The Land Law issued in 1993 mandated the state to allocate land previously controlled by the state to local households. The Law profoundly expands the scope of rights and the duration of such rights for local people. It is expected that the Law would enable local people to pursue long-term benefits from the land. A combination of the Law and market economy has substantially changed meanings of agricultural land in the uplands. In this paper I examine local process of these changes in two Vietnamese upland villages and study effects of changes on property relations. I argue in this paper that changes in meanings of agricultural land in the villages have constituted new sets of actors who are highly differentiated in productive resources and capacity. In the process of changes, some of them become better off, some are lagged far behind. These actors have responded differently to market opportunities. Changes in meanings of the land have strong effects on property relations in the village. They have resulted in social differentiation and resource conflicts among households in the villages.

Keywords: Property relations, Uplands, Vietnam

Gerard Toal, Virginia Tech. Email: toal@vt.edu; *The Denial Of Bosnia-Herzegovina: Serbian And Croatian Geopolitical Traditions Before The 1992 War.*

This paper reviews the different geopolitical visions of Bosnia-Herzegovina in the geopolitical culture of Serbia and Croatia before the 1992 war. It seeks to demonstrate that these cultures were characterized by different geopolitical traditions but a similar modernist geopolitical imagination that reduced human places to fixed ethno-governmental objects. Most traditions denied that Bosnia-Herzegovina was a distinctive and unique space capable of its own independent existence should Yugoslavia break apart. Intellectuals, however, varied in their conception of what should happen to Bosnia, with some advocating complete assimilation while others advocated various partition plans and population exchanges.

Keywords: Geopolitics, Bosnia, Vision

Waldo R. Tobler, PhD, Doktor Honoris Causa, University Of California, Santa Barbara. Email: tobler@geog.ucsb.edu; *Distortion Properties of a Portolan Chart*

Several methods have been used to examine "The Enigma of the Portolan Charts". The principal question is to estimate how they were constructed, since they are apparently of high accuracy, yet they were produced from the thirteenth century on. A related question is to measure their accuracy and to replicate the projection used. Approaches to the latter question have included guessing the projection, usually a conformal one, interpolating a quadrilateral grid for a visual estimate, least squares fitting to variants of known projections, and attempts at constructions from empirical observations. In this paper numerical values from Tissot's indicatrix are used to infer properties of a portolan chart from 1482, in the hope that this will provide hints as to its construction.

Keywords: Portolan Chart, Distortion, Map Projection

Diana Todd, Montgomery College. Email: dltodd@erols.com; *Examining A Sports Hegemony: Sweden's Domination of Orienteering*

Ever since the sport's inception in the early 1900's, Sweden has dominated the sport of orienteering. While the U.S. regularly produces world champions in other individual sports, such as swimming, gymnastics, and skiing, no American has ever won an international orienteering title. What does Sweden have that the U.S. does not? In examining Sweden's dominance of international orienteering competition, seven factors were compared to a measure of national orienteering success for 46 member nations of the International Orienteering Federation (IOF). The seven factors were: number of orienteers, percent of the population who orienteers, density of orienteers, number of orienteering clubs, age of the national orienteering federation, number of IOF ranking events held in the country in 2004 & 2005, and distance from Sweden. The age of the federation and the number of IOF events showed the strongest correlation with orienteering success, as measured by the coefficient of determination (r^2).

Keywords: sports, orienteering, recreational geography, international sports competition

Taiko Todokoro, Ritsumeikan University. Email: lg007999@lt.ritsumei.ac.jp; A role of traditional local colors in urban landscape formation: a comparative study of streets having different regulations in central Kyoto

This paper explores features of urban landscape in colors and a role of colors in urban landscape formation focusing on appearances of buildings and on efforts based on the local government and on residents. To clarify distinctive features of urban landscape in colors, this paper discusses the distribution of traditional local colors. They can be defined as the colors that are geographically and historically fostered in the locality, reflecting local nature, culture and society. They are frequently used in traditional buildings. The main findings are summarized as follows: The urban landscape in colors is determined by (1) location, (2) historical context, (3) laws and regulations, and (4) inheritance systems of traditional local colors including building materials and building construction methods. The sequence of landscape in the physical form of buildings has been disappearing in the course of urban renewal after World War II. Focusing on the appearance of buildings modeled on traditional ones, however, the sequence of landscape has been complemented by traditional local colors used on its building materials and exterior colors. In addition, it is possible even for areas lacking physical sequence to keep some visible sequence and regional characteristics to a certain degree when traditional local colors are used on exterior colors and color harmony is maintained. The use of these colors makes it possible to create regional unity of urban landscape based on the situation in each area. Inheritance and innovation of traditional local colors should be utilized more to reconstruct and enhance regional characteristics.

Keywords: urban landscape, traditional local colors, regulation, resident awareness, Kyoto

Helmuth Toepfer, University of Bonn. Email: toepfer@giub.uni-bonn.de; Changing socioeconomic structures in Japan

In modelling the regionally differentiated structures in Japan three decisive steps were taken. The first step consisted of a factor analysis to find the variables with most information. The second step consisted of an elaboration of the best combination of variables to find the regions of different development potentials, and the third step was a cluster analysis of the combination of variables in order to get different types of communities. The pathway model presented here shows in his centre those two variables which can indicate the dynamic of today and the development potential for the future: a) the proportion of the population at the productive ages between 20-54 years, and b) the employment trend overall between the last two censuses. It can be shown that large areas of the region under examination are included within the zones with stagnating communities lagging behind the dynamic communities. The pre-eminent centres (Tokyo, Nagoya, Osaka), but also a lot of smaller centres are the points of departure for strong development; but almost all of them have relinquished the very top levels of growth to their surrounding communities to a greater or lesser degree. On the other hand this dynamic causes the distant hinterland to become zones of weakness in terms of their socio-economic development. This can be shown by different variables, e.g. population density, population change, average age, percentage of one-person households, importance and development of primary, secondary and tertiary sectors' employment, development of jobs in all sectors, etc.

Keywords: Japan, population

Nebahat Tokatli, New School University. Email: tokatlin@newschool.edu; Unpacking Asymmetry and Dynamism in Networks: in the Words of Turkish Clothing Suppliers

In this paper, we are interested in the changing power relationships between European clothing buyers and their Turkish suppliers, as both try to adjust to the current seminal change in the culture of fashion from ready-to-wear to fast-fashion. The focus is on the manner in which decision makers in supplier firms verbalize their relationships with their buyers. The fieldwork includes open-ended interviews with 30 suppliers and key informants in Turkey - the second largest clothing supplier of Europe after China. The majority of the interviewees are full-package suppliers of European buyers such as the British Marks & Spencer and Next, the Spanish Zara, and the Swedish Hennes & Mauritz. After briefly setting the scene, both in terms of the conceptual framework and the local context, we allocate most of the paper to quotations from the interviewees themselves. The idea is to understand what the suppliers' own vocabulary highlights with respect to their asymmetrical yet dynamic relationships with their buyers at a time when Turkey tries to adjust to fast-fashion principles.

Keywords: Economic geography, globalization, clothing industry, buyer-supplier relationships, supply chains, power, Turkey

Brian Tomaszewski, The Pennsylvania State University. Email: bmt139@psu.edu; Awareness in Asynchronous Geocollaboration

Inherent to all forms of collaborative activity are basic elements that need to be available to and shared between individuals and groups. These elements include a sense of co-collaborator presence, which resources (such as tools, data, and functions) are available to the individual and the group, what co-collaborators attitudes, goals, and expectations are, how the plan and execution of work is achieved over time, and what relevant information is known within the group. Many of these foundation collaboration elements revolve around themes of awareness. Much research has been conducted on awareness in virtual, real-time collaborative systems. However, less work has been done on awareness support in asynchronous systems. Furthermore, few geocollaboration systems consider or support asynchronous awareness. Awareness support is needed so that co-collaborators can make sense of information that is inherently fragmented as a result of asynchronous interaction processes. A practical example of this can be found in long-term, disaster recovery efforts where situation awareness is derived from information about actions of collaborators and real world events developed over long, asynchronous time spans, especially as collaborators enter and leave the situation. This paper will first address how standard asynchronous awareness issues such as temporal fragmentation and maintaining common ground can and need to be considered with the unique geographical awareness issue of spatial fragmentation in order to maintain individual and group awareness in asynchronous geocollaborative process. Finally, preliminary results of geospatial and temporal interaction techniques and methods being designed to support awareness in asynchronous geocollaboration will be presented.

Keywords: Geocollaboration, Awareness, Asynchronous Collaboration, HCI, GIS

Melanie N Tomintz, University of Leeds. Email: m.tomintz05@leeds.ac.uk; Graham P Clarke, University of Leeds. Email: g.p.clarke@leeds.ac.uk; Jan Rigby, University of Sheffield. Email: jan.rigby@sheffield.ac.uk; Using Spatial Microsimulation and Location-Allocation Models to find Optimal Locations for Smoking Cessation Services in Leeds

Finding optimal locations for health care service provision is a constant concern of health geography. This study focuses on smoking and smoking cessation services as smoking is a very important and topical issue in the UK and the target is to reduce 9% (55,000) of smokers in Leeds (study area) by 2010. Smoking cessation services are supportive for people willing to give up and therefore it is necessary to locate such centres in the most appropriate locations. Location-allocation models have typically been used to site facilities based on some estimate of small area demand. However, identifying demand is often a non-trivial exercise making facility location challenging. In this paper four scenarios are modelled at Output Area level based on smoking estimates for different population groups. The preliminary results show that there is need for facilities in the eastern and northern part of Leeds. A road network and demand estimations based on individuals using the methodology of microsimulation will build more sophisticated location-allocation models and various what-if scenarios will be useful and supportive for future planning decisions.

Keywords: Stop Smoking Services, Location-Allocation Models, Microsimulation

Kyla Tompkins, Pomona College. Email: kwazana@pomona.edu; Watch Your Tongue: Race, Speech, Food and the Antebellum Kitchen

My paper focuses on the ground zero of American food culture: the kitchen. Although many feminist critics have discussed the kitchen as a site from which nineteenth-century feminist politics may be abstracted, I see the kitchen, both literary and actual, as a space whose politics must be analyzed in terms of its excessive physicality. It is a space of blood and guts, plucked chickens and cooked tongue, rancid and sweet butter, rising bread and fermenting beers, and other items only semi-formed on their way to the site of ingestion, be it dining room or kitchen table. It is also the space where the embodied politics of the public sphere are most visible: the sometimes violent class- and race-based confrontations between mistress and servant, or slave; the economics of what is available and affordable; the cultural politics of who gets to eat what. In particular I examine the under-treated work of Robert Roberts, the free African-American servant who published the House Servant's Manual (1827). Roberts' text discusses the role of the cook at length, and in particular narrates a close association between training the cook's palate (or tongue) to discern flavor and training her to keep insubordinate gossip - kitchen talk - to a minimum (or, in other words, to "watch her tongue"). Food language is associated with vernacularity, base orality and consumption; at the same time, the cook's mouth becomes a metonym for the subversive and punitive power of the kitchen.

Keywords: food, race, home, domestic

Daoqin Tong, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: tong.45@osu.edu; Alan T Murray, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: murray.308@osu.edu; Addressing Region-wide Coverage Issues

Facility placement and associated coverage are major concerns in regional service planning. In this paper, coverage problems in the continuous plane are examined, where demands are represented as spatial areas. More specifically, an approach focusing on identifying efficient potential facility sites to coverage problems is detailed. Application to site warning sirens in Franklin County, Ohio is examined. Issues associated with region-wide modeling are addressed.

Keywords: coverage, modeling, continuous plane

Stanley Toops, Miami University. Email: toopssw@muohio.edu; Landscapes of Silk Road Tourism: on the Road to Samarkand

Just as international interest in the history and culture of the ancient Silk Road has grown since the 1980s, the number of tourists visiting ancient sites all along this historic trade artery has also risen. China, Kyrgyzstan and Uzbekistan have encouraged this new interest by allowing increased access to many formerly closed places. The World Tourism Organization also has a Silk Road Project in place. As a result, tourists now arrive to view a wide range of historical, cultural, and natural attractions. Tourist hotels and tour guide companies (both official and unofficial) now benefit from group tours seeking to experience some of the wonders of this new tourist destination. I examine the creation of a tourist landscape along the Silk Road and discuss the impacts of tourism development in China, Kyrgyzstan, and Uzbekistan.

Keywords: Silk Road, China, Tourism

Marla Torrado, Syracuse University. Email: mjtorrada@maxwell.syr.edu; Making way to the interior: Effects of road construction on Amerindian communities of Guyana

Guyana embodies a unique country, characterized by a complex political history and environmental richness. Indians, Afro-Guyanese and Amerindians share this land, having a vast concentration of population in the coast and capital, Georgetown. The Amerindian population, composed mainly of Makushi, Wapishana and Wai Wai, is distributed throughout the west and south of the country, occupying both savanna and forests environments. This paper focuses on the southern part of the country, the North Rupununi savannas. Sixteen Makushi communities inhabit the vast savanna and forest patches of this region. Even though these communities maintain a close relationship with their surrounding environment, the construction of the road that connects Georgetown to Lethem, fourteen years ago, has brought changes in both the environment and lifestyle of these Makushi communities. This paper attempts to identify the environmental impacts of the road, looking at the current land cover of the communities and performing different spatial analysis for susceptibility. Remote sensing was used to identify the current land cover of the area, using GPS data points gathered during field work to develop a land cover classification. Functions like proximity to roads and buffer zones, to mention some, were used in order to understand the possible threats and impacts to the different environments of the region.

Keywords: land-cover, remote sensing, indigenous peoples, environment

Alicia Torregrosa, United States Geological Survey. Email: atorregrosa@usgs.gov; U.S. Geological Survey Ecosystem Mapping Initiative

Conceptually, ecosystems are mappable, co-occurring assemblages of plants and animals that have evolved to share common ecological processes and biophysical characteristics. Practically, ecosystems have been viewed as unique abiotic environments that support a particular land cover type. Mapping ecosystems has traditionally been a labor intensive process that relies on the application of some classification schema designed to spatially discriminate one ecosystem from another. Because various classification methods and schema have been used, there is no single nationally consistent approach to mapping the ecosystems of the conterminous United States at spatial scales finer than large ecoregions. To address the need for a framework to scientifically monitor landscape trends across the nation and provide a baseline from which to calculate ecosystem services, the U.S. Geological Survey is producing a standardized map for the conterminous 48 states delineating meso-scale (10 to 1000 km²) ecosystem units at 30-meter resolution. A key component for performing this mapping is establishing, classifying, and reviewing bioclimate, surficial geology, landforms base data layers and synthesizing them into abiotic environmental units. The environmental "footprints" are combined with land cover into ecosystem footprints and then labeled using the NatureServe terrestrial ecological classification system, a nationally recognized system used by the LandFire and GAP Programs. Review of the methodology and applications are being conducted in the Great Basin, Mississippi Alluvial Valley, and Prairie Potholes regions.

Keywords: ecosystem, mapping, classification, land cover, gis

Marko Tomic, McGill University. Email: marko.tomic@mail.mcgill.ca; Robert Bonnell, McGill University. Email: robert.bonnell@mcgill.ca; The Effects of Surface Runoff on Reef Water Quality in Barbados

Nearshore pollution from surface runoff is a known factor leading to the degradation of coral reefs, and has been suggested to have contributed to the degradation of reefs in Barbados. Increased turbidity restricting the passage of light to the substrate and smothering due to sedimentation restricts coral growth. Surface runoff was monitored for various storms during the wet season of 2007 in Barbados. Monitored water levels and velocity profiles were used to calculate discharge, while grab samples were taken and analyzed for turbidity, total suspended solids, nitrates, and phosphates. Discharge data was used to calibrate a hydrological model, TR-55, while the concentration of effluents has led to estimates of pollutant loads. Following storms, the nearshore reef waters were sampled for turbidity, total suspended solids, and chlorophyll-a to better understand the passage and time of dispersion for this pollutant input.

Keywords: GIS, turbidity, water quality, TR-55, sedimentation, coral reef

Neil A. Toth, Indiana State University. Email: ntoth@mymail.indstate.edu; Christopher M. Gentry, Indiana State University. Email: ; James H. Speer, Ph.D., Indiana State University. Email: ; Graham I. Bishop, Indiana State University. Email: ; Climate reconstruction from eastern hemlock (*Tsuga canadensis*) in central Indiana

We used dendrochronology to examine the climate response of eastern hemlock (*Tsuga canadensis*) at Greens Bluff Nature Preserve in central Indiana and to determine the overall age of this remnant stand near the limits of its ecological range. Greens Bluff is a habitat with uplands, ravines, and steep cliffs which made logging difficult and contributed to the protection of this unique area. In October 2006, we sampled 40 living trees and took cross-sections of 10 downed trees for analysis. Samples were surfaced with progressively finer sandpaper and all rings were cross-dated to their exact year of formation. This research resulted in a climate reconstruction back to the late 1700s which is one of the longest chronologies in central Indiana.

Keywords: Dendrochronology, *Tsuga canadensis*, Biogeography, Climate, Indiana

Matthew Townley, Texas State University - San Marcos. Email: townley_m@gmail.com; Votes and Values: Ohio in the 2004 Presidential Election

The 2004 presidential election was widely reported to have turned on issues of values and morality. A casual glance at any choropleth map of county returns (the now well-known "red" and "blue" map) suggests a sharp spatial dichotomy between urban and rural election districts. Because popular perception suggests an alignment with traditional values among the rural populations, it is tempting to conclude that urban populations are less inclined toward behaviors consistent with traditional values such as stable marriages and sobriety. This study focuses on county-level data indicators of "immoral behavior" such as births out of wedlock, divorce rates, STD infection rates, and drug use data for the state of Ohio during the years preceding the 2004 election. Ohio was chosen for its status as a "swing" state and its relative independence from each of the candidates. The study uses ArcGIS to create visualizations of various combinations of explanatory variables of "immorality" over which the 2004 election returns are draped. The results show some surprising disconnects with the clear red county/blue county dichotomy and its putative referendum on traditional values.

Keywords: Political Moral Values Electoral

Leeann Townsend, MA York University, . Email: leeannt@yorku.ca; Moving Past the South Korean and Japanese Governmental Impasse in the 1990-2006 redress movement for the 1930-1945 Imperial Japanese 'Comfort Women' Prostitution System: Strategies for Action?

Offering a public admission of guilt and remorse has the potential, as Mark Gibney and Erik Roxstrom state, to change behaviours and ensure that the same mistakes are not made in the future (2001, 935). Stanley Cohen, on the other hand, argues that some governmental "acknowledgements" co-opt the issue for the benefit of the state while further victimizing the parties involved (2001, 249). In the case of the Japanese government's and the South Korean government's calculated handling of the 1990-2006 redress movement for the 1930-1945 Imperial Japanese military's 'comfort women' prostitution system: what would it mean for the current Japanese government to apologize for the previous Imperial Japanese government's wrongdoings? How do the power dynamics between countries shape transnational state apologies? What makes for an acceptable atonement? Who decides this? When considering that appeals to both the Japanese government and South Korean government for redress for the systematic sexual violence committed during World War Two (WWII) have been resisted, trivialized, and even ignored for more than sixty years now, researchers and activists must ask what this culture of impunity means for current domestic gender relations, the status of women throughout Asia, security issues, the

Japanese and South Korean states, and the international community. This paper will examine these very pertinent issues and will speculate here on the ways in which Japan and South Korea could begin to confront their roles in this period of militarized prostitution in a meaningful way

Keywords: Militarized prostitution, South Korea, Japan, State Contrition, Reparations

John R. Townshend, University of Maryland. Email: jtowshe@umd.edu; Matthew Hansen, South Dakota State University. Email: matthew.hansen@sdsdstate.edu; Rob Sohlberg, University of Maryland. Email: sohlberg@umd.edu; Chengquan Huang, University of Maryland. Email: cqhuang@umd.edu; Mark Carroll, University of Maryland. Email: markc@geog.umd.edu; Kuan Song, University of Maryland. Email: kuan@geog.umd.edu; Paul Davis, University of Maryland. Email: pdavis@umiacs.umd.edu; Improving estimates of global land cover change

The use of moderate and fine resolution satellite data from MODIS and Landsat respectively is allowing much improved estimates of land cover change. Results will be presented of rapid clearance of tropical forests primarily for agriculture and of changes in temperate and boreal areas as a result of fires, both natural and anthropogenic. Emphasis is placed on the considerable inter-annual variability of forest cover change and of its implications for the carbon cycle.

Keywords: Remot sensing, earth science, land cover

Erica Trafton, University of Wisconsin - Milwaukee. Email: etraft@aol.com; Creative De(con)struction in the New Economy: Landscapes of Investment and Disinvestment in the 21st Century American City

Geographers continue to be interested in the process of urban gentrification. This is in part because the process has significantly increased over the past decade. One of the consequences of the process of urban gentrification is a deepening economic and social polarization across central city urban space. Using Milwaukee, Wisconsin as a case study, this paper explores the connections between urban gentrification and socioeconomic polarization. These relationships are illustrated by comparing appreciation in housing values, and per capita incomes at the census tract level. The results of this study confirm that gentrification is indeed resulting in intensifying economic polarization across central city Milwaukee.

Keywords: Gentrification, Wisconsin-Milwaukee

Anne Maura Trainor, University of North Carolina - Chapel Hill. Email: atrainor@email.unc.edu; Kenneth R. Wilson, Colorado State University. Email: kenneth.wilson@colostate.edu; Tanya M. Shenk, Colorado Division of Wildlife. Email: Tanya.Shenk@state.co.us; Spatial Response of Preble's meadow jumping mouse (*Zapus hudsonius preblei*) to resource supplementation

Conservation efforts for the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), a threatened subspecies, include habitat restoration. Most wildlife are spatially distributed throughout habitat disproportionately and exhibit site fidelity. This behavior is usually documented for large scale movements and migration. Using radio telemetry, it was discovered that *Z. h. preblei* exhibit site fidelity within riparian ecosystems. Our objective was to determine if *Z. h. preblei* would detect and use supplemental food and cover (simulated restoration) located where the mouse had not been documented for 3 years, thus altering their movement, spatial distribution, and site fidelity behaviors. Through monitoring of radiotagged mice during pre- and post-treatment periods, we documented the mouse's immediate, short-term movement response to the addition of supplemental resources. Results were mixed with only 1 of 11 individuals using a single treatment plot in 2002 compared to 6 of 8 individuals using 50% of the treatment plots in 2003. *Z. h. preblei* use of supplemental resources may have been limited by and affected temporally by a combination of factors including site fidelity, minimal precipitation in 2002 and its potential impacts on habitat, exploratory movements to detect new habitat and elevated predation risk. These results suggest that detection of restored habitat by *Z. h. preblei*, at least in the short-term, may not be certain and underscore the need for direct monitoring after restoration efforts. Significant attention to the spatial arrangement of restoration efforts should be considered to encourage species use and the desired effects such as long-term persistence are attained.

Keywords: Animal Movement, Site Fidelity, Experiment, Radio-telemetry, Biogeography, Conservation

Sarah F. Trainor, Ph.D., Institute of Northern Engineering, University of Alaska - Fairbanks. Email: fnsft@uaf.edu; Susi Moser, Ph.D., Institute for the Study of Society and Environment, National Center for Atmospheric Research. Email: ; Daniel White, Ph.D., Institute of Northern Engineering, University of Alaska - Fairbanks. Email: ; John Walsh, Ph.D., International Arctic Research Center, University of Alaska - Fairbanks. Email: ; Craig Gerlach, Ph.D., Department of Anthropology,

University of Alaska - Fairbanks. Email: ; Fran Ulmer, Director, Institute of Social and Economic Research, University of Alaska - Anchorage. Email: ; The Alaska Center for Climate Assessment and Policy: Building Partnerships Between Climate Scientists and Decision-Makers

The newly launched Alaska Center for Climate Assessment and Policy (ACCAP) at the University of Alaska is one of seven Regional Integrated Science Assessments nation-wide supported by the National Oceanic and Atmospheric Administration (NOAA). ACCAP's mission is to promote research partnerships and facilitate information exchange regarding current and projected future climate change impacts in Alaska and to develop strategies for increasing the capacity for Alaskan sectors to adapt to this change. With a focus on the transportation sector, our three pilot projects include: 1) hydrologic analysis of pumping from North Slope ponds for oil exploration ice road construction, 2) the impact of changing seasonality on the subsistence hunting travel of Gwi'chin Athabascans in the Alaskan interior and; 3) implications of diminishing Arctic ice for navigation and industry activities in the Arctic Ocean. This paper outlines our preliminary process of building partnerships between climate scientists, industry, non-profit organizations, and Native and non-Native government representatives at local, state and federal levels. We highlight procedural aspects of communication, problem framing, objectivity and trust.

Keywords: climate change, Alaska, policy

Timothy F. Trainor, U.S. Bureau Of the Census. Email: timothy.f.trainor@census.gov; What Geographers and Cartographers Do At the U.S. Census Bureau

The U.S. Census Bureau employs geographers and cartographers in support of its statistical mission. The type of work performed by geographers varies based on the nature of the required work. A limited example of tasks include: development of geographic area concepts, standards and criteria; management of legal, statistical and administrative boundaries; continuous maintenance of the TIGER database consisting of basic features such as roads, hydrography, boundaries, names, codes, geocoding algorithms, and individual address information; and analysis of patterns of population distribution and redistribution. Cartographers design and develop maps and mapping systems to support statistical data collection, tabulation and dissemination. While most geographers and cartographers work within the Geography Division, some geographers work in other divisions throughout the agency conducting geo-demographic analysis and providing geographic support in a variety of ways. For example, geographers in the Population Division analyze and report on settlement patterns and distributions of population by various demographic characteristics. Geographers in twelve regional offices around the country organize and implement national-level geographic programs including maintaining relationships with tribal, state, and local GIS practitioners. This presentation will offer information on the types of work geographers and cartographers perform at the Census Bureau and the potential job offerings available for the 2010 Census. The presentation will also provide basic information on how to apply for jobs with the Census Bureau.

Keywords: census; jobs; geographic program

Yves Trambly, INRS. Email: yves.trambly@ete.inrs.ca; André Saint-Hilaire, INRS. Email: ; Regional Estimation Of Extreme Suspended Sediment Concentrations In North America

Sediments in streams are considered by The Environmental Protection Agency to be the main pollutants of rivers systems. Extreme suspended sediment concentrations (SSC) possibly carry high amounts of pollutants and are a threat to aquatic life, beyond some thresholds, depending on the species. Extreme events of load, carried during 10% or less of the year, may have a geomorphologic impact on the river channel and highly increase reservoir sedimentation. By adapting some methods used for flood prediction and regionalization based on a probabilistic approach, we estimated extreme suspended sediment concentrations and loads using the physiographic characteristics of the watersheds. The first step performed was an at-site frequency analysis of extreme events and an estimation of return periods for gauged sites. The second step was the delimitation of regions by several statistical or geographical methods then regional estimation within these areas using multiple regressions. A database of 149 hydrometric stations in the USA and Canada with daily SSC and discharge was created. Some regions have a greater density of stations, such as California or North-Eastern States. Watershed characteristics of these stations such as land use, soils parameters, topography, elevation and climate were compiled in a geographic information system. This dataset was used to define homogeneous groups of watersheds based on their physiographic characteristics, in order to proceed to the regional estimation of extreme suspended sediment concentration and loads.

Keywords: Regionalization, Suspended Sediments, extreme events, North-America

Liem Tran, University of Tennessee at Knoxville. Email: ltran1@utk.edu; Robert O'Neill, TN&A, Inc.. Email: robertoneill4@comcast.net; Watershed-Based Self- and Peer-Appraisal Indices for Integrated Environmental Assessment with a Case Study of the Mid-Atlantic Region

Environmental indicators are often aggregated into a single index in environmental studies. Commonly, an aggregated index is derived in a specific weighting scheme imposed from the outside. The paper presents a novel approach by letting each unit under study choose a set of weights. It applies the concept of self- and cross-appraisal in generating various aggregated indices from two linear programming optimization models. The proposed method is illustrated via a case study of the Mid-Atlantic region. Results show that the derived aggregated indices reveal environmental conditions of the study area in an objective and robust fashion. The proposed method is a valuable tool for integrated environmental assessment.

Keywords: aggregated index, self-appraisal index, peer-appraisal index, linear programming, optimization

Scott L. Trapolino, Graduate Student, Delta State University, Cleveland Mississippi. Email: strapolino@hotmail.com; Why is geography education excluded from the Mississippi Delta?

The Yazoo-Mississippi Delta is a needs-based region where education levels of children lag behind state standards. Geography education helps produce better citizens and a deepened sense of place, but is blocked from becoming part of the core curriculum in many delta school systems. It is this author's contention that the lack of topical diversity in education can be correlated with spatial, economic, and cultural segregation. This paper explores how national legislation and local conditions influenced the school systems' and teachers' perceptions of geography as a useful subject in fostering a diverse curriculum in the Mississippi Delta. Included herein is a qualitative analysis of educators' viewpoints who are currently involved with school systems in the Mississippi Delta. Data presented will support the hypothesis that a lack of geography in the curriculum is directly related to the No Child Left Behind Act and similar legislation.

Keywords: Geography Education, Mississippi Delta, No Child Left Behind Act

Amy Trauger, Pennsylvania State University. Email: akt122@psu.edu; "Men invited too": The Cultural Politics of Belonging to the Women's Agricultural Network

Activism in, with and through research is increasingly part of feminist praxis, as scholars can find it difficult, if not impossible, to objectively observe injustice when engaging with social change philosophies and progressive social movements. In some cases, however, research subjects actively resist the political project of the researcher and exercise their own agency within the research/activist process. The entirely unpredictable and unexpected outcomes of such activist/research projects can derail the project and leave researchers with few resources to cope with the results. This paper uses a case of identity politics in the development of the Pennsylvania Women's Agricultural Network as an example of how differences over the ethics of exclusionary practices in women's movements posed unexpected challenges and outcomes to the research project. I discuss how the development of deep divisions within the group over the mission and audience for WAGN's educational programming reflects the cultural constructions of gender and femininity that ultimately run counter to the feminist project as I knew it and practiced it. In my conclusions, I use this example to develop ways to cope with the challenges of activist research with analytical and theoretical rigor.

Keywords: women in agriculture, identity politics, activist research

Charles Bartlett Travis, Dr., Trinity College. Email: ctravis@tcd.ie; Placing Beckett: Beyond the Cartesian Imagination

This paper provides a biographically centered discussion/reading of Irish writer Samuel Beckett's early works. The focus of the paper will be on Beckett's first novel, *Murphy* published in 1938, which provides an idiosyncratic representation of social alienation lurking in the corners of the architecture of Cartesian space, as well as describing the Irish emigrant experience in London during the period. Beckett wrote *Murphy* during the early 1930s, while undergoing psychoanalysis in London, which at the time was illegal in Saorstát na hÉireann. The reading of Beckett's novel will be informed by a 1931 essay entitled *Proust* in which Beckett postulated about the perception and representation of experience drawn from the faculties of memory and habit, framed within the perspective of the Cartesian narrator. Beckett's work seem to suggest an embodied practice associated with the phenomenological orientations of German philosophers Edmund Husserl and Martin Heidegger; they also seem to anticipate the critical approach to space afforded in the works of Michel Foucault, nearly three decades on. The paper's spatial history will focus on Beckett's early years in Ireland and London, and attempt to elucidate the embodied practices of

phenomenology which seem congruent with Beckett's various representations of place and identity.

Keywords: Literature, Irish emigration to London, Critical Geography, Phenomenology, History, Biography

David J. Travis, University Of Wisconsin - Whitewater. Email: travisd@uww.edu; Ryan G. Lauritsen, The Ohio State University. Email: lauritsen.3@osu.edu; Paul A. Lorah, University of St. Thomas. Email: palorah@stthomas.edu; Recent Changes in the Spatial Characteristics of U.S. Temperature Abnormalities: An Indicator of Rapid Global Warming?

Until recently, the spatial extent of U.S. seasonal and annual temperature departures was frequently characterized by co-occurring regions of above and below normal conditions, often on opposite sides of the country, and separated by a narrow region of normal temperatures. Such spatial variations can be explained meteorologically by persistence of a meridional jet stream (ridging-above normal; troughing-below normal), with these offsetting effects resulting in relatively slow changes to the U.S.-wide mean temperature. However, recently there have been marked increases in the spatial extent of above normal temperatures, even in areas where persistent troughing has occurred. This implies that the factors controlling abnormal temperature spatial extent are changing. This study investigates variations in the seasonal and annually-averaged spatial characteristics of temperature abnormalities for the coterminous U.S. for the past 50 years (1956-2005). The ratio of spatial coverage between above and below normal temperatures is determined by individual seasons and also averaged for the year. Magnitude of association of spatial extent of temperature abnormalities and 500mb jet stream is determined for the same time periods. Preliminary results indicate a generally consistent ratio between above and below normal temperatures for much of the first half of the study period (1956-1980), with a significant increase (decrease) in above (below) normal area noted for the latter period (1981-2005), especially in recent years. The association between abnormal temperatures and 500mb jet stream appears to be statistically stronger for the earlier period compared to the latter period, which is characterized by rapid global-scale warming.

Keywords: Global Warming, Spatial Temperature Abnormalities, Jet Stream

Audrey Tremolieres, INERIS and University of Normandy. Email: audrey.tremolieres@ineris.fr; Myriam Merad, INERIS. Email: ; Thierry Saint-Gérard, University of Normandy. Email: ; Eliane Propeck, University of Normandy. Email: ; When territory generates risks: Implementing a vulnerability and stake assessment for a territorial approach to industrial risk in France

The explosion at the Total Group/Grande Paroisse factory (AZF) in Toulouse, on September 21st 2001, has demonstrated the need for a new approach to Land Use Planning (LUP). Due to the significant proximity between the urban areas and hazardous plants, this accident, in fact, turned into a disaster. This explosion, whilst greatly adding to natural risk management experience, has also influenced the passing of a law on July 30th 2003, relating to the "prevention of technological and natural risk and the repair of damage". It has introduced the concept of "stake" and "vulnerability" which will allow the implementation of a new Land Use Planning tool known as "Technological Risk Prevention Plans" (in French Plans de Prévention des Risques Technologiques). Current Ph.D research has highlighted the need to consider local geography and area development when planning Land Use around proposed and established industrial areas. With this in mind, we will first present a brief summary of French risk assessment methods and then, using the Toulouse incident as a model, show how recent Land Use Planning, has increased the level of industrial risk in urban areas. Finally, we will show how the use of geographical data and a Geographic Information System (GIS) when assessing risk, is advantageous when used in conjunction with a territorial approach.

Keywords: Risk, Vulnerability, Technological hazard, Land Use Planning, GIS, France

Eliot Tretter, Texas A&M University. Email: eliottretter@hotmail.com; The Scale of Urban Governance

Over the last two decades, urban regime theory has become one of the most dominant paradigms of thought in urban studies. In particular, regime theory offers a complex account of urban governance or how local governments, the business communities, and community organizations gain the capacity to shape the policies that affect cities, i.e., govern. Although regime theory is a dominant theory in urban studies, it does, nevertheless, have its share of detractors, and one criticism has been its failure to take into account geographical scale. While there is an acknowledgment in urban regime theory of wider economic processes, such as the broad transformations in international and national trade, investment, etc., or the role played by federal or state governments, the bias has remained mostly local, particularly in regards to urban governance. In the literature the policies and actions of international and national institutions either nicely

conjoin with local interests or are nearly totally absent. Due to this oversight, urban regime theory tends to underemphasize how the capacity to govern a city effectively is sometimes the result of the interaction of unrelated actions of people at multiple scales. This paper attempts to address this oversight in an analysis of Glasgow, Scotland during the 1980s. By focusing on the role of the European City of Culture in urban revitalization of the city, this paper demonstrates how the capacity for a ruling coalition to transform the city and to govern effectively was the consequence of administrative actions undertaken at other geographical scales.

Keywords: Scale, Governance, Regime Theory, Urban Geography, Glasgow, European Community

Erika N Trigoso Rubio, Oxford University Environmental Change Institute (ECI). Email: erika.trigoso@ouce.ox.ac.uk; *Vulnerability Mapping Analysis of Environmental Change Impacts in Puno, Peru*

In the Latin American context, one of the least understood aspects of environmental change impacts is vulnerability. The actions directed to prevent or minimize impacts of natural disasters are still focused mainly on physical and engineering aspects. In the case of the department of Puno, in Peru one observes recurrent negative impacts from extreme climate events that have become more intense and frequent. In the present study, a detailed vulnerability mapping analysis with a participatory, bottom-up approach is presented. The main objective of vulnerability analysis, especially in a developing country like Peru, is to allow the identification of target areas to allow better development interventions by policy makers. This could involve prioritizing aid for adaptation and guiding decision making on international aid and investment. In order to maximize efficiency when selecting target areas, methods such as spatial correlation and index component analysis will be addressed.

Keywords: Vulnerability, Environmental Change in Latin America, Mapping

Michael W. Tripp, Dr., Malaspina University-College, Nanaimo, B.C. Canada. Email: trippm@mala.bc.ca; *The Emergence of Soviet/post-Soviet National Parks as a Socio-political Phenomenon*

The establishment of a network of national parks initiated in the waning moments of the Soviet Union and continuing into the post-Soviet era can be viewed as a product primarily of regional socio-political forces asserting increasing degrees of autonomy. Emboldened by the weakening of centralized administrative structures, the national park designation repeatedly has been used to support claims to territory wrapped in the mantle of environmental protection. Site selections thus have been driven by attachments to the specifics of place and attendant proclamations of self-identity rather than to normative ecological or recreational national park criteria. As a consequence, the ensuing landscapes embrace complex matrices of historical, cultural and natural features reflective of regional identities. Appearing first in the outlying Republics, the national park formation process diffused inwards to the Russian heartland and eastward into Siberia. This sequential development mirrored the devolution of Soviet sovereignty. Conversely, the current trend towards recentralization of governmental authority in Russia has seen a significant diminishment of momentum in the establishment of national parks. Given the persistence of societal flux, the fate of Russian national parks will continue to act as a benchmark in the country's hegemonic contestations between the state and regions and amongst constituencies, stakeholder groups and empowered individuals.

Keywords: Soviet/post Soviet National Parks, sequential development, socio-political implications

Austin Troy, University of Vermont. Email: austin.troy@uvm.edu; Morgan Grove, USDA Forest Service. Email: mgrove@fs.fed.us; Jarlath O'Neil-Dunne, University of Vermont. Email: Jarlath.ONeil-Dunne@uvm.edu; *An Analysis of the Predictors of Urban Private Land Vegetation in Baltimore, MD*

This paper examines predictors of vegetative cover on private lands in Baltimore, MD. We generated two measures based on high resolution data. "Possible stewardship" refers to the proportion of private land parcels lacking built structures, and hence plantable. "Realized stewardship" refers to the proportion of possible stewardship land upon which vegetation is growing, either through planting or succession. These measures were generated at the parcel level and averaged by US Census block group. Realized stewardship was further broken down by woody vegetation and grass proportions. Data about expenditures on yard supplies and services by block group were used to help better understand where current vegetation conditions appear to be the result of current activity, past legacies, or abandonment. PRIZM? market segmentation data were first tested as predictors of possible and realized stewardship and yard expenditures at the block group level. PRIZM? segmentations, hierarchically clustered into 5, 15, and 62 classes, categorize neighborhoods by population density, social stratification (income and education), and lifestyle, respectively. We found that PRIZM

15 best predicted variation in possible stewardship and PRIZM 62 best predicted variation in realized stewardship. These results were further analyzed by regressing each dependent variable against a set of continuous variables reflective of each of the three PRIZM groupings. Housing age, vacancy, and crime were found to be critical determinants of both stewardship metrics, although differences in the predictors of vegetation cover versus the predictors of yard expenditures indicate different pathways by which vegetation was established in different parts of the city.

Keywords: urban forestry, spatial analysis, geographic information systems, geodemographic segmentation, social ecology

Michael E. Troyer, PhD, US Environmental Protection Agency. Email: troyer.michael@epa.gov; Joon Heo, PhD, Yonsei University. Email: jheo@yonsei.ac.kr; Sitansu Pattnaik, Forest One, Inc.. Email: spattnaik@forestone.com; *A Hierarchical Approach to High-Resolution, Hyperspectral Image Classification for Environmental Assessment*

This paper summarizes a collaborative project led by the U.S. Environmental Protection Agency to create a high spatial resolution land use/land cover (LULC) dataset for the entire Little Miami River watershed in southwestern Ohio, USA. We faced a number of challenging classification issues such as starting with 82 flight lines of Compact Airborne Spectrographic Imager (CASI) hyperspectral imagery, correcting radiometric distortions due to cross-track illumination, separating urban from rural land features, creating the watershed mosaic, and considering whether to smooth (remove noise) or not with respect to creating meaningful patches for deriving ecological landscape metrics. The unique, hierarchical classification approach began with image object segmentation for defining broad urban, rural and water strata, followed by "Spectral Angle Mapper," a similarity classifier based on very different principles than typical multispectral algorithms. The final LULC classification was derived from imagery acquired July 24 through August 9, 2002 via fixed wing aircraft and has a spatial resolution of 4m x 4m. Categories within this classification include: water (both lentic and lotic), forest, corn, soybean, wheat, dry herbaceous vegetation, grass, urban barren, rural barren, urban/built, and unclassified. The final classification was completed after an extensive Quality Assurance and Quality Control (QA/QC) phase which included manual editing. The final GIS product, including a technical report and FGDC metadata, are publicly available for download from <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=151106>.

Keywords: land use, land cover, LULC, watershed, Ohio

Elena Trubina, Ural CASE. Email: eletru@hotmail.com; *Privatizing residential life in "the neo-liberal city"*

Gentrification of the Moscow's center follows the logic of neoliberalism because, on the one hand, the state off-loaded its responsibilities regarding regulating real estate market, while on the other, sociospatial structure of the center has been ordered by the market. How do the residents see community's potential in both sustaining their sense of belonging to an exceptional neighborhood and defending its interests in a case of conflict with developers? I attempt to answer this question drawing upon qualitative data gathered from a set of centrally-based neighborhoods in Moscow as part of a project dealing with post-Soviet urban cultures. Interviews of residents in these neighborhoods show that understanding of community is affected, firstly, by the confusion of the uses of the word "public" during Soviet times (especially the slippage of "public-owned" and "state-owned"), secondly, by a mixed attitude many people still have towards privatization and its outcomes, and thirdly, by the fact that public consensus-building seems to be in jeopardy almost everywhere. The islands of social cohesion, the territorial communities, appear here and there in central Moscow when the residents, while facing the prospect of being forcefully displaced, try to fight the developers' growing appetite. However important those communities and organizations are for empowering citizens, however promising they seem in terms of reproducing civic culture, their strength and influence usually extends only to particular buildings.

Keywords: community, residential life, gentrification, Russia

Daniel Trudeau, Macalester College. Email: dctrudeau@gmail.com; *"We want to be seen as Americans and that means being seen as successful": Minnesota's migrants and the self-sufficiency paradigm in America*

In this paper, I explore how economic independence has become central to discourses of immigrants' belonging in Minneapolis-St Paul, Minnesota. I examine two cases that illustrate how migrants' inclusion in Minneapolis-St. Paul host society hinges on public perceptions of migrants' economic self-sufficiency. The first case shows how discussions among and action taken by leaders in Minnesota's refugee communities, government institutions, and nonprofit organizations focused on cultivating refugees' economic self-sufficiency through labor force participation to correct the perceived failures of some refugee groups to integrate successfully into the host society. The second case examines the activities of a particular migrant organization to use neighborhood-based

economic regeneration efforts to effect change in a migrant groups' marginal social status. These cases offer insight into the social processes through which the promotion of economic self-sufficiency is institutionalized as a model for the successful integration of migrants into American society. In particular, these cases highlight how state and non-state actors at the national and subnational scales contribute to a notion of belonging that is brokered through market participation. I discuss the implications of these cases for the theoretical understanding of the ways in which neoliberal ideas are incorporated into policies and programs for the inclusion of migrants into metropolitan society in Minnesota.

Keywords: immigration, integration, belonging, neoliberalisation

Nathaniel S. Trumbull, University of Connecticut. Email: trumbull@uconn.edu; *Measuring On-the-Ground Effectiveness of State Coastal Management Programs: A Comparative Approach*

This research explores a comparative approach for evaluating the effectiveness of state coastal management programs in protecting estuaries and coastal wetlands in Connecticut and Washington State. The latter has become a national leader in implementing its Growth Management Act (GMA) since 1990. The GMA has played a role in strengthening Washington State's pre-existing Shoreline Management Act. Connecticut has proceeded in its state coastal management largely in the absence of state-wide growth management legislation. Connecticut has relied on its Coastal Management Program, led by the Office of Long Island Sound Programs within the Department of Environmental Protection, to manage its coasts. The Connecticut Coastal Management Act of 1980 provides the primary authority for the state's comprehensive Coastal Management Program (CMP). The author poses the question of the relative value of state-level growth management legislation as an essential and integral legislative instrument for effective coastal management based on on-the-ground Connecticut and Washington State experiences. The evaluative approach of Good, Weber, and Charland (1999) has been expanded to take into account the potential effectiveness of growth management policy mechanisms and coastal management programs of Washington State and to provide a basis of comparison with Connecticut's CMP (in the absence of a statewide growth management program).

Keywords: environment, coast, water

Petra Tschakert, Dr., Penn State University. Email: petra@psu.edu; *Staging Smart Farmers: Learning Partnerships in Global Change Science*

Global change science has become exceedingly sophisticated in assessing, mapping, monitoring, and predicting dynamics in land use, land cover, and climatic patterns. Numerous models exist that suggest most appropriate management practices to mitigate negative impacts on natural systems. So do multiple indices that depict differential vulnerability of human systems. What has been vastly absent in the global change debate is the role and capacity of resource managers on the ground to make sense out of 'big science' recommendations, scrutinize their local applicability, and translate them into actual livelihood decision-making. This is particularly true for economically and ecologically marginal environments of the developing world. This paper advocates the role of political ecologists as facilitators in collective learning partnerships to bridge this science-practice divide and inform policies that attempt to reconcile poverty reduction and long-term environmental management. Drawing from research on terrestrial carbon sequestration and adaptation to climate change among smallholders in the Sahel and the tropical forest margin in Panama, I argue that the first step in such a knowledge partnership is to put local resource users, their experiences, and perceptions of social-ecological dynamics at the center of the learning stage. As a second step, social learning processes can help to detect elements and limitations of existing adaptive capacity to multiple stressors. The relevance of political ecology in global change science stems from its ability to critically assess trade-offs for social-ecological resilience at the local level while pinpointing existing bottlenecks with respect to basic development needs and policy responses.

Keywords: Global change, learning partnerships, political ecologists

Haim Tsoar, Department Of Geography and Environmental Development, Ben Gurion University of The Negev, Beer Sheva, Israel. Email: tsoar@bgu.ac.il; Noam Levin, Department Of Geography and Environmental Development, Ben Gurion University of The Negev, Beer Sheva, Israel. Email: levinnoa@post.tau.ac.il; *The Effect of Climate Change on the Mobility and Stability of Coastal Sand Dunes in NE Brazil*

The coastal zone of NE Brazil consists of sandy beaches and is backed by extensive dune fields. In Lencois Maranhenses, the largest area of coastal dunes in NE Brazil, barchan dunes cover an area of 1,550 square km and penetrates more than 25km inland. Vegetated parabolic dunes are found there at a distance of more than 150km inland from the present coastline. The area is tropical with 1500-2500 mm of annual average rainfall. Our model is based on several fact findings. The mobility of sand dunes is related to wind power. Wind erosion is the

limiting factor for vegetation in sand dunes because seedlings are eroded at high wind power. The amount of rainfall is not a significant factor for vegetation growth on dune sand. A dynamical model, based on the ITCZ migration predicts lower wind speeds during wet periods in NE Brazil, when the ITCZ shifted more to the south than what exists today. That ought to favor the stabilization of sand dunes. Impediment of the southern migration of the Atlantic ITCZ is caused when a north-south temperature gradient drives a low level atmospheric circulation that strengthens the trade winds in NE Brazil, together with a reduction in rainfall. Wind power and rainfall are negatively correlated, both on a monthly and a yearly scale, as shown from the seasonal wind and rainfall variation that accompanies the yearly displacement of the ITCZ.

Keywords: aeolian processes; climate change; coastal sand dunes; NE Brazil

Ming-Hsiang (Ming) Tsou, San Diego State University. Email: mtsou@mail.sdsu.edu; *A New Cartographic Research Agenda for Virtual Globes*

The research focus of modern cartography is changing dramatically in the recent years, especially in the Internet Age. Innovative digital representation methods, such as the virtual globes displayed in the Google Earth or NASA World Wind, illustrate a new research direction for modern digital cartography. Traditional cartography mainly focuses on the plane representation methods and rules, such as projections, generalizations, visual balance, map layout design, etc. Under the architecture of virtual globes (digital earth) with the 3D coordinate system, some cartographic rules might become obsolete and some might become more complicated and more important. This paper will discuss the impacts of the virtual globes for the modern cartographic research and propose a new research agenda for the Internet-based Cartography (i-cartography). The new i-cartography research agenda includes four cartography research themes for virtual globes: 1). the design of direct manipulation user interfaces, 2). the display of virtual globes in extra-large and extra-small electronic mapping devices, 3). the dynamic changes of map symbols and texts in different map scales, and 4). the exploration of new methods for disseminating and integrating Web-based mapping services via the virtual globe framework.

Keywords: Cartography, Internet, Virtual Globe, Digital Earth

Masami Tsujita, University of Hawai'i at Manoa. Email: masamit@hawaii.edu; *Becoming A Factory Girl: Young Samoan Women and A Japanese Wiring Factory*

This study looks at the daily life of young women who work at a Japanese-owned labor-intensive, export-oriented factory in Independent Samoa. They regularly work more than 11 hours a day at a starting rate of U.S. 52 cents per hour to produce wiring harness for automobile markets in Australia. These Samoan factory girls work in a space where the global industrial automobile culture, Japanese business philosophy, the Samoan government's development policies, Samoan tradition, and their own aspirations intersect. In this hybrid factory culture, young women are required to negotiate the conflicting priorities of these distinct interests and ideologies. Since its establishment in 1991, thousands of local women have passed through this wiring factory; however, their voices have yet to be adequately heard. The study challenges conventional representations of factory girls' experiences constructed within structuralist, feminist, and postmodern analyses. It considers what becoming a factory girl means for young women in a small island nation through highlighting Samoan girls' first-hand voices about their multinational employment and life priorities. This study is based on data primarily collected through interviews with Samoan factory employees and Japanese managers, but also includes the researcher's direct observations while she worked on the shop floor in the summer of 2000 and 2006.

Keywords: Development and Female Laborforce, Multinational Factory, the Pacific Islands Region,

Akihiro Tsukamoto, Ritsumeikan University. Email: lg007987@lt.ritsumei.ac.jp; Yuzuru Isoda, Ritsumeikan Asia Pacific University. Email: isoda-y@apu.ac.jp; *Resurrecting urban landscape of Kyoto during the Edo era using GIS/VR*

This paper reproduces three-dimensional Kyoto during the Edo era. It demonstrates the method of creating 3D virtual city out of 2D GIS data. Two major sources were used for this purpose. Firstly for plan view, the digital image of Rakuchu-ezu, the earliest hand-drawn map (circa 1642), is georeferenced and geometrically corrected in GIS, and its land uses and parcel boundaries of palaces, temples and manors are traced. Land use and the name of parcel owner are added as attributes for each geometry. Secondly, for elevation view, Rakutyu-rakugaizubyobu, a panoramic drawing of Kyoto in a pair of folding screen (circa 1620) is used. The composition of types of building is counted and textures of the building are extracted. We then developed a program to generate 3D models for each feature in GIS based on its geometry (points, lines and polygons) and the attributes. In addition, pedestrians and trees are placed to give life to the virtual

pre-modern Kyoto. The virtual city enables to compare artistic drawings to data-based 3DCG image. Our attempt proves that compilation of historical data using GIS is an efficient and flexible way to produce large-scale 3D urban models. The advantage of our method are that it is based on data if any data exists, or otherwise, it is capable of visualizing alternative hypotheses in 3D to examine the validity of a hypothesis by cross-referencing to historical documents and drawings.

Keywords: GIS, virtual reality (VR), Kyoto, Edo era

Takashi Tsukamoto, Assistant Professor, University of North Carolina at Greensboro, Dept. of Political Science. Email: t_tsukam@uncg.edu; *Is regional rescaling happening in the American metropolis? A study from the local politics perspective*

Is regional rescaling happening in the American metropolis? Many say that city regions are becoming the primary scale of economic activities under globalization. Meanwhile, it is commonplace that elite form regional development corporations and advocate regional economic development. Apparently, the forces of economic structure and local politics converge at the metropolitan scale. Regional rescaling should be happening. However, except for the merger of the city of Louisville and Jefferson County, Kentucky, major political regionalization is hard to come by in American Metropolis since the globalizing 1980s. Is globalization indeed causing "relativization of scale" and working as catalysis for local state reformulation in the US? If it is, what kind of regionalism is happening and in what ways is the new scale being constructed? These basic questions are not well examined from the local political perspective. Against this, in this paper, we make a comparative investigation of metropolitan regions in North Carolina. Differing scalar interests of urban political economy compete one against another. Changing balances of the politics of scale are embedded in the local interpretations of regional rivalries, higher-level government policies and the processes of globalization.

Keywords: Urban politics, Regionalism, Rescaling

Jun Tsutsumi, DR, Ehime University, Japan. Email: jtsu@LL.ehime-u.ac.jp; Kevin B. O'Connor, University Of Melbourne. Email: kevin.oconnor@unimelb.edu.au; *International Students and the Changing Character of the Melbourne CBD*

In the past there have been two closely connected forces shaping the character of the CBD and its surrounding area. These have been office development and inner city residential development. In this situation the outcome in a city was shaped by the strength of its office sector as that provided the jobs that attracted many of the inner city residents, some of whom moved into the CBD. To this situation has been added a new influence: the international student. These have moved to Australia in large numbers in the past decade, and many have settled in the CBD or its fringe, close by the centrally located institutions. This paper will explore the impact that this new influence has had upon the CBD and its fringe in Melbourne since 1990. The central idea is that the international students have been the most important influence upon change in the character of the CBD.

Keywords: CBD, Students, gentrification

Wei Tu, Georgia Southern University. Email: wtu@georgiasouthern.edu; *Integrating System Dynamics Modeling into Plan Level Strategic Environmental Assessment: The case of Shanghai*

Despite the increasing recognition of and recent preliminary studies on plan level strategic environmental assessment (PLSEA) on urban and regional planning, neither methodological frameworks nor case studies are sufficient in the practice of SEA. In this paper, we attempted to develop a new methodological framework for PLSEA by integrating a system dynamics (SD) approach into the practice of PLSEA. Our new methodological framework was further tested in simulating and assessing the environmental consequences of three land use planning scenarios for the city of Shanghai. First, a SD model, LUP_SEA was developed and calibrated according to the historical land use data. Second, three scenarios of land use plan between 1997 and 2020 were developed and simulated based on the base run model. Third, an environment indicator system was formulated to assess the potential environmental impacts of three simulated land use plans. It is found that the LUP_SEA model is an efficient tool for SEA practitioners, urban planners and managers, and decision-makers to implement PLSEA at a verity of temporal and geographic scales. This case study is also helpful to the long-term sustainable development of Shanghai by providing valuable insights about the complex relationship among development paths, land use economic development, and environment.

Keywords: System dynamics, Plan level strategic environmental assessment, Land use planning, Shanghai

Andrew R. Tucker, Cambridge University. Email: art25@cam.ac.uk; *Racing the closet: Visibility and the appropriation of heteronormative space*

This paper will compare and contrast the way queer men in two racially defined communities in Cape Town have been successful at appropriating heteronormative space. A growing body of work has started to criticise the way Western notions of 'the closet' and the heterosexual/homosexual binary do not translate well onto communities away from Western metropolitan environments. By exploring the development of white 'gay' identified men with coloured cross-dressing men in Cape Town, this paper aims to uncover how both have striven to free themselves from secrecy and hiding - to free themselves from 'the closet' ? but in startling different ways. In conclusion this paper will argue that 'the closet' does have strong application in communities away from the West, but that a wider interpretation that takes account of political history, geographical visibility and diverse methods of spatial appropriation is required.

Keywords: Queer, sexuality, South Africa, race, gender

Steven Tufts, Trent University. Email: steventufts@trentu.ca; *Hospitality worker unionism and labour market adjustment: toward Schumpeterian unionism?*

This paper proposes a conceptual model for understanding emerging changes in a North American labour union. UNITE-HERE has been at the forefront of debates on union renewal in the US and Canada and is part of the Change to Win coalition of unions which left the AFL-CIO. It is tempting to characterize UNITE-HERE as a union undergoing a renewal process, but I argue that this often oversimplifies many complex and contradictory labour strategies. Much of the labour union renewal literature remains prescriptive and is only beginning to escape false binaries such as business versus social unionism or the servicing versus organizing model. In this paper, I attempt to conceptualize the strategies adopted by the union as they 'actually exist' in relation to the changing political economic landscape. I characterize the current labour practices as 'Schumpeterian unionism', a model which captures the shifting and contradictory relationships labour has with the broader community, capital and the state. The model is inherently geographical as I argue that Schumpeterian unions organize at multiple scales. The model is illustrated with a case study of UNITE-HERE Local 75's response to the 2003 SARS outbreak through their establishment of a Hospitality Workers Resource Centre and its current efforts to increase labour market adjustment support in the sector through collective bargaining.

Keywords: geographies of union renewal, labour market adjustment, hospitality workers, SARS

Claire Tugault-Lafleur, McGill University. Email: claire.tugault@gmail.com; Sarah J. Turner, McGill University. Email: turner@geog.mcgill.ca; *Diversifying highland livelihoods: Ethnic minorities and forest product use and trade in Northern Vietnam*

Since their migration from Yunnan nearly two centuries ago, the highland minority Hmong in north upland Vietnam have remained relatively autonomous, relying on a diverse production system including wet rice terraces, swidden fields, livestock and, more recently, handicraft and tourist-related activities. Forests also supply households with fuel wood and a variety of non-wood forest products such as mushrooms, bamboo shoots, herbal medicines, honey, game, and construction materials. In 1992, the Vietnamese Government, via Decree 327, officially banned all forms of slash-and-burn practices and opium cultivation, thus cutting off highlanders from important sources of income. More recently, the State has implemented rural development initiatives focused on tourism development and livelihood diversification, impacting on people's relationships with the natural resource base. This paper examines the importance of forest products for the Hmong in Sa Pa district, Lao Cai province, northern Vietnam. Drawing on in-depth qualitative field work undertaken in 2006, we first look at how the local use of forest products has changed from the end of French rule in 1954 to the present-day period. Secondly, we analyse the contemporary dynamics of forest product trade in the region, examining the spatial organisation of commodity flows of these goods. As such, this research explores the impacts associated with the commercialisation of forest products in upland north Vietnam for the many different actors involved.

Keywords: non-timber forest products, exchange networks, rural livelihoods, ethnic minorities, Vietnam

Jahalel Lee Tuil, UC Davis. Email: jltuil@ucdavis.edu; Steven E. Greco, Ph.D., UC Davis. Email: segreco@ucdavis.edu; *Restoration Potential Identified Through Historic Vegetation Reconstruction*

In the Central Valley of California, much of the landscape was converted to agriculture well before the native vegetation was explicitly mapped. Historical vegetation inventories in this region consist primarily of written descriptions. In the absence of a true spatial record, this study seeks to model the potential distribution of historic vegetation, based on soils, hydrology, geology and available written descriptions for the valley floor of Yolo County. Potential

vegetation classes are rather broad, and based on the California Wildlife Habitat Relationships (CWHR) System. In addition, a comparison is made between the potential vegetation distribution and the current distribution of remnant native vegetation. The current vegetation map is primarily derived from 1 meter, true color NAIP imagery (2005). Collectively, these results not only quantify the minimal extents of remaining vegetation types, but prepare a baseline for several additional analyses. For example, these current and historical results can be used to construct an environmental risk index identifying those units most at risk of complete native vegetation loss. Of direct relevance to conservation and restoration planning, these results can be used to generate reasonable priorities and identify restoration potential based on connectivity, network stability and suitability based on historic distributions.

Keywords: historic vegetation, GIS, California Central Valley, Yolo County

Matthew Turner, University of Wisconsin-Madison. Email: turner@geography.wisc.edu; *Mobile capital on the range: Cattle markets, wealth redistribution and market-based environmental management in the West Africa Sahel*

This paper will show how a more deliberate consideration of domestic livestock as an important and unique form of "capital" illuminates how regional trends of urbanization and wealth redistribution affect rural livelihoods, labor contracts and the environment in Africa. Livestock markets, used to fulfill speculative, consumption, and trade purposes, are far from neutral in terms of their social (and ecological) effects. This paper will 1. review the evidence for a changing distribution of livestock wealth in the dryland West Africa and an associated freeing of herding labor; 2. outline the basic structure and functioning of livestock markets in the region; and 3. critically engage with recent proposals to rely on livestock markets as a mechanism to equilibrate livestock to fodder resources across the Sahelian region. The paper will conclude by considering the commonalities and differences between livestock and other capital markets that have elicited greater scholarly interest.

Keywords: livestock, political economy, neoliberalism, Africa

Benjamin Tuttle, CIRES, University of Colorado, Boulder. Email: btuttle@du.edu; Christopher D Elvidge, PhD, NOAA-National Geophysical Data Center. Email: chris.elvidge@noaa.gov; Kim Baugh, CIRES, University of Colorado, Boulder. Email: kim.baugh@noaa.gov; Ramakrishna Nemani, PhD, NASA Ames Research Center, Moffett Field, California, USA. Email: ; Cristina Milesi, PhD, Division of Science and Environmental Policy, California State University, Monterey Bay, California USA. Email: ; Paul Sutton, PhD, University of Denver. Email: paul.sutton@du.edu; *Global Mapping of Impervious Surface Area*

Although exact numbers are elusive, there is a general consensus that in the past 30 years the world's population has had the highest absolute increase in human history. Additionally, it is agreed that more and more of the world population will live in urbanized areas leading to increases in impervious surfaces world wide. Increases in impervious surface area (ISA) have a wide spread impact on our environment. The effects range from altering hydrology and temperature to impact on the carbon cycle. To understand these changes we must first be able to map ISA around the globe. To this end a global map of ISA has been created and made available to the public. Three data sets were used in the process: Nighttime Lights from the Defense Meteorological Satellite Program (DMSP) Operational Linescan System (OLS); population counts from Landsat (2004); and aerial photographs collected along urban to rural development transects for 13 major cities in the United States. All the data were converted to 1km equal area grids. Gridded point counts were performed on a 1km aerial photo tile (matching a 1km grid cell in the other two datasets) to estimate the percentage of ISA in each tile. Linear regression was then used to develop a model for estimating percentage of ISA based on the Nighttime Lights and population. The global map of ISA can be used for studies in a variety of fields including hydrological modeling, analyzing terrestrial carbon dynamics, and urban growth modeling.

Keywords: urban, development, sprawl, nighttime lights, population

Gray Tuttle, Columbia University, Columbia University. Email: gwt2102@columbia.edu; *Demonstrating Local Power by Mapping Chinese and Amdo Tibetan Institutional Centers*

The paper will outline what we can learn by mapping the Beijing-based state's (Ming, Qing, Republican and PRC) and local Amdo Tibetan institutional centers. I will proceed toward this goal in two ways: first, by mapping the local historical sources about the area written since the Ming period, and second by using modern surveys of monasteries and their subordinate temples. By mapping the local historical sources about the area, I believe I can demonstrate the simultaneous growth of two types of institutions: 1) the Beijing-based state's outposts of authority, represented by administrative and military centers (which eventually produced their own histories) and 2) the monastic centers that played

major political and cultural roles in the region. The extension of the Beijing-based state's authority is easy to track by plotting the rise in publications about the Amdo area. The development of written materials about Tibetan Buddhist monastic institutions will be compared to the modern surveys of dominant monasteries with subordinate temples to assess the relationship between these two methods of tracking Buddhist monastic growth. A further comparison will be made between the extension of Beijing-based state's authority as mapped by the China Historical GIS and the dominance of the more prominent Tibetan Buddhist monasteries. I will argue that these two sources of power did not often overlap, because until the period of the People's Republic of China, powerful monastic centers were allowed to command territory much as county based governments did in China proper, thereby saving the imperial government unnecessary expenses.

Keywords: historical geography, political geography, religious geography, Tibet, monasteries

Julie Tuttle, University of North Carolina at Chapel Hill. Email: jptuttle@email.unc.edu; *A Graph-Theoretical Perspective on Plant Invasion and Land Use*

Human-assisted plant invasions may proceed at the landscape level through the interaction of ecology and human land use. Graph (network) theory has been applied to understand connectivity both in social networks and in ecological systems (e.g., food webs) but is less widely applied in landscape ecology or human-natural systems. With this poster, I illustrate a graph-theoretical approach for investigating how patterns of human land use may influence landscape connectivity for an invading plant species. I investigate hypothesized relationships between patterns of agricultural land use and invasion of *Psidium guajava* (common guava) in adjacent human and natural areas on Isabela Island in Galápagos. Using preliminary field work and classification of a 2004 high-spatial-resolution satellite image (QuickBird), I construct patches of potential guava habitat (nodes), human land use, and actual guava invasion. I create simple graphs for scenarios of connectivity (edges) and dispersal probability based on hypothesized land use practices and mechanisms of guava spread. I compare graph properties for the hypothesized scenarios to each other and to the pattern of actual guava patches. Results reveal hubs (highly connected nodes) for each scenario that may be important in control efforts. Comparison of scenarios to each other and to actual guava patches highlight differences in connectivity and location of hubs that illustrate the importance of accurately representing the human and ecological processes involved. Potential future uses for graph theory include design of future data collection (both social and ecological), modeling of guava invasion dynamics, and spatial prioritization of control efforts.

Keywords: graph theory, invasive species, land use, Galapagos

Mark Tuttle, Oak Ridge National Laboratory. Email: tuttlema@ornl.gov; Budhendra Bhaduri, Oak Ridge National Laboratory. Email: ; Eddie Bright, Oak Ridge National Laboratory. Email: ; Phillip Coleman, Oak Ridge National Laboratory. Email: ; Amy King, Oak Ridge National Laboratory. Email: ; Paul Johnson, Oak Ridge National Laboratory. Email: ; Marie Minner, Oak Ridge National Laboratory. Email: ; *Emergency Preparation and Response for Energy Emergencies*

In 2003, the Office of Electricity Delivery and Energy Reliability at the US Department of Energy (DOE) formed the Visualization and Modeling Workgroup (VMWG) to leverage existing modeling, analysis, and visualization capabilities for energy emergencies. The VMWG is composed of energy infrastructure, modeling, and visualization experts from many DOE national laboratories. The principal function of the VMWG is to conduct pre-, trans-, and post-event geospatial modeling and analysis of the impacts to the nation's energy infrastructure. This paper will include an overview of the VMWG, with particular emphasis on the required collaborative support resulting from multiple organizations working together to provide geospatial modeling and visualization support DOE headquarters. VMWG activities resulting from the historic 2005 hurricane season will be used to emphasize the need for dynamic and responsive geospatial models, responsive communication and coordination infrastructures, and visualization capabilities in preparation for, and responding to emergencies. Particular reference to the application of GIS modeling and visualization of population dynamics, transportation infrastructures, and port/commodity movement, which Oak Ridge National Laboratory is responsible for, will be used to illustrate these concepts. Drawing on our experience in supporting the VMWG as well as our response activities from the Tsunami of 2004, a proposed research agenda for the application of high performance cyber infrastructure, dynamic and near-real time geospatial data inputs, and functionally efficient network solutions to emergency preparation and response management will be provided.

Keywords: GIS, emergency preparation, emergency response, modeling, visualization

Karin Tuxen, University of California - Berkeley. Email: karin@nature.berkeley.edu; Maggi Kelly, PhD, University of California - Berkeley. Email: mkelly@nature.berkeley.edu; Multi-scale functional mapping of salt marshes using Object-based Image Analysis (OBIA)

Salt marsh restoration projects seek to restore wetlands back to their natural function, which includes complex and heterogeneous vegetation pattern. As salt marshes are multi-scale, hierarchically structured, and contain many interacting components, the question remains about how to map vegetation pattern in a multi-scale manner. Restoration goals often target species or biological process with specific objectives for use or function of the marsh at specific scales. In this study, we map three salt marshes in the San Francisco Estuary (two restored and one natural) using color-infrared aerial photographs and multi-scale object-based classification, with respect to three wetland functions: salt marsh harvest mouse habitat, California clapper rail habitat, and nutrient cycling/carbon sequestration. Pattern and scale are important for each of these three functions, but important in different ways and at different scales. Object-based image analysis (OBIA) is applied to very high-resolution data (20 cm), for segmentation into functional patches at multiple scales in a semantic structure. We will share results of our multi-scale maps, as well as compare results of accuracy assessments and land cover analysis to pixel-based methods.

Keywords: OBIA, mapping, remote sensing, salt marsh restoration

Markku J. Tykkyläinen, University of Joensuu. Email: markku.tykkylainen@joensuu.fi; Mats Aspnas, Abo Akademi. Email: Mats.Aspnas@abo.fi; Taneli Kolstrom, University of Joensuu. Email: Taneli.Kolstrom@joensuu.fi; Julian Lin, University of Joensuu. Email: Julian.Lin@joensuu.fi; Jan Westerhom, Abo Akademi. Email: Jan.Westerhom@abo.fi; Potentials for eco-friendly wood production for future advanced industrial needs

The paper presents the principles of modeling of spatial socio-economics and areal wood-production systems in a three-year (2007-2009) research project, which studies how alternative forest management practices can be used to cope with the transition of the traditional Nordic wood-processing industry towards the modern production clusters of high-quality timber, products of fibers, chemical and pharmaceutical products and energy. The project investigates the potentials of alternative forest management systems to meet the needs of sustainable production of raw material for future industrial needs and maintaining forest ecosystem functions in the boreal forest belt. The project aims at developing the principles and geography of production systems at several geographical scales, from a farm level to multi-regional production systems. It combines single-tree modeling with geographical socio-economic simulations and forecasting. To achieve this in practice the project utilizes high performance computing techniques. Based on forest simulation systems and geospatial and geographical modeling, the socio-spatial outcomes of alternative forest management practices together with anticipated future wood-processing and energy needs will be analyzed in order to outline more sustainable rural socio-economic spatial systems and highly competitive industrial clusters. The overall effort is to develop the principles of more sustainable and efficient production systems based on geographical information, and finally contribute to theorization of the organization of production in geographical space.

Keywords: Rural systems, forest sector, wood production, economic geography, forestry, high performance computing, SUSWOOD

James A. Tyner, PhD, Kent State University. Email: jtyner@kent.edu; Anti-Geographies and the Erasure of Space in Democratic Kampuchea

Many geographers have approached Geography from the stand-point that geo-graphy is about the writing of space. In this paper I forward the inverse proposition, namely that anti-geographies constitute the un-writing, or erasure, of space. Though a case study of the Cambodian genocide I detail that the socio-spatial practices of the Khmer Rouge were designed to explicitly eliminate social relations and physical structures: policies of genocide and terracide. In so doing, the Khmer Rouge attempted to erase space and so create a utopian society.

Keywords: genocide, Cambodia, anti-geography

Judith A. Tyner, Ph.D., California State Univ, Long Beach. Email: jztyner@earthlink.net; Women in Twentieth-Century Academic Cartography

Although women have been involved in the map trades for several centuries, their numbers were small and their contributions often marginal. The twentieth century, especially the last half of the century, saw a great rise in numbers and visibility of women in the field. A major influence was WWII, which also marked the beginnings of the discipline of cartography in academia. The first dissertation on cartography by a woman was written in 1969 and women began teaching in the field in the middle and late 1960s. Since that time the number of dissertations by women have increased as have the number of positions in cartography and GIS held by women. We are now in the 'third generation' of women in academic cartography some of whom have been mentored by women. This paper examines

women's experiences in academic cartography in the United States.

Keywords: Cartography, Women, Gender

Alexander Tziamalis, PhD researcher, University of Sheffield, UK. Email: tzmalex@hotmail.com; Dimitris Ballas, Senior Lecturer, University of Sheffield, UK. Email: d.ballas@sheffield.ac.uk; Megan Blake, Senior Lecturer, University of Sheffield, UK. Email: m.blake@sheffield.ac.uk; The Socio-Economic Profile of Foreign Students in the UK

This paper reports work in progress aimed at unveiling the socio-economic profile of the foreign student in the UK by taking into account all the demographic, geographical and socio-economic information necessary for sketching a comprehensive profile of this category of migrants. It can be argued that this under-researched category of migrants is part of a wider literature on skilled and highly skilled migrants. It could provide a theoretical and methodological platform for exploring the inter-relations of "classical" migrant categories with other types of migrants such as the student, the gap year or the working-abroad tourist. Statistical analysis of secondary demographic and socio-economic data (such as the UK Census Samples of Anonymised Records) will provide a starting point and will be enhanced with the analysis of economic data, including an estimation of the living and tuition fees expenses, and geographical distribution related to the concentration of this particular category of immigrants in the UK space. The paper will assess the importance of this group of people in terms of numbers, expenses and geographical concentration and will provide both the academic community and policy makers with some of the information needed to support policy formulation and analysis in this area. Finally, an effort will be made to integrate this special yet important category of migrants into the mainstream theory for skilled migrants and provide some insights for future directions of research.

Keywords: foreign students, tertiary education, socio-economic profile

Syed Uddin-Ahmed, William Paterson University. Email: amirsamadnj@aol.com; Development and Poverty Reduction: The Case of Bangladesh

In this project I will summarize the main aspects of the economy. I will focus on poverty and poverty groups such as farmers, fishermen, and women's economic role. I will attempt to provide an explanation of poverty, to assess existing policies and to suggest alternative policies to reduce poverty. I will also utilize my relationships with members of the BNP or the Nationalist Party to gain access to interviews with policy makers, scholars, and other dignitaries. I will rely upon The UN Millennium Development for my reference as well as other scholarly works.

Keywords: Development, poverty, Bangladesh

Morris L. Uebelacker, Ph.D, Central Washington. Email: morris@cwu.edu; Determination of the Southern Boundary of the Medicine Creek Treaty

The Southern Boundary of the Medicine Creek Treaty has been in dispute almost from signing on December 26, 1854. This treaty, the first in the Pacific Northwest, established the boundaries to land and use rights for the bands and tribes of Indians inhabiting the southern end of Puget Sound and adjoining territory. The cultural dynamics of the Treaty process and subsequent landscape evolution resulted in directed legal conflicts with the Federal Government, State of Washington, and other indigenous people over the location of the Southern Boundary and attendant use rights. Increasing disputes and arrests regarding hunting rights led the State of Washington and the Medicine Creek Treaty tribes to a binding agreement that establishing the southern boundary based on a geographic interpretation of treaty language, actual terrain features, historical accounts, and legal testimony and precedent. Interestingly, the new boundary is not in agreement with the boundaries claimed by either party and is directly disputed by the Cowlitz Nation.

Keywords: Treaty, Medicine Creek Treaty, Native American

Jeff Ueland, Ohio University. Email: ueland@ohio.edu; Felicia Coleman, PhD, Director Florida State University Marine Lab. Email: ; Will Figueira, Department of Environmental Sciences University of Technology, Sydney. Email: ; Fishing for answers: Constructing a spatial and temporal framework for comparing commercial and recreational fishing impacts in the United States

Understanding the impact of commercial and recreational fishing on the marine environments is critical to track the health of economically important stocks. The collapse of species specific fishing industries such as cod and its inability to recover has shed light on the importance of judiciously monitoring these resources. At the species level, stock assessment data are available to understand temporal trends relative to abundance and mortality. Assessing the spatial distribution of human impacts to economically important fisheries is vital

but hampered by inconsistencies and variability of available data sets This paper presents a construct a spatially and temporally explicit framework for comparing commercial and recreation catch in the United States at a refined scale.

Aggregating spatially disparate data sources from county, state, and federal sources we create a mapping framework comprised of twenty three zones that cover the coastal areas of the contiguous United States. This framework is then utilized to illustrate spatial and temporal patterns of data at the species level over a 24 year period. The results are then examined through the lens of fishing regulation to better understand the dynamics of human activity on the fish stocks of the United States. It is hoped that this research will provide a means for policy makers and researchers to better evaluate the spatial nuances of fishing activity.

Keywords: Fisheries, GIS, Coastal and Marine Environments

Yvonne Underhill-Sem, University of Auckland. Email: y.underhill-sem@auckland.ac.nz; *Empowering' women in out-of-the-way places: the East Sepik Women and Children's Health Project and the Community Based Health Care Programme, Southern Highlands of Papua New Guinea*

This paper questions the extent to which it can be said that women have been 'empowered' in two remote grass-roots health projects in Papua New Guinea. Both projects provide critical development services in places notable for their almost complete lack of government service, vast populations spread across diverse environments and entrenched, and often violently expressed, gender inequality. Both programmes, in different ways, offer useful lessons about dealing with gender inequality and advancing women's 'empowerment' in Papua New Guinea. Small incremental support to women appears to have provided them with opportunities to more successfully negotiate the complex constellations of socio-political relations that characterize all communities in Papua New Guinea. This paper highlights the value of Foucault's (1978) notion of power as being "exercised from innumerable points, in the interplay of non-egalitarian and mobile relations" as a way to examine the project of Foucauldian feminism.

Keywords: empowerment, Foucault, Papua New Guinea, feminism

Christopher A. Underwood, The University of Tennessee. Email: cunderw5@utk.edu; Saskia L. van de Gevel, The University of Tennessee. Email: saskia@utk.edu; Gregory G. Metcalf, Heritage Middle School. Email: metcalfg@blountk12.org; Victoria Headrick, Carpenters Middle School. Email: headrickv@blountk12.org; Sally P. Horn, The University of Tennessee. Email: shorn@utk.edu; *Using Mastodon Matrix to Teach Earth Science to Middle School Students*

The Mastodon Matrix Project, coordinated by the Paleontological Research Institution (PRI) in collaboration with Cornell University, allows interested parties to contribute to an actual scientific study. Mastodons are extinct relatives of modern elephants that were numerous and widespread in North America until the end of the last glacial period. In July 2006, PRI loaned us 51 five-gallon buckets of sediment recovered during mastodon excavations at two sites in New York. University of Tennessee GK-12 Fellows are taking samples of this mastodon matrix into rural middle schools to engage students in hands-on, authentic paleontological research about our changing Earth. Students are each given 20 to 30 cc of matrix and are asked to be careful and observant researchers as they sort their findings into these categories suggested by PRI: 1) plant macrofossils, 2) rocks, 3) shells, and 4) everything else. Six classes at Carpenters Middle School found 861 items in ~3,000 cc of matrix. Included were 743 plant macrofossils (twigs, fragments of tree bark, seeds and conifer needles), 116 rocks, and 2 shells. These results were used in a lesson on graphing that was exciting to the students because it involved original data that they had collected. We are using the matrix at other schools and planning additional investigations for the students, including the examination of preserved pollen. The data and actual materials the students find will be returned to PRI where they will be examined and cataloged by PRI and Cornell paleontologists.

Keywords: GK-12, authentic research, mastodon matrix, earth science, paleontology, environmental history, university outreach

Jeffrey Underwood, University of Nevada. Email: jeffu@unr.edu; *A Climatological Perspective on Record Temperatures Recorded in the Central Valley of California during Summer 2006*

The summer of 2006 saw multiple temperature records set in the Central Valley of California. Stations reporting record high maximum temperatures and record high minimum temperatures between 10 July and 27 July included Stockton, Redding, Red Bluff, Sacramento, Bakersfield, and Fresno. The synoptic scale environment for this record setting month included 1000-500mb thickness levels in excess of 5800gpm and weak geostrophic flow?routinely below 15m/s at 200hPa. This paper provides perspective for this record setting summer in the Central Valley by analyzing three-hour temperature changes (0100-2400PDT) for the month of July at the six stations over a period of 50-years. The analysis of 3-hour intervals allows for the determination of heating rates during early morning (0700-0900 PDT), late morning (1000-1200 PDT), early afternoon

(1300-1500 PDT), and late afternoon (1600-1800 PDT). Additionally the analysis will reveal cooling rates at each of the stations during the early evening (1900-2100 PDT), late evening (2200-2400 PDT) and overnight hours (0100-0300 PDT). Heating and cooling rates for each of the eight time intervals for each station are compared in a time series analysis.

Keywords: California, Climatology, Temperature

Jon D Unruh, Ph.D., McGill University. Email: jon.unruh@mcgill.ca; *Post-war Land Tenure in Angola*

Land rights play a primary role in conflict. From the Balkans to the Middle East, to the many civil conflicts in Africa, rights over land(s) are fundamental to both reasons for conflict, and to their recovery. While land law reform is a pervasive feature of countries emerging from war, different approaches are attempted regarding how such reform will create the 'legal geography' of a post-conflict state attempting to pursue multiple objectives in a peace process. Investigating what works and what does not across a variety of circumstances is important, and comparison between experiences of different countries recovering from war is critical. Post-war Angola presents the opportunity to examine the position of not engaging the emerging multiple normative orders regarding land rights after the country's 25 year civil war. In Angola there is an explicit prohibition in the new land law to addressing issues of restitution for large-scale (commercial) and small-scale (peasant, including ex-combatant) interests. There is significant retention by the new formal law of the ability to nationalize, confiscate, expropriate, and intervene in lands held customarily by rural communities who attempt recovery of agricultural lands after the war in order to achieve near term food security. Thus post-war Angola presents a significant opportunity to examine the divergence which likely occurs between formal law and the informal normative orders which govern how most of the population intersects with land and properties after civil conflict.

Keywords: Africa property rights reconstruction

Christopher Upchurch, University of Utah. Email: chris.upchurch@utah.edu; Harvey Miller, PhD, University of Utah. Email: harvey.miller@geog.utah.edu; *Optimum Facility Location and Scheduling Using Space-Time Prisms*

Locating facilities that serve the general public has long been a concern of both the public and private sectors. Government agencies would prefer to serve the public using the minimum possible number of facilities. Commercial retail and service businesses want to be as accessible as possible to the maximum possible number of customers, while minimizing their investment. These problems have been studied extensively both in terms of explaining the location of existing businesses and government facilities and optimizing the placement of future facilities. There has not been as much research on the operating hours of these facilities, though their interaction with other commitments like work, school, and childcare can have a great effect on the actual accessibility of the facility. This paper uses mixed-integer programming (MIP) and applies the principles of time geography to simultaneously solve for both optimal facility locations and optimal operating hours for those facilities. By using the concept of a space-time prism from time geography, we can simultaneously solve for facility locations and operating hours. A space-time prism defines where a person could travel during a given time subject to certain constraints on travel speed, time at the destination, and their location at the beginning and end of the period. The mathematical definition of this prism is completely linear, and maps neatly to a set of linear constraints. The formulation evaluates these constraints against a set of candidate facilities and possible operating hours in an attempt to offer services to the maximum number of people.

Keywords: time geography, facility location, location science

Caroline Upton, University of Leicester. Email: huiten@yahoo.co.uk; *Poverty and Participation: New Development Initiatives in Mongolia's Pastoral Sector*

The post-collective era on Mongolia's pastoral commons has been marked by institutional flux and the emergence of significant rural poverty. In this paper I explore the impacts of formalised herders' groups and the promotion of new modes of collective action and cooperation under recent international development initiatives on equity, land use and livelihoods. I analyse barriers to cooperation and the differentiated and complex processes shaping herders' participation and exclusion under contrasting development projects. The empirical material on which this paper is based comprises life histories, semi-structured interviews and household surveys with more than 300 herding households at four sites in Mongolia. Drawing on these multiple sites and longitudinal datasets, this research highlights the limitations of particular modes of development action in facilitating cooperation over resource use and initiating co management and devolution of land rights to newly constituted herders groups. Empirical results identify recent historical trajectories of livelihood change, status, kinship and information asymmetries as powerful determinants of

active participation in newly emergent groups and as key elements in shaping land use practices. The research demonstrates limitations in project implementation and the ability of projects to benefit the poorest herders in case study areas.

Keywords: Key Words: Pastoralism, Mongolia, collective action, development.

E. Lynn Usery, Research Geographer, U.S. Geological Survey. Email: usery@usgs.gov; Jinmu Choi, Assistant Professor, Mississippi State University. Email: Jc778@msstate.edu; Michael P. Finn, IT Specialist, U.S. Geological Survey. Email: mpfinn@usgs.gov; Modeling Sea-Level Rise Effects on Population using Global Elevation and Land-Cover Data

Global datasets of moderate resolution have recently become available for population, land cover, and elevation. These data can be used to model the effects of sea-level rise on human population. Whereas the 30 arc-sec resolution of the data are not sufficient to provide details in local areas for results of global warming and the associated melting of icecaps, the data do provide global trends of rising water and allow identification of broad areas where large numbers of people could be affected. The data also support localized modeling of catastrophic events, such as the Indonesian Tsunami and Hurricane Katrina, that lead to large surges of sea water. A global model has been developed that tracks the land area and the population counts affected with a specific sea-level rise. The model is implemented as an animation that shows land areas as they are covered with the rising seas. A key to the development of this model has been the implementation of new projection and resampling methods that provide accurate results for global raster data of continuous elevation, categorical land cover, and population counts.

Keywords: sea-level rise, global simulation, raster projection, population, elevation, land cover

Ebru Ustundag, Brock University. Email: eustundag@brocku.ca; Architecture Of Modern Subjects: Appropriations Of Turkish Republican Citizenship

In their will to modernize as westernization, Turkish republican authorities have always seen the importance of appropriation(s) of the city. This paper aims to critically elaborate how for various political projects the appropriations of a historical neighborhood in Istanbul (Beyoglu) has been an indispensable part of their struggles. When establishing the link between the city and citizenship in the Turkish Republican context, it is impossible to ignore the importance of appropriation of spaces. Through appropriation, the Turkish republican project has been making itself visible and possible in the city. The key issue explored is how material constructions as well as destructions in the city become a medium as they enable, restrict, conceal and reveal the constitutions, contestations and transformations of Republican citizenship. By focusing on how architecture has been used as a technology of modernization as westernization, I argue that architecture not only enacts the project of creating and governing new republican citizens, it also reveals the paradoxes and contradictions of the projects.

Keywords: citizenship, architecture, modernity, Turkey, Istanbul,

Jacqueline Michelle Vadjunec, Clark University. Email: jvadjunec@yahoo.com; Extracting a Livelihood: The Institutional Dimensions of Deforestation in the Chico Mendes Extractive Reserve in Acre, Brazil

The state of Acre is one of the most progressive "forest" governments in the Brazilian Amazon, promoting people, parks, and working forests. It is also the birthplace of the Brazilian Extractive Reserve System (RESEX), which has been promoted as a major Federal strategy for forest conservation while simultaneously providing a sustainable economic return to rubber tappers and other extractivists. Frontier areas such as Acre, however, may be particularly vulnerable to the social, political and ecological changes occurring within the entire Madre Dios-Acre-Pando (MAP) region, while at same time, offering land managers both opportunities and constraints. This paper explores the institutional dimensions of land-use/cover-change within the Chico Mendes Extractive Reserve (CMER). Using a common property framework, I focus on community membership, rubber tapper identity, migration, and boundary conflicts to explore their impact on individual livelihood decisions and their resulting deforestation trends within the CMER. Methods include multiple logistic regression analysis, participatory approaches and individual ethnographies. Results of the analysis reveal popular scapegoats such as migrants and "outsiders" to not be responsible for recent deforestation in the CMER. However, the real and even perceived threat of invasion and continued boundary conflicts may be encouraging traditional land managers to adopt more intensive land-use practices. In order for the CMER to be successful, community institutions must adapt in the face of the changing landscapes, populations, and livelihoods.

Keywords: Extractive Reserve System, Chico Mendes, Southwestern Brazilian Amazon, Institutions, Land-use cover-change, Frontiers

Gabriela Valdivia, Michigan State University. Email: valdivi8@msu.edu; Petro-citizens and the Materiality of Oil in Ecuador

Taking into consideration recent calls for a closer look at how materiality enables, constrains, and/or disrupts social practices of resource regulation, this paper focuses on the case of petroleum in Ecuador to outline the ways in which petroleum—materially and symbolically—matters to the production of Ecuadorian subjectivities. The paper focuses on two questions: how do petroleum's unique physical properties shape political and cultural rationalities of resource appropriation and contestation? In what ways do petroleum's material qualities territorialize and naturalize ethnicity, race, and other forms of collective identity? This paper brings two crucial aspects of resource governance together, 'material relations' and 'matter,' into an analysis of how collective subjectivities are conditioned through petroleum's biophysical properties and the practices associated with its production. I focus on two examples: the struggles of Petroecuador workers against privatization and the claims of Amazonian residents for inclusive citizenship to illustrate my arguments.

Keywords: materiality, petroleum, resource regulation, Ecuador

Gill Valentine, School of Geography, University of Leeds. Email: g.valentine@leeds.ac.uk; Deborah Sporton, Department of Geography, University of Sheffield. Email: D.Sporton@Sheffield.ac.uk; The role of language in processes of belonging and citizenship

This paper draws on empirical material from a research project with Somali refugee and asylum seeker children (aged 11-18) in Sheffield, UK. It examines the role of 'language' as a practice through which children negotiate their cultural identities and sense of affiliation in the context of transnational migration and as they move through everyday spaces in their UK home town. Specifically, the paper considers the different experiences and senses of belonging of Somali children who have different arrival scenarios into the UK (including via transit camps in other African countries and via periods in other European and Middle East countries), and who therefore have a diverse range of linguistic competences that may differ from others in the Sheffield Somali community and indeed their own families. Drawing on theories of spatiality the paper examines how children use different languages in different everyday spaces of home, school, and community; the role of language in their geographical imagination (of home and elsewhere) and the implications of this for their senses of belonging and intercultural citizenship.

Keywords: Language, Belonging, Intercultural Citizenship

M. Basilia Valenzuela, Universidad De Guadalajara. Email: basiliov@fulbrightweb.org; Maria Luisa García Batiz, Universidad de Guadalajara. Email: marial@cucea.udg.mx; Location, Location and Information: the geography of social interests on the impacts of big infrastructure projects.

In this paper we analyze the geography of social perceptions regarding the environmental and social impacts of a hydroelectric power plant scheduled for construction in a region located in Western Mexico. The study shows that location matters but access to information is a key aspect to understand the formation of social perceptions and the creation of expectations regarding the benefits and costs of such a project. The paper presents results of and extensive survey conducted in five municipalities aimed to identify how people are assessing the changes observed in the region due to the project that will eventually bring about five thousand workers for the construction of the dam.

Keywords: Location, regional geography, infrastructures, Latin America

November Valerie, Swiss Federal Institute of Technology, Lausanne, Switzerland. Email: valerie.november@epfl.ch; Pascal Viot, Swiss Federal Institute of Technology, Lausanne, Switzerland. Email: pascal.viot@epfl.ch; Marion Penelas, Swiss Federal Institute of Technology, Lausanne, Switzerland. Email: marion.penelas@epfl.ch; Estelle Ployon, Laboratoire EDYTEM, University of Savoie, France. Email: Estelle.Ployon@univ-savoie.fr; RiskPrint: understanding the spatiality of risks

Our project aims to identify and understand the relationships between risks and spaces in the identification, representation and management of risks. The main objective is to devise new instruments for understanding risks in relation to the land dynamics in which they arise and which they themselves help to alter. Various types of knowledge (scientific, technical and popular) are called upon to play a decisive role in risk and crisis management. Such knowledge is produced during the risk identification process (including definition of the instruments used in that process) as well as in the process of devising preventive measures (town and country planning, the promotion of vigilance). We intend to examine how, during both of these processes, types of knowledge are constructed, consolidated, revised or abandoned in order to updating their performative dimension, i.e. their capacity to influence and transform space. This research program is based upon three studies concerning, respectively, fire risk, flood risk and video surveillance, which have demonstrated the usefulness of studying the various types of

knowledge likely to have a spatial impact. This study of what we will call "spatiality of risks" will also lead to the production of a 3D graphic representation, enabling us to see risks on different geographical scales and to get a clearer idea of how these various types of knowledge coexist and interact with one another. This innovative mapping technique will enable us to reveal the connectivity at work in the complex spatiality of risks.

Keywords: Risk, Hazard, Actor Network Theory, 3D, Human & Non-human geography

Paul Vallance, University of Newcastle Upon Tyne. Email: P.E.Vallance@ncl.ac.uk; *Relational and practice-based approaches to learning in economic geography*

Some recent work on knowledge in economic geography has moved away from an earlier focus on learning processes at the local or regional scale. A set of new influences and objects of theorisation, such as 'relational proximities', project forms of organisation, and actor-network theory, indicate the emergence of a more relational, less essentialist geography of economic knowledge. The different forms of interaction featured in this work, along with frequent references to the concept of communities of practice, may suggest the beginnings of a 'practice-centred' turn in the field. However, this paper will question the extent to which this constitutes a new practice-based approach, in the sense that their accounts of learning are not sufficiently grounded in the context of what people do in their everyday working lives. It will use the organizational studies literature on 'knowing-in-practice', and in particular the conceptual framework of activity theory, to outline an alternative approach to learning and its spatiality. This considers learning not in terms of the transference and acquisition of new knowledge, but in those of the transformation of peoples understanding through ongoing meaningful engagement with the objects of their work, and interaction with the other members of their work group. The paper will also refer to ethnographic research investigating the relationship between work practices and learning in the UK video games development sector to highlight some of the methodological issues this raises.

Keywords: relational economic geography, organizational learning, knowing in practice

Lara Valley, IUPUI. Email: laravalley@yahoo.com; *Land Cover Change Analysis for a Wetland Restoration Site*

This poster presents a remote-sensing based analysis of land cover change associated with a Natural Resource Conservation Service (NRCS) wetland restoration site in southwestern Indiana. Commonly known as Goosepond and Beehunter Marsh, the restoration site occupies 7068 acres in Greene County, Indiana. The restored wetland complex will include swamp, marsh, wet meadow, and open water components, and is targeted to provide seasonal habitat for migratory waterfowl. Restoration began in 2000 and continues currently. Multi-temporal analysis was performed on an 1128 acre portion of the study area where restoration efforts have been completed. A comparison of vegetation biomass estimates are assessed at intervals between 1989 and 2004. These time periods reflect stages before, during, and post restoration. Biomass estimates are derived from the Normalized Difference Vegetation Index for a time series of Landsat imagery. An analysis of surface water area using near infrared data from Indiana's 2005 Orthophotography Project is also presented and compared against projected measurements used by the NRCS for site planning.

Keywords: remote sensing, wetland restoration, LCC

Shawn Van Ausdal, University of California, Berkeley. Email: s_vanausdal@yahoo.com; *Cattle, Power and Profit: an Environmental History of Cattle Ranching in Colombia, 1850-1950*

Since the mid 19th century, the expansion of cattle ranching in Colombia has been one of the principal driving forces of deforestation in the country. While in a number of the classic cattle regions of Latin America, ranching expanded into natural grasslands, in Colombia pastures had to be formed out of the forest. The introduction of African pasture grasses aided this process of forest clearance and pasture formation. Expanding markets for meat and other by-products, the potential profitability and relative ease of cattle ranching, portfolio diversification, and speculation all spurred interest and investment in the activity. The social relations of pasture formation took a variety of forms: the labor of independent peasant colonos, the consolidation and/or appropriation of such lands by larger ranchers, wage labor, and a form of sharecropping in which landowners granted landless peasants the rights to use forested lands in exchange for returning them in grass. Following the ranching operations of Pedro Nel Ospina, president of Colombia in the early 1920s, I will examine these processes in the departments of Antioquia and (old) Bolívar, two of the most dynamic areas of cattle expansion during this period. Contrary to what is commonly assumed in Colombia, I argue that cattle are not principally a means to occupy territory, but must be understood as part of investment strategies of ranching elites. And the often emphasized extra-economic appropriation of peasant lands in ranching

areas should be seen partially as a response to the high costs of forest clearance and pasture formation.

Keywords: cattle ranching, agrarian change, environmental history, Latin America, Colombia

Jamon Van Den Hoek, University of Wisconsin-Madison. Email: jlvandenhoeck@wisc.edu; Evangeline McGlynn, University of Wisconsin-Madison. Email: mcglynn@wisc.edu; Andrew Woodruff, University of Wisconsin-Madison. Email: awoodruff@wisc.edu; *Exploring the Relationship between Navigational Tools and Geographic Context in Interactive and Static Maps*

An individual's mental map of a given space results, in part, from his or her interaction and experience with his or her environment. For example, a student who rides a bicycle through a university campus may have a different perception of the campus than a student who walks or rides the bus. The navigational media and tools used to remotely explore a given space (i.e. maps) can also affect how one perceives the environment. In the past, most of these have been of the same basic type: static maps offering a fixed representation of a geographic area, which the map user explores by visually scanning the map. This act of "browsing" the entire map affords the user a geographic context of the represented locations and areas. By contrast, newer interactive maps offer navigational flexibility and fluidity that are absent in static maps, allowing rapid zooming and panning that can limit the geographic context for a given map location. Therefore, a user no longer needs to consider the whole map in order to extract information about a particular location. Just as different means of navigating through physical space can alter one's mental map of an area, so can these different means of navigating a map of that area. In this paper, we analyze how different navigational media and tools affect a map user's concept of space based on user testing of interactive and static maps.

Keywords: cartography, interactive maps, mental maps, cognitive maps

Gregory Alan Van Der Horst, M.A. Candidate, University of Guelph. Email: gvanderh@uoguelph.ca; Alice Hovorka, Associate Professor, University of Guelph. Email: ahovorka@uoguelph.ca; *The political ecology of urbanization: urban fuelwood use and sourcing in Maun, Botswana*

Rapid urban growth has significantly transformed the social, economic and ecological living conditions of rural and urban Africans. While economic and political dimensions of urbanization have been explored, attendant changes in human-environmental interaction have received less attention. In particular, their development across conventional urban, peri-urban, and rural spatial boundaries is poorly understood. Political ecological inquiry has effectively uncovered causes of environmental change, marginalization and conflict, but the socioecological development of urbanizing landscapes remains under-studied. Simultaneously, urban ecologists have examined landscape-scale ecological gradients between urban and rural areas, the socio-economic dynamics shaping their development, and their recursive influences on human environmental actors are not well understood. This study explores the political ecology of urbanization through an analysis of household fuelwood consumption and sourcing in the rapidly growing town of Maun, Botswana. Its findings were that: 1) high international commercial energy prices are important determinants of urban fuelwood consumption; 2) fuelwood harvesting patterns are determined more by deadwood abundance than proximity or transport cost; and 3) house-hold urban-rural socio-economic linkages critically influence harvesters' responses to fuelwood availability patterns. The study concludes that both external and local socio-economic factors have been key to the creation of a socio-ecological urban-rural gradient which significantly influences urban fuelwood sourcing decisions in Maun and its hinterland.

Keywords: political ecology, urbanization, fuelwood, Africa

Inge Van Der Welle, . Email: i.c.vanderwelle@uva.nl; *Re-claiming the Dutch youth. National versus local identity politics*

National institutional discourses on nationality and nationalization in the Netherlands have changed considerably over the last decennia. The discourse has sharpened and refocused on the definition of a genuine shared culture or what it means to be or to become Dutch, whereby multiple nationalities are problematized. However, today's context is drawn by EU citizenship, increased interactions across national borders and an increasing amount of people holding more than one nationality. Young people are specifically targeted by these incorporation policies, as they are believed to reflect the future of the nation; they should not only be taught what it means to be a citizen of the Netherlands but also be prevented from radicalization and recruitment by terrorist groups. Young people with a foreign background have received special attention within these policies. Those policies are re-interpreted and renegotiated at the local level, where they have to be implemented. The local policies not necessarily reflect the official national discourse and in some cases even contesting discourses arise. This is the case in Amsterdam, where the identity politics of the

municipality not focus on what it means to be Dutch, but rather question what it means to be 'Amsterdammer'. This paper will investigate the changes in the Dutch (institutional) discourse on Dutch identity, contrast these with the everyday local identity politics of the city of Amsterdam and will especially focus on the (institutional) re-claiming of the 'Dutch youth'.

Keywords: youth policy, identity, Netherlands, Amsterdam

Bas Van Heur, Goldsmiths College, University of London, UK. Email: cop01bhv@gold.ac.uk; *The Clustering of Networked Aesthetic Production: Between Myth and Reality*

This paper focuses on the tensions between networked forms of aesthetic production and creative clusters and the ways in which the myths of urban policy impact on and structure the realities of networked practices. The outline of this paper is as follows: First, I analyze the ways in which aesthetic production is both networked and clustered. The data I discuss are derived from my current research on (electronic) music in the cities of London and Berlin. Having mapped hundreds of music nodes onto the geographies of these cities, it becomes clear to what extent these vernacular forms of creativity are shot through with the effects of the urban political economy in which they have to operate. Empirical analysis, therefore, needs to be sensitive to this mutual imbrication in order to identify the role of each cluster in relation to the larger political economy. The following dimensions are identified: 1) 'customer'-oriented nature of certain nodes within clusters; 2) bias towards consumption in established clusters; 3) spatial dislocation of aesthetic innovation towards the peripheries of established clusters or newer emerging clusters. Second, I address the role of cultural policy as a tool of intervention in such a complex environment. Cultural policy's focus on creative clusters intensifies the already-existing bias towards cluster formation. This contributes to a cutting of the links between clusters and networks - despite the fact that it are precisely these links that are so constitutive for aesthetic innovation and experimentation.

Keywords: networks; clusters; urban geography; aesthetics; cultural production; Berlin; London

Jason E. Van Horn, The Ohio State University. Email: vanhorn.17@osu.edu; Mei-Po Kwan, The Ohio State University. Email: kwan.8@osu.edu; *Urban Proof? Terrorism's Postulate*

We provide a methodology for the analysis of terrorism incidents over space and time as urban or non-urban using terrorism incident data from the Memorial Institute for the Prevention of Terrorism, Terrorism Knowledge Base from 1968 to 2006. We focus on the development of an urban definition for the analysis of terrorism using Spanish incidents as a means for describing steps in the methodology. Analysis shows to what degree terrorism is urban and indicates what forms and targets of terrorism are perpetrated in urban/non-urban locations in Spain. We find that terrorism in Spain is distinctly urban, yet shifting away from the urban sector over time. Benefits are presented from a standpoint of allocation of resources for implementation of counter-terrorism efforts.

Keywords: Terrorism, Urban, Geovisualization

Bettina Van Hoven, Rijksuniversiteit Groningen/FRW. Email: b.van.hoven@rug.nl; David Sibley, University of Leeds. Email: D.Sibley@leeds.ac.uk; *Contamination and the production of space in a prison environment*

The literature on the organisation of space in institutions has focused primarily on the controlling regime - prisons, for example, represented as Foucauldian disciplinary spaces where, as Thomas Markus puts it, 'residents' (correctional officers) produce space for 'visitors' (prisoners). Our research, however, suggests that, in the context of the disciplinary regime, inmates also produce their own spaces. In this paper, based on interviews with inmates in a dormitory space in a prison in New Mexico, we assess the affects of anxieties about contamination on space-time routines. We argue that these anxieties are fundamentally about racialised difference and sexuality but they are manifest in a discourse of disgust and practices of distanciation. The ways in which prisoners produce space can be seen as a means of coping with uncertainties in a weakly framed environment (the dormitory) but also as a means of subverting the disciplinary regime.

Keywords: prison, contamination, anxieties, racialised difference, sexuality

Willem J.D. Van Leeuwen, Dr., University of Arizona. Email: leeuw@ag.arizona.edu; Jennifer Davison, University of Arizona. Email: davisonj@email.arizona.edu; Grant Casady, University of Arizona. Email: gcasady@email.arizona.edu; Stuart Marsh, Dr., University of Arizona. Email: smارش@Ag.arizona.edu; *Satellite Derived Vegetation Phenology For A Sky Island In Arizona*

Current climate change and variability in the Southwestern US has resulted in prolonged drought events and wildfire disturbances and is shifting the timing of vegetation life cycle events (vegetation phenology). Phenology has significant

ecological and socio-economic consequences on, for example, forest and agricultural productivity and planning, occurrence of diseases and pests, and tourism. Understanding inter-annual and seasonal vegetation phenological metrics (Pheno-metrics: beginning, peak, and duration of growing season, magnitude, seasonality) derived from MODIS NDVI (Moderate Resolution Imaging Spectroradiometer - Normalized Difference Vegetation Index) time series data will allow for the detection and prediction of climate and environmental changes or trends. To analyze the available NDVI time series satellite data (2000-2006), a smoothing filter and fitting function were applied to reduce residual noise and derive pheno-metrics along an elevation gradient and variety of land cover types in the Santa Rita Mountains in Arizona. The resulting pheno-metrics were related to vegetation types, elevation gradients, precipitation and air temperature. Timing and effects of drought and wildfire significantly affected the pheno-metrics and their spatial distribution in different ways each year. Visualization of the patterns in vegetation phenological information in combination with temporal vegetation greenness data provides a tool for monitoring inter-annual and seasonal growth and post-wildfire vegetation recovery. Improved integration of phenology monitoring networks that include phenology observations in concert with meteorological, environmental and remotely sensed data are being coordinated by the National Phenology Network.

Keywords: Remote sensing, phenology, vegetation dynamics

Rianne Van Melik, MSc, Utrecht University. Email: r.vanmelik@geo.uu.nl; Jan Van Weesep, Professor, Utrecht University. Email: j.vanweesep@ucu.uu.nl; *Redevelopment of the urban outdoors: The influence of private-sector involvement on the design and management of public space in the Netherlands*

In liberal welfare states such as the United States, the private sector has long played a prominent role in the production and utilization of the urban outdoors. In other countries like the Netherlands, the involvement of the private sector in urban development has not been that evident. Large-scale redevelopments of public space in which the private sector played a key role only came about since the 1990s. The Beurstraverse, a retail complex in the centre of Rotterdam that opened in 1996, was one of the first projects realised within a public-private partnership. The paper first sketches the backgrounds of this pioneering development: who were involved, what were their motives, and how has their involvement affected the public space? The paper then turns to three projects in other Dutch cities: the Burgemeester Loeffplein ('s Hertogenbosch), Statenplein (Dordrecht), and Van Heekplein (Enschede) that were also redeveloped jointly by local authorities and the private sector. The four projects are compared with each other in order to identify differences and similarities with regard to levels of private-sector involvement and the design and management of public space. Which common characteristics do these 'public-private' spaces have (e.g., with regard to design, intensity of surveillance, the strictness of regulation, level of exclusion, etc.). Do similarities point at learning from experience (i.e., applying insights from the same best-case practices)? Conversely, can differences be related to variations in local contingencies? These are the questions we would like to address in our paper and presentation.

Keywords: production of public space, private sector, redevelopment, Dutch cities

Micheline van Riemsdijk, University of Colorado. Email: vanriems@colorado.edu; *Spatializing Race: National Imaginaries of Whiteness in Norway*

Norway has commonly been regarded a racially and ethnically highly homogenous country, even though considerable numbers of migrants have settled in Norway since the 1970s. Norwegian migration debates have mainly focused on visible minorities from countries outside Europe, but this has started to change with the recent EU membership of countries from East-Central Europe (EU-8). Since May 2004, Norway has experienced a significant increase of migrants from the new accession countries. Media debates in Norway have mainly focused on unskilled migrants from the EU-8, and many fear that these migrants will undercut wages in Norway. However, little attention has been paid to skilled migrants from the EU-8. This paper will investigate the perceptions of Norwegians towards skilled white migrants, specifically Polish nurses in Norway. Poles don't fit in with perceptions of white privilege, and Polish migrants often experience deskilling in Norway. This paper aims to contribute to whiteness studies by focusing on an under-researched area, namely Norway. Most research on whiteness has been conducted in the US and the UK, and so far we know little about how whiteness operates in countries without a colonial history. In the case of Polish skilled migrants, markers of difference are mostly based on ethnicity, class and gender, underlining differences between Norwegians and Poles. This paper builds on literatures on poor rural whites and white privilege, as well as theories on processes of identity formation within the recently expanded EU.

Keywords: whiteness, Norway, ethnicity, migration

Jan Van Weesep, University of Utrecht. Email: JWeesep@ucu.uu.nl; The 'Change of System' and the evolution of gentrification in Budapest

The 1980s renovation policy in the former Jewish ghetto in the 7th District of Inner Budapest has been dubbed an example of socialist gentrification because of its effects. By that time, public policy had abandoned its social equality principles; consequently, the new rental apartments were allocated to households who could afford the relatively high rents by the three public housing agencies involved. This early example of gentrification-promoting policy has become a full-blown development since the change of system. Along with the privatization of the housing stock, some inner-district governments have almost completely abandoned their social housing policy. The effects are clearly visible: while the innermost parts of the districts tend to gentrify, the residential complexes in the 'rust belt' further out are severely deteriorating. Yet other districts having retained significant numbers of social housing were thereby able to establish the conditions for PPP-based regeneration, leading to a significant population displacement. But a closer look reveals an even more intricate pattern for the entire inner city that can be described and understood by applying the perspective of critical realism. This offers insight in the emerging variations between and within the districts.

Keywords: gentrification, change of system, public policy, Budapest

Barbara Francesca Van Wijnendaele, Brunel University. Email: barbara.van.wijnendaele@brunel.ac.uk; Youth, Participation and Empowerment in El Salvador

My research focuses on participatory action research with poor young people in San Salvador as a potentially empowering endeavour and a possible site of resistance. Beside structural violence, criminal violence has become the main preoccupation in El Salvador. Particularly prolific in this country, and much of Central America, is the phenomenon of youth gangs. The growing focus on youth as victimisers has resulted in a climate of distrust and suspicion towards young people. In El Salvador, young poor people are the most marginalized group in an adult-centred society, being the main victims of structural and social violence and very much stigmatized. Given this constraining context they live in, what are young poor people's opportunities and capacities to resist the general stigmatizing discourse and what are their opportunities to be actors of social change? To what extent do participatory approaches, such as action research, offer young people a possibility for genuine empowerment and progressive resistance and what are the opportunities and constraints? Participation has become a buzzword in development but nevertheless has been strongly criticised for not complying with its promise of empowerment and social transformation. Participatory approaches are reproached for having been unable to address power relations and politics, focussing too much on 'the local' at the cost of broader structural relations of injustice. Yet, concepts of empowerment and social change are inevitably linked to theories of power and resistance and therefore, participatory approaches with young people, to be credible, must also theorise and confront issues of power and politics.

Keywords: youth, social exclusion, empowerment

Anneliese L. Vance, Ph.D. Candidate, SUNY University at Buffalo. Email: alvance@buffalo.edu; Cross-border supply chains and antiterrorism border legislation: the story of Canadian and U.S. businesses in a bi-national region.

The permeability of the Canada-US border has long been reason for both concern and celebration. The multifaceted and complex relationship shared by the two countries includes the world's largest bilateral trading relationship, and with this a complex system of interdependencies on the level of the firm. The terrorist attacks of 2001 brought the permeability of the border to the forefront of public discourse in the US?both from the standpoint of possible security concerns as well as concerns surrounding the continued flow of trade. Since 2001, the discourse has shifted, along with Canadian and US border policies, toward goals of achieving and maintaining dual goals of keeping the "bad guys out" while enhancing the efficiency of cross-border trade and transportation. This study explores the effectiveness of new border management regulations at achieving efficient movement of people and goods across the border within the context of new antiterrorism legislation. Firms on both sides of the Canada-US border within the bi-national region of Niagara indicated in a 2004 study that they were negatively impacted by antiterrorism legislation. During the summer of 2006, the same firms were interviewed regarding their strategies to minimize the impact of negative externalities. Firm executives collectively tell a story of learning curves, strategy, and changing dynamics within their cross-border supply chains.

Keywords: Canada, border, supply chain, regulation

Tiffany C. Vance, Oregon State University/NOAA. Email: vancet@geo.orst.edu; Christopher Moore, NOAA-PMEL/UW-JISAO. Email: christopher.moore@noaa.gov; GeoFish - linking fisheries models with GIS

Ideally, spatial ecological models should be easily linked to a geographic information system (GIS). In the past, these two have not been well integrated for scientific uses. In creating GeoModeler, we have provided a prototype of how one might integrate a GIS with a number of oceanographic and fisheries models. With this tool, scientists and managers are able to use a graphical interface to display datasets, select the data to be used in a scenario, set the weights for factors in the model and execute the model. The results are returned to the GIS for display and spatial analysis. The project creates a framework for linking to other types of back-end fisheries, oceanographic, and ecosystem models written in a variety of programming languages. The final goal is an application to visualize and analyze the results of two fisheries models; a model for predator-prey interactions and a model to look at the effects of climate change on the recruitment of an economically important fish species. The first model is an individual-based model (IBM) that models the fate of individuals using characteristics such as age, size and prey consumption. The second model is a nutrient-phytoplankton-zooplankton (NPZ) model looking at the effects of climate change on the early life history of fish.

Keywords: GIS, marine, models, visualization, North Pacific

Robert M. Vanderbeck, University of Leeds. Email: r.vanderbeck@leeds.ac.uk; Less than the sum of its parts? Reflections on theory, relevance, and debate in 'children's geographies'

There has been a recent flurry of debate over the status of theory within the subdiscipline of children's geographies. This is a remarkable and important development within a rather polite subdiscipline where sustained debate or controversy of any kind is rare. In this paper, I question why this debate has emerged at the present moment, suggesting that it originates in an insecurity about the place of children's geographies within the wider discipline (a point made by several other recent commentators). Others have suggested, for example, that 'children's geographers' need to be clearer about how a focus on childhood and youth can inform work on globalization, critical geopolitics, and non-representational theory, among other areas. However, contrary to most other accounts, I argue that lack of engagement with broader theoretical debates in other subfields has been far from the only (or even the main) issue holding children's geographies back. Rather, I argue that there are key deficiencies in how we conceptualise core issues within the subdiscipline that keeps it from influencing a larger audience. I focus on several examples (drawing on my own empirical research) including conceptualisations of children's agency; the nature of intergenerational relationships; and the relationship between childhood and the state. These are but a few of the core subdisciplinary issues that need to be debated in a more sophisticated way if children's geographies is to equal more than the sum of its individual parts.

Keywords: children, relevance, theory

Kelly J Vanderbrink, Pennsylvania State University. Email: kjb115@psu.edu; Assessing Scientific Information Needs for Carbon Sequestration in Pennsylvania Forests

Policy-makers tasked with developing and implementing carbon sequestration initiatives rely on a stream of usable information from the research community in order to successfully achieve established goals. However, there is a fundamental disconnect between the needs of policy-makers and the design, conduct and dissemination of carbon cycle research. For example, much of the knowledge concerning carbon uptake in forest stands is derived from various aged stands on plots smaller than one square kilometer. This information is not easily extrapolated to the larger scales at which management decisions are made. Concurrently, remotely-sensed images of the forest dynamics relevant to carbon uptake are often only available at scales too coarse to assist in practical management decisions. The aim of this research is to improve the information flow between research and program managers responsible for designing and implementing carbon sequestration initiatives. To accomplish this goal a collaborative approach was used which involved participating in the development of the Pennsylvania DCNR's carbon sequestration initiative. Information regarding decision-maker needs will be collected using a preference based methodology called conjoint analysis. This methodology is ideal because it quantifies qualitative information focusing on value placed on specific attributes. In addition to highlighting user preferences, conjoint analysis also focuses on the tradeoffs made while assessing the utility of information. The rankings are used to develop a quantitative decision model of utility/preference for certain bundles of information concerning carbon sequestration. This work will open communication between the carbon sequestration community in Pennsylvania and the research community.

Keywords: Carbon Sequestration, Forestry, Ecology, Systems

Jan Vang, Circle and Copenhagen Institute of Technology. Email: jan.vang-lauridsen@circle.lu.se; *Policy, Competitiveness and the State in Creative Industries*

Studies on the spatial organization of so-called creative industries have exploded the last decade. This has resulted in an impressive amount of research on the clustering of creative industries, their reliance on buzz and why they are based on projects, and so forth. This literature has, however, neglected paying attention to the role of the state; especially in studies on the film industry; the film industry has been dominated by transaction cost-inspired cluster studies. The extent to which the state is integrated in research on the creative industries is done in an ad-hoc manner. This is a problem as the state plays a central role in constructing competitiveness in many creative industries, especially film industries outside Hollywood. Based on an original empirical study of the Danish film industry, which, both in terms of awards and market shares, has enhanced its competitiveness significantly the last decade, this paper analyses the role the state has played in this process. The findings suggest that the precondition for improved competitiveness is the development of a state-based development model which displays a high degree of systeminess.

Keywords: film, creative industries, economic geography, clusters innovation systems

Jeffrey A VanLooy, University Of Utah. Email: jeffrey.vanlooy@geog.utah.edu; **Richard R Forster, Ph.D., University of Utah. Email:** rick.forster@geog.utah.edu; *Determining Recent Melt Rates and Potential Sea Level Rise Contribution of Five Southwest British Columbia Icefields.*

Mountain glaciers around the world are important contributors to sea level rise even though they contain only a small percentage of the world's glacial ice. Due to societal concerns of climate change and sea level rise it is important to understand in more detail how glacial melting will affect the world's oceans. However, accurately monitoring glacial changes through mass balance studies on the ground is difficult due to their remoteness. This study has employed remote sensing techniques and methods using Shuttle Radar Topography Mission (SRTM from 2000) and Canadian Center for Topographic Information (CTI from mid-1980s) Digital Elevation Model (DEM) data to monitor glacial changes likely caused by regional climate changes. Using these remote sensing methods allows for a better understand of the relationship between sea level rise and glacial melting of five icefields in southwest British Columbia, a very little studied but significant mountain glacier area.

Keywords: Remote Sensing, Glaciers, British Columbia

Barry Aron Vann, PhD, EdD, Lincoln Memorial University. Email: barry_vann@yahoo.com; *Ethno-religious Policies of the Plantation of Ulster, 1590-1690*

The settlement of Protestants in Ulster during the seventeenth century was certainly a manifest function of the Jacobean Plantation scheme, but it unleashed latent functions that ignited and diffused, in the manner of J. K. Wright, "geotheological" imagings that were inspired by the Melvillian notion of "two kingdoms". Michael Perceval-Maxwell metaphorically described the king's policy and its result by noting that "he used Scottish earth for his purpose, in which the seeds of Presbyterian doctrine lay buried. Even some of the Scottish gardeners he employed preferred Presbyterian weeds to Episcopalian flowers. Thus what grew bore little resemblance to that image envisioned by the designer". This study demonstrates that the Scottish Presbyterian seed in Ireland was fertilized and watered by the theology of Calvinists in Geneva and Puritans in England and pruned by their lack of uniformity on issues of polity. This moved the newly formed Ulster Scots community further away from the ideal immigrant population imagined by the king. By examining extant sermons, statements of faith, the National Covenant, and letters, this research explores this process and shows how the dissenting religious leaders and, by extension, their followers embraced an ethnic identity at the popular level, with the primary base for this identity a religious system that incorporated structures of worship, spirituality, political discourse, and a proclivity toward schism, which of course impacted the community's ecclesiastical affiliations and political and national allegiances.

Keywords: Geotheology, religion, identity, dissenting regionalization, migration, diffusion

Nicole Vanosdel, University of Nebraska Omaha. Email: nicolevanosdel@yahoo.com; **Whitney Goldner, MD, Endocrinology, University of Nebraska Medical Center. Email:** ; **Michael Shambaugh-Miller, Ph.D. Assistant Professor, Medical Geographer, Health Services Research and Rural Health Policy Section, Department of Preventive and Societal Medicine, University of Nebraska Medical Center. Email:** mdmiller@unmc.edu; **Rex Cammack, Assistant Professor, University of Nebraska- Omaha. Email:** rcammack@mail.unomaha.edu; *Spatial Patterns Of Thyroid Cancer In Nebraska: Exploring Possible Environmental*

Relationships

In 2006, it is estimated that more than 31,000 Americans and over 160 Nebraskans will be diagnosed with thyroid cancer, and occurrences are rising each year. The thyroid is an endocrine gland that produces and stores hormones that affect metabolism, heart rate, and blood pressure, as well as growth and development in children. Chemicals with low estrogenic activity, or xenoestrogens, mimic estrogen activity in the body and cause endocrine disruption. Xenoestrogens are found in some classes of pesticides, herbicides, fertilizers, solvents, detergents, industrial chemicals, and other chemical wastes. Animal studies have determined that prolonged exposure to xenoestrogens in drinking water will increase the risk of thyroid cancer. Chronic exposure to xenoestrogens and bioaccumulation in the thyroid may lead to cancer. Drinking-water contamination easily occurs with even very low amounts of chemical use in vulnerable soil regions. Previous research shows that in the Nebraska Sand Hills, groundwater contamination occurs via the highly permeable soils with little organic matter (sandy, loamy, and sandy loam) and a shallow water table. For this study, exploratory data analysis is being used to assess spatial patterns of thyroid cancer incidence in Nebraska from 1987 through 2003. This work focuses on establishing a spatial relationship between thyroid cancer rates and environmental conditions, particularly exposure to xenoestrogens in Nebraska's drinking water.

Keywords: Thyroid cancer, spatial patterns, SaTScan, spatial analysis, spatial scan statistic, Nebraska

Dalia Varanka, United States Geological Survey. Email: dvaranka@usgs.gov; *Effects of Raster Resolution Changes on Agricultural Non-point Source Pollution Modeling Output*

The objective of this study is to measure the effects of changes in pixel resolution of different Agricultural Non-point Source Pollution (AGNPS) model output data files on output parameter values. Changes in resolution do not change the total output, so variability was expected to be found in the changing relation between levels of generalization per pixel. The pixels of three input file types - land-use, elevation, and soils - were categorized by the majority of the signature captured at 30-meter resolution. The nearest neighbor technique is used to down sample the resolution to 210 meters and 1,920 meters. The 22 input parameters of the model derived from the 3 input files assume the resolutions and generalizations from the input files at 30 meters, 210 meters, and 1,920 meters. Output pixels from the 51 output parameters generated by the model were categorized using the Jenks optimal classification algorithm. Preliminary results were tested by combining output categorization values for soluble nitrogen and soluble phosphorus in cross-tabulation with land-use input values. Graphs of these results suggest that pollution measurements appeared lowest at 30 meter resolution, and appeared higher, but still somewhat evenly distributed at 210 meters resolution. Results showed that at the greatest resolution, of 1,920 meters, pollution levels were clustered and uneven. Results will be discussed in the context of published findings of other related research.

Keywords: raster resolution, AGNPS model, modeling - non-point source pollution

Ann Varley, UCL (University College London). Email: a.varley@geog.ucl.ac.uk; *Gender and property rights: debates from Latin America and Africa*

The importance of land rights for women is well established as a development issue. International agencies argue that ensuring gender equality in market-focused legal reform constitutes a key strategy for expanding women's rights. The World Bank and other agencies, including Hernando de Soto's Institute of Liberty and Democracy, have promoted property titling programs on a massive scale in both rural and urban areas. In Latin America the results have been described as constituting a decisive moment in the history of property rights. De Soto has recently turned his attention to Africa, renewing debates about individual title versus more flexible approaches to land management building on customary practices. The proponents of 'informal formalization' support intermediate forms of tenure, group title, and an emphasis on local authorities, on the grounds that rights are socially embedded. They also argue that titling is against women's interests since it provides an opportunity for men to gain exclusive control over property. Using evidence from Mexico, this paper argues that titling programs relying on equal rights within marriage to protect women's housing rights are likely to do them a disservice, particularly in the light of divergent popular understandings of property. Those promoting alternative approaches to property in African cities have however failed to engage with concerns about the gender implications of customary tenure in rural areas expressed by feminist scholars and activists. This paper questions the ability of either approach to address gender inequalities effectively but suggests that informal responses within state institutions can sometimes help.

Keywords: Gender, property, rights, housing, tenure

Darcy Varney, University of Colorado. Email: darcy.varney@colorado.edu; *Situating Young People in Urban Planning and Design: Lessons from the Denver Skate Park*

The Children, Youth and Environments Center for Research and Design at the University of Colorado recently began working with the City of Denver and other partners to make Denver a "child/youth-friendly city." A key component of the "child/youth-friendly city" concept is the right of young people to participate in decisions that affect their lives, including decisions about the design and use of public space. Where public space is constructed as economically valuable, adult-oriented or important for the promotion of civic agendas, however, young people may be implicitly or explicitly excluded from participating in its design or redevelopment. Young people's participation frequently centers instead around spaces that "ghettoize" their activity, or effectively remove them from the dynamic life of the city. It can be instructive to analyze participatory efforts focused on dedicated spaces for young people, to gain insight into how adult planners, designers, government leaders and citizens conceptualize young people's needs and competencies in the urban environment. One such case is the development of Denver's free public skateboarding park, in which youth were significantly involved. This paper focuses on the youth-adult partnerships and city government practices employed to produce the skate park, drawing from media reports, planning documents and interviews with key participants to discern what happened throughout the process and to provide rich background information for the Denver "child/youth-friendly city" initiative. The findings have implications for approaches to planned projects in Denver and for understanding challenges to environmental justice for young people in the city.

Keywords: participation; children/youth; city planning and design; case study

Monica W. Varsanyi, Arizona State University. Email: Monica.Varsanyi@asu.edu; *Unauthorized Migration and the Expansion of Neoliberal Local Membership in the United States*

Unauthorized migrants are now settling in communities throughout the United States, from Dodge City, Kansas to Atlanta, Georgia, thus bringing the phenomenon of "illegal immigration" to communities which had never previously grappled with the issue. As a consequence of this reality, as well as federal foot-dragging on the question of comprehensive immigration reform, many of these communities are starting to formulate and adopt local "membership" policies, such as local noncitizen suffrage; the acceptance, in a variety of cities, counties, and states, of the Mexican matricula consular as a valid form of identification; and allowing undocumented college students access to in-state tuition at public universities. This paper argues that these local policies represent a partial rescaling of membership policy, which enables the nation-state to better manage what political theorist, James Hollifield, calls the "liberal paradox," or the growing tension between neoliberal economic openness and the continued necessity of national political closure. By allowing the rescaling of migration and membership policy to subnational scales (in other words, by allowing subnational communities to formulate neoliberal membership policies which are local, partial, decentralized, and contingent) the federal government can negotiate the liberal paradox without having to choose economic closure (and a resulting decrease in the movement of people) or political openness (significantly liberalizing access to membership, or citizenship, in the nation-state). This emerging neoliberal membership regime enables the presence and residence of undocumented migrants within subnational communities without giving them firm and permanent purchase in the United States.

Keywords: Undocumented immigration, neoliberalism, scale, citizenship, membership, federalism

Liana Tuttle Vasseur, University of Kentucky. Email: ltvass2@uky.edu; *Coastal landscapes: land, sea, and the boundaries of Cuban migration*

This paper questions the concepts of "land" and "sea" that have informed the legal definition of coastal boundaries in South Florida. I consider the "wet foot/dry foot" policy that governs illegal Cuban migration into the United States. Since the policy's inception in the mid 1990s, it has proved controversial?it specifies that migrants who leave Cuba illegally may enter the US legally if they reach "land", while those intercepted at "sea" will be repatriated. The policy assumes a binary of "land" and "sea" through which it attempts to fix a political boundary. The instability of this distinction was demonstrated in January 2005, when a group of illegal Cuban migrants landed on the old Seven Mile Bridge, which once linked two islands in the Florida Keys. A court case was required to determine whether the derelict bridge counted as "land" or "sea", and hence to determine the legal status of the migrants involved. This case illustrates the inherent difficulty of fixing a coastal boundary, and it demonstrates how individual migrants can affect the politics of coastal landscapes and migration policy.

Keywords: landscape, migration, coasts

Alexander P. Vasudevan, Dr., University Of Nottingham. Email: alexanpv@hotmail.com; *Choreographing the City: Gestural Geographies and Performance Cultures in Weimar Germany*

This paper explores the development of modern dance in Germany during the Weimar Republic. It draws attention to the wide repertoire of dance practices which took the city and metropolitan life as such as a chorographical milieu through which to explore the new spaces and rhythms of modernity. Focusing on the work of Kurt Jooss and Oskar Schlemmer, the aim of this paper is to chart the cluster of techniques, dispositions, and performance styles which served to produce a kinaesthetic acumen suitable for registering and archiving the performance of urban modernity. In doing so, it seeks to show how particular congeries of movement, gesture, and touch were not only dependent on a whole host of real and imagined places but were themselves able to construct and re-fashion their own gestural geographies within the contours of a rapidly modernizing society. Theoretically, the paper proposes an historical geography of performance which insists on the possibility of writing about the 'undocumentable' event of performance, whether it be dance, music, or theatre. Ultimately, it argues for an approach to bodily performance and practice that demands an unusual archive, whose materials, in accommodating the performance of the modern, are themselves often ephemeral.

Keywords: Modern Dance, Weimar Germany, Performance and Geography, Gesture, Embodied Practice and the Archive

James W. Vaughan, AICP, Texas State University-San Marcos. Email: jv10@txstate.edu; *Sustainable Development: Does Planning Make a Difference?*

The sprawling pattern of urban growth in America imposes an ever-growing footprint on the environment at a time when planners call for "smart" growth, and geographers and ecologists warn that human demands on the resources and sinks of our global commons are not sustainable. Indeed, this morphology impacts the use of resources, the environment, transportation systems, and the way money is spent and time allocated. The Austin-San Antonio corridor in central Texas is a paradigmatic region which clearly displays the fundamental features and trends of rapidly changing urban systems in America. This research examines change, whether the evolving patterns are sustainable, and the effects that comprehensive planning has on development in the study area. Austin has a long history of promoting sustainable development and Smart Growth, whereas the policy of San Antonio reflects almost the antithesis of this philosophy. Do the growth dynamics and resulting morphology of these two urban systems reveal that "good" planning is effective, ineffective, or irrelevant in promoting sustainable development? I conclude that ecological planning and civic environmentalism are a way to increase the prospect of sustainable development. However the effectiveness of this process is limited unless there is a change in prevailing development practices to encompass an ethic of individual and community responsibility, and recognition of all aspects of land regardless of economic value.

Keywords: sprawl, planning, sustainable development, Texas-central, ethic-environment

Valerie Kay Vaughn, M.A., University of California, Davis. Email: vkvaughn@ucdavis.edu; *Sacred space in Shambhala Buddhism*

Scholars of American religious history and American Buddhism argue that the appeal of Tibetan Buddhism in the West was a historically-situated, demographically and geographically confined phenomenon. White patronage was often described as a fad for counter-culture, Baby Boomers repulsed by the cookie-cutter lifestyles of their post-World War II middle-class parents, inspired by the Civil Rights Movement, and mobilized by the Vietnam War. However, my research indicates that American Buddhist communities are continuously attracting new practitioners as well as retaining their 1970s "lifers". In fact, a recent study suggests that Buddhist teachings and principles have influenced more than 25 million Americans' spirituality. A December, 2005 National Geographic article announced that "Buddhism is no longer just for monks or Westerners with disposable time and income to dabble in things Eastern". Furthermore, the United States religious landscape is now seeing its first generation of White native-Buddhists. But how do these sects socially reproduce themselves? What are the characteristics of these means of social reproduction? How do landscape narratives facilitate social reproduction? What relationships are reinforced in the way of race, class and gender? Through critical ethnography, this paper shows how the sacred landscape embodies social stratification and creates meaning within Shambhala Buddhism. Shambhali's land narratives reflect paternalistic attitudes about Tibetanness and a cosmopolitan disdain for home while their social structure mimics and romanticizes the nuclear family as the unit for social organization. The findings of this research reflect possibilities in future interdisciplinary dialog between the fields of sociology and geography.

Keywords: sacred space, Tibetan Buddhism, landscape and meaning

Alessandra Vecchi, Dr, Trinity College Dublin. Email: vecchia@tcd.ie; Wickham James, Prof., Trinity College Dublin. Email: wickhamj@tcd.ie; *Clusters and Pipelines, Commuters and Nomads: Business travel in the Irish software industry.*

This paper uses research on business air travel to analyse the structure and functioning of business clusters through a case study of the Irish software industry in Dublin. Whereas most cluster studies have focused on the importance of geographical proximity for knowledge creation within the cluster, the importance of extra-cluster networking has only recently begun to receive some attention. Recent work for instance shows that particularly successful clusters are able to build and maintain a variety of “pipelines” with relevant hot-spots around the globe (Bathelt et. al., 2004). However this strand of work tends to “black box” the means whereby such pipelines are created. By using interviews with a sample of software managers and professionals, our paper investigates the particular forms of business travel generated by the software cluster in Dublin. The interviews generated data on both the role of business air travel for individual firms and on the travelling of the most mobile individuals within these firms. At the firm level our findings show that although international travel is crucial for Irish-owned firms, it is more extensive for foreign-owned firms, confirming the lack of linkages between foreign and indigenous firms in the cluster. At the individual level we differentiate between travellers who are commuters, explorers and nomads. Only the commuters travel along clearly defined ‘pipelines’; the travelling of both explorers and nomads shows how all elements of the cluster have more complex external connections than proposed by most of the cluster research literature.

Keywords: industrial cluster, business travel, globalisation, network

Gregory Veeck, Western Michigan University. Email: veeckg@wmich.edu; *Urban and Rural Conflicts and Contrasts in Inner Mongolia, PRC*

China’s Inner Mongolia Autonomous Region (IMAR) has frequently been cited for ambitious economic development policies that concentrate on privatization of commercial activities across sectors in conjunction with rapid state divestiture of publicly owned assets. Both the pace and scope of these policy initiatives make this relatively poor province unique among the arid provinces. Most of China’s other “developmental models” originate in wealthier, better endowed, areas of the East Coast. The IMAR model is important in that it must improve incomes and quality of life under the constraints of a very harsh environment. These policies are credited with raising IMAR’s per capita income to a rank of 21st of 31 first order units. While progress has been made, recent data reflects some important problems with the policies; specifically growing inequity between urban and rural places. Mean annual income in 2004 for urban residents of IMAR was 7,352 yuan (\$931.81), while the value for rural residents was only 31% of this (2,268 yuan/year or \$287.45). The time-series data used in the analyses are at banner/county/city scale and are derived from the state statistical bureau and the published annual yearbooks for selected years during the post-1978 reform era. Regression analysis is used to identify the independent variables that are associated with growing incomes across time and type of location (urban/rural). Results indicate a growing polarization between IMAR’s urban and rural places that extends beyond incomes, to a wide range of socio-economic indicators including access to health care, quality education, and investment capital.

Keywords: China, Inner Mongolia, Income, regression

Anthony J Vega, PhD, Clarion University. Email: avega@clarion.edu; *A Geographic Based OnLine Learning Paradigm*

The recent past introduced a new teaching pedagogy; online distance education. This pedagogy results from both technological innovations and changes in the higher education landscape. The National Center for Education Statistics estimates that between 14 and 20 million adult learners are enrolled in some form of continuing education. Many are involved in online distance education programs and courses and in response to this the number of distance education courses grew an astonishing 70% between 1997 and 1998. The trend is expected to continue with more colleges and universities offering more courses through online distance education, partly in response to an aging student marketplace, job re-training, and/or continuing education requirements. It is estimated that the number of college students 35 years and older will exceed the number of 18 and 19 year old students over this decade. In response to this recent trend, Clarion University joined the distance education fold through implementation of an E-University. This presentation describes the online academic landscape taking shape among the State System (PA) of Higher Education universities. Specifically, aspects are detailed concerning the teaching of geographic based courses over the past four years. Course goals, organization, online technology, the use of discussion board activities, WebQuests assignments, and evaluation methodologies are detailed. Further, general course benefits and pitfalls are discussed and reevaluated. General results indicates that distance

education methods not only supply a learning environment equal to traditional face-to-face courses, but in many cases online learning exceeds learning received through traditional methods.

Keywords: distance learning, geographic education, online learning

Miguel G. Velasco, United States Geological Survey. Email: mvelasco@usgs.gov; JoAnn Isbrecht, . Email: jisbrecht@usgs.gov; Pat Chavez, . Email: pchavez@usgs.gov; *High-Resolution Remote Sensing to Map and Monitor the Risk of Wildfires to the Wildland-Urban Interface*

In the Western United States there has been an increase in the number of people living near wildland areas. Severe drought and large bark beetle infestations, among other factors, has led to unhealthy forest conditions. These factors indicate the potential risk is increasing for catastrophic fires endangering communities. There is a need for high-resolution maps at the local scale to assist in management decisions to assess and minimize the risk to life and property before and during wildfire events. With increased spatial resolution in satellite and airborne digital imaging, remotely sensed image data are another tool to assist in the mapping and monitoring of parameters relating to wildfires. Our work is currently focused on the forested communities of northern Arizona. The primary remote sensing datasets being used are Quickbird satellite images with 0.6 m and 2.5 m resolution and U.S. Geological Survey digital airborne photography with 0.075 m and 0.150 m resolution. These data are being evaluated in the mapping of critical parameters related to wildfire vulnerability, such as percent canopy cover, large trees with potential correlation to old growth, and dead trees (old and recent). These data are also being used to investigate their potential for short- and long-term monitoring of the wildland-urban interface. The short-term evaluation is focusing on detecting and mapping annual vegetation and perennial grasses relating to fine fire fuels. Comparison of Quickbird satellite images with digitized historical aerial photography is being used to investigate detection of long-term change mostly related to coarse fire fuels and forest treatments.

Keywords: remote sensing, fires, satellite, wui

Nicholas Velluzzi, University of Washington. Email: nvelluzz@u.washington.edu; *Labor Market Intermediaries and the Institutions of Regional Economic Development*

Labor market intermediation consists of mechanisms or institutions that intercede between workers and producers. In one instance, labor market intermediaries (LMIs), such as temporary staffing agencies, operate on a national scale with local branch offices, facilitate the end of employer commitment to employee training, and fundamentally alter the employment relationship. On the other hand, LMIs can also be characterized as locally based, sector- or occupation-focused organizations that see skills development as a key part of their function. How do we understand these different organizational strategies? How can labor market interventions take such different forms? In what ways do they impact competitiveness in the learning economy? Though LMIs compose a crucial component in the institutional infrastructure of contemporary capitalism, their role in regional economic development is poorly understood. This paper will offer new ways to think about the role of institutional structure and operation in the development of human capital and social capital, or what is referred to as “communities of practice”. It provides new ways of understanding how organizations can influence institutional practices and opportunities for regional learning.

Keywords: human capital, regional economic development, institutions, local labor markets, labor market intermediaries, regional learning

Basilio Verduzco-Chavez, Universidad De Guadalajara. Email: basiliiov@cucea.udg.mx; Antonio Sanchez-Bernal, Universidad de Guadalajara. Email: antonios@cucea.udg.mx; *Small Town, Big Project: the changing face of a community hosting the construction of a hydroelectric power plant.*

Hosting the construction of large infrastructure projects represents several social, economic and urban challenges for small communities. As a result of the inflow of people, money and vehicles, the small community suffers a sudden transformation of its image and socioeconomic outlook. This essay presents the case of a small town in western Mexico where the Federal Electric Commission -a national utility company- is planning to base part of its operations to build a hydroelectric power plant. The study shows that community changes may potentially transform a long lasting urban geography and social structure in a process that is not free of social tensions that demand new forms of consensus building and decision making at the local level.

Keywords: infrastructure, urban geography, consensus building, community development

Greg Veregin, University of Wyoming. Email: gveregin@uwyo.edu; *The interoperability of planning support systems in a rural land planning application*

Environmental changes that result from rural residential development are poorly understood. The loss of valuable farms and ranchlands, as well as animal habitat, faces the West the population increases. This paper offers an approach to understanding how the interoperability of two planning support systems can play a role in identifying development's effects on the environment. Different technologies allow the incorporation of diverse data sets for decision support, though questions of whether and how they can be integrated remain inadequately explored. These data can be used to protect working landscapes and biodiversity. Scenario-based studies offer a means to visualize the effects of specific trends extrapolated to the future. Analysis was undertaken to determine the benefits and drawbacks of combining different planning support technologies in scenarios for rural planning applications. Scenario forecasts were compared to assess their similarities and differences in a case study environment. Final analysis is predicted to reveal that integrating technologies with contrasting bases (indicator versus scenario) is better used for certain tasks than others. Each technology offers different functionalities which play roles in the planning process.

Keywords: rural planning, conservation planning, GIS, DSS, PSS

Luisa Veronis, University of Ottawa. Email: lveronis@uottawa.ca; *Immigrant NGOs and state restructuring in Toronto: Working with, through, and beyond the spaces of neoliberal governance*

This paper aims to better understand the new spaces for empowerment that emerge at the nexus of immigrant NGOs and neoliberal forms of governance. I do this by examining the experiences of the Hispanic Development Council (HDC), a nonprofit umbrella organization representing agencies serving Spanish-speaking migrants, in light of state restructuring in Toronto, Canada. As an advocacy organization providing almost no direct services, HDC struggled to survive in new conditions of governance. Nevertheless, it managed to remain operational and even to become more vocal with regard to local immigrant issues by developing three different kinds of networks: (1) a local network of immigrant service providers; (2) an intra-urban partnership with other umbrella organizations to voice ethnic/immigrant concerns in local politics; and (3) transnational collaborations for projects of international development with NGOs in Latin America. The three networks have been instrumental in allowing HDC to pursue local advocacy activities (through the first two networks) with funding from the federal government for its international projects (through the third network). Key to HDC's activities has been an effort to work with a diversity of actors and at different scales in order to address different aspects of restructuring both locally and globally. This paper contributes to the growing body of work dedicated to critically uncovering the limits and potentials for empowerment and resistance within the neoliberal spaces of governance.

Keywords: Latin American immigrants, NGOs, state restructuring, neoliberal governance, Toronto, partnerships

Anna Versluis, Clark University. Email: aversluis@clarku.edu; *Land cover changes over three decades in a Haitian watershed*

While the level of deforestation in Haiti is frequently deplored, there are few land change studies that actually measure the amount, type and location of deforestation and other land cover change. Here I present the results of a land change analysis from one Haitian watershed over the past three decades. This particular watershed has experienced three highly fatal flood disasters in the last dozen years, and also is the main watershed feeding the Blanco River, in the neighboring Dominican Republic, which has likewise been the scene of a recent fatal flood disaster. Common wisdom from both the local and international communities suggests that deforestation in the watershed is a leading driver of these disasters, yet few basin-wide data exist to provide evidence to confirm or refute this understanding. To perform the land change analysis, I used data from Landsat imagery, aerial photographs, archival information, interviews and field research, and I used the combined image processing methods of spectral mixture analysis and classification trees.

Keywords: land change, remote sensing, Caribbean, Haiti

Alexander C. Vias, University Of Connecticut. Email: alexander.vias@uconn.edu; *Investigating Rural/Urban Health Disparities in the US*

A significant number of studies have shown that many health measures associated with mortality and morbidity have improved in rural areas. However, the same studies show that people living in rural areas of the US are generally less healthy than their urban counterparts. In addition, there are significant health disparities within rural areas along a number of socioeconomic dimensions. In this study I begin a research project on health disparities between rural and urban areas through an exploration of the recent literature on the topic. I also sketch out a number of important questions and issues that face researchers examining rural/urban health disparities. Finally, I discuss characteristics of a new research project

being developed by researchers at the University of Connecticut and the CT department of Public Health that will create new geo-coded databases on mortality and morbidity that will permit investigators to analyze some of these issues in the state of Connecticut.

Keywords: rural health, health disparities

Natalie Vibert, University of Connecticut. Email: natalie.vibert@huskymail.uconn.edu; Joy Fritschle, University of Connecticut. Email: ; Melinda Daniels, University of Connecticut. Email: ; *Passive Restoration of Floodplain Forest Patches along the Connecticut River*

Restoration of floodplain forest vegetation is critical to the restoration of large river floodplain ecosystem processes. Along the Connecticut River, small patches of floodplain forest have passively regenerated after the removal of human land use impacts. This study presents results from vegetation surveys of two passively restored floodplain forest patches in Connecticut. Modern forest community composition is compared with historical forest composition reconstructed from archival data sources. A GIS is used to identify areas of potential further restoration, and recommendations are made regarding the options for active restoration management.

Keywords: forest restoration, biogeography, floodplains

Thomas Joseph Vicino, PhD, University of Texas-Arlington. Email: vicino@uta.edu; *Megalopolis 50 Years On: The Transformation of a Globalizing City Region*

This paper examines Megalopolis fifty years after Gottmann's seminal study of the most urbanized region of the U.S. Eastern Seaboard. His study provides an invaluable datum point, and we use it as a benchmark for reexamining the socio-spatial transformations of a city region. After redefining Megalopolis and showing major aggregate trends since 1950, we analyze 39 selected variables for place level census data for 2,353 places to perform a principal components analysis (PCA). Our analysis shows that the city region of Megalopolis remains a significant center for the nation's population and economic activity. A half-century of urban restructuring demonstrates that the forces of urban decentralization have made the region a more fully suburbanized agglomeration. We reveal a complex socioeconomic pattern of a vast urban area structured by class, education, housing tenure, housing age, and race and ethnicity. The cluster analysis reveals five distinct clusters of urban places identified by our PCA: "affluent places," "underclass places," "Black middle class places," "immigrant gateway places," and "middle America places."

Keywords: City Regions, Megalopolis, Urban Restructuring, Cities and Suburbs

Anne Vick, . Email: jsu3963g@jsu.edu; Anne Vick, . Email: jsu3963g@jsu.edu; *Patterns of Methamphetamine Production in Alabama*

One of United States law enforcement agencies' top priorities in recent years has become curtailing domestic methamphetamine production. Having far reaching effects into the communities in which it is found, methamphetamine production cuts across socio/economic boundaries formerly established by other domestically produced drugs. Independent, federally funded agencies, in addition to the United States Department of Justice and its subsidiaries, have documented national trends of dispersion as "meth" production has spread eastward from California across the country. Using data from the U.S. Census Bureau and local law enforcement officials in Alabama, this paper examines trends of methamphetamine production in Alabama, suggesting that national dispersion patterns may not remain consistent when the "meth" phenomenon is examined more closely at a larger scale.

Keywords: Methamphetamines, Alabama

Daniel Willaim Vickers, PhD, Department of Geography, University of Sheffield. Email: d.vickers@sheffield.ac.uk; *Open Geodemographics*

This presentation describes the creation of a free to access and open source geodemographic type area classification of the UK. This classification is available free to all users from the UK National Statistics Office (ONS). Geodemographics is big business, but little is known about what goes into them. However the open nature of this system reveals the details and the myths behind the creation of geodemographic systems.

Keywords: Geodemographics, Area Classification, Clustering

Valerie A. Viehoff, University College London. Email: v.viehoff@ucl.ac.uk; *Water in Tangier. The long and rocky road to a modern water system*

This paper focuses on the water discourses which arose around the introduction of a modern water system in Tangier in the late 19th century. Despite the first proposals for a new water system dating back to the 1870s, none of the many projects put forward were ever executed until the 1920s. With

the help of historical documents from archives in Morocco, France and the USA we will try to trace the sinuous history of Tangier's water infrastructure. The "obstacles" preventing any decision being taken were political, cultural, ecological and social. They ranged from the opposed interpretations of the symbolic meaning of water, the protracted search for water sources and the national(istic) rivalries between foreign diplomats to general debates on public hygiene and sanitation. The breakthrough in finally introducing a new water system was as much due to the discovery of new water resources as to a shift in the balance of power in the international administration of Tangier after the implementation of the French "protectorate". Apart from reflecting changing power discourses, the debates over the introduction of a new water system also revealed fundamentally different ideas about the values and qualities of water, about its "right" use and its "fair" distribution. The paper starts from a generalized thesis of a clash of two opposing views on the nature of water - a gift from God in the eyes of the Moroccans as opposed to a simple commodity for the Europeans - and then proceeds to analyze and challenge this sweeping generalization.

Keywords: water, Morocco

David C. Viertel, Texas State University-San Marcos. Email: dv50188@txstate.edu; Remember the Alamo: Reproduction of Regional Identity Through Iconographic Form

Regional identity is created and reinforced by the repetition of symbols and narratives. Through the processes of historical interpretation and commodification, the Alamo has become a resonant icon in the Texas psyche. Physical manifestations of this regionalization process are examined in terms of business names, advertising and architecture in the San Antonio, Texas area. It is suggested that the role of the Alamo in the regional narrative has changed through time. At one point the structure stood as the archaic foil to modern development, but in recent years it has become a contextualizing element for the otherwise ubiquitous trappings of contemporary life. As generic global forms of style and design become increasingly dominant, references to the local or the perceived-authentic take on added significance. The shared past of the historical narrative becomes crystallized in the shopping centers and office parks of today. In the untethered cultural landscape of 21st century America, even formulaic architectural allusions serve to reinforce the concepts of commonality and identity.

Keywords: regional identity, architecture, cultural geography, Texas

Veeraraghavan Vijayaraj, GIST , ORNL. Email: vijayarajv@ornl.gov; Edward A. Bright, GIST , ORNL. Email: brightea@ornl.gov; Bhudendra L. Bhaduri, GIST , ORNL. Email: bhaduribl@ornl.gov; Automated Extraction of Urban Regions from High Resolution Satellite Imagery

Accurate geospatial modeling of urban land cover is challenging, and is essential to the population mapping efforts of the Oak Ridge National Laboratory (ORNL) LandScan population program. Currently, the LandScan team manually interprets high resolution (1-5 meter) imagery to augment urban maps that are based on medium (30 meter) to coarse (1 km) resolution satellite imagery. The goal of this research is to automate the extraction of urban regions from high resolution (0.6 -1 meter) satellite images. Previous research efforts analyzed Grey level co-occurrence based texture features and edge patterns using high performance computers to extract urban regions from huge volume of data. The algorithm produced promising results. As part of the ongoing research the algorithm was improved to use Gabor wavelet based texture features. The wavelet analysis produces a multiresolution framework in which urban texture can be analyzed at different scales and orientations. The Gabor wavelet representation is localized in space and frequency enabling to differentiate between different textures efficiently. The texture features were classified using an unsupervised clustering algorithm. The classification was further refined using spectral information to filter vegetation, water and shadow regions that were misclassified as urban. The computational performance and efficiency of using parallel processing was analyzed. The urban land cover maps produced were validated using manually interpreted images.

Keywords: Urban Mapping, High Performance Computing

Joaquin Villanueva, Syracuse University. Email: juaco_pr@yahoo.com; Spacing Conflict: Paris and the geography of violence

Responses to 'urban violence' by the French state fostered the production of new violent spaces in the city of Paris. French urban policy (politique de la ville) institutionalized after the 1981 riots in the suburbs of Lyon, has since identified more than 750 'sensitive neighborhoods', or 'neighborhoods at risk', around the French territory and more than 150 in the Parisian agglomeration alone. The designation of 'spaces of violence', mainly located in the periphery or banlieue of big cities, represents a legitimate factor for the deployment of public force against the (ethnic) population of relegated and excluded neighborhoods. French urban policy failed to address the social, political, and economic

fractures affecting the population of the banlieue, but succeeded in mapping the geography of violence. The radical differentiation between 'spaces of violence' (banlieue) and 'safe spaces' (center-city) aimed by the French state has proven to be ineffective in coping with acts of 'urban violence', epitomized by the November 2005 riots. By centering the analysis on the progression of French urban policy I show that the production of spaces of violence in Paris reproduce rather than prevent violent social relations among the young populations of the banlieue, mainly from immigrant origins.

Keywords: French urban policy; spaces of violence; banlieue; immigrant youths

Miguel Villarreal, University of Arizona. Email: miguel@email.arizona.edu; Resolving Burn Severity in Spruce-Fir/Mixed Conifer forests using Multitemporal High Resolution Satellite Imagery

Burn severity maps are critical for assessing post-fire habitat damage and identifying priority areas for restoration. The Nuttall-complex fire (June 2004) burned more than 29,000 acres of Mt. Graham AZ, including a significant amount of endangered Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) habitat. We developed a burn severity classification that exploited both spatial and spectral information using high resolution, multitemporal Quickbird imagery. Textural change information derived from the 60 cm panchromatic data was merged with spectral information (NDVI differencing and principal components) from pre- and post-fire images. We compared our results with a Landsat TM-based Burned Area Reflectance Classification (BARC) map of the area and assessed accuracy with field-collected burn severity data. While spatial detail of the high-resolution burn severity map was superior to the BARC map, some misclassification was attributed to the spatial sensitivity of the Quickbird imagery, illumination discrepancies due to sun angle differences between image acquisition dates and the influence of pre-fire insect damage on classification.

Keywords: Satellite imagery, wildfire, post-fire mapping

Peter Vincent, Dr, Geography Department, Lancaster University, UK. Email: p.vincent@lancs.ac.uk; Geomorphic Evolution of the Arabian Shield and Marginal Cover Rocks

This presentation outlines some key events in the geomorphologic evolution of the Arabian Shield and marginal Lower Paleozoic cover rocks. Two key themes dominate the story: i) the erosion and stripping from the Precambrian basement of c.10,000 feet of sedimentary cover rock, and ii) the concomitant exhumation of fossil landscapes developed under wide ranging climatic regimes and plate positions. Cambrian, deeply weathered, exhumed, landscapes are exposed along much of the Shield's margin by the stripping of the Lower Paleozoic Wajid and Saq sandstones. These denudation surfaces (etchplains?) are vast and stretch south beyond Yemen and westward into North Africa. The mid-Ordovician glacial and periglacial Qassim and Sarah Formations have been exhumed by the removal of the Upper Paleozoic and Mesozoic cover. Remarkable examples of patterned ground, pingo scars, roches moutonnées, glacial striations and eskers are exposed. A second phase of deep weathering took place in the Cretaceous/Early Tertiary when north-east Gondwana had moved through the Equatorial zone and much of the cover rock had been deeply weathered and stripped by fluvial action. Mid-Tertiary uplift, associated with the opening of the Red Sea, finalized the stripping where surfaces were not protected by flood basalts (harraah). Subsequent erosion of the harraah has exposed a landscape of laterites and saprolites and granitic weathering fronts. Wadis draining these areas are choked with loessic alluvial silts, not completely wash from the fluvial system due to the onset of arid conditions (river end deposits).

Keywords: exhumation superimposition, deep weathering, glaciation periglaciation

Tara Vinodrai, University Of Toronto. Email: tara.vinodrai@utoronto.ca; Unpacking the proximity puzzle: Spaces of learning in Toronto's design community

The literature on innovation emphasizes the importance of local knowledge circulation to innovative dynamism. Yet, recent evidence suggests that non-local knowledge flows, taking place through distributed, dispersed and distanced networks, may also be important. In fact, some scholars have suggested that relational proximity, predicated on organizational similarity and occupational affinity, may be more important in facilitating the exchange and circulation of ideas, knowledge and practice than geographic closeness (Amin and Cohendet 2004). While 'proximity' matters, what kinds of proximity, how and when it matters remains the subject of some controversy. This paper addresses this debate by focusing on occupational communities to gain a better understanding of how the circulation of knowledge and practice takes place within specific occupationally-based 'networks of practices' (Brown and Duguid 2000). Using interview-based evidence, I interrogate the nature of learning and everyday practice amongst designers in Toronto. The analysis reveals that designers engage in a variety of spaces of learning and knowledge exchange, inside and outside of their

work environment. However, learning and the circulation of (tacit) knowledge remains localized due to the nature of designers' work, the spaces of learning in which designers engage, and the character of labour market mobility. Despite sharing a common institutional context, designers' ability to exchange (tacit) knowledge is limited due to the nature of their work, organizational barriers and other 'rules'. I conclude by suggesting that scholars need to be careful not to conflate the various dimensions of relational proximity in their analysis of learning, knowledge flows and innovation.

Keywords: knowledge flows, design, occupational communities, proximity, networks of practice

Leela Viswanathan, York University. Email: viswanle@yorku.ca; *Contesting Racialization: The Alternative Planning Group, cross-cultural collective identity, and the transformation of Toronto*

Racialized spaces in the city are "contested sites" whereby racial meanings and relations of power inform and challenge established understandings of the city. Thus, the racialization of space engages processes that are not only physical, but political and social. My paper exposes how Toronto as a city-space contributes to processes that racialize individuals and groups. My paper draws from my empirical case study of The Alternative Planning Group, or the Group, a collective of four social planning organizations among groups of Chinese, continental African, Latino-Hispanic, and South Asian communities in Toronto. As a cross-cultural collective, the Group contests the different racialization(s) of its diverse communities by developing a group identity that is based on shared oppression and the negotiation of differences. At the same time, the Group's shared identity contests racialization by reinventing existing norms and practices, particularly approaches to social planning, with new meanings, new understandings of the city, and on their own terms. The Group has formed a collective identity through its approaches to social planning that are politicized, practiced, experienced, and situated within and among their own immigrant and racialized communities. Consequently, both the Group's collective identity and its social planning approaches are always in the process of "being and becoming." My paper examines socio-spatial knowledge of cities and the transformation of the city from the standpoint of a cross-cultural collective of groups that are constitutive of racialized and immigrant communities in Toronto.

Keywords: racialization, urban, social planning, social movements, Toronto

Celia Vives González, Grad Student, Department of Geography, University of British Columbia. Email: lunavg@interchange.ubc.ca; *Ambiguous paths towards political citizenship: the case of Argentinean-born immigrants in Spain.*

Spanish legislation regarding the acquisition of political citizenship has traditionally benefited nationals of the former colonies and persons of Spanish descent. However, entry into the European Union and increasing -and increasingly diverse? immigration flows have begun to challenge to this relationship of privilege. The case of the Argentinean community is exemplary of this process. This community, which has the highest rates of European ancestry and literacy of all non-European immigrant groups, is both privileged and proscribed by the narrowing channels towards the political integration of immigrants in Spain. In this presentation I will discuss the results of recent fieldwork in Spain that comprises more than 30 interviews with police officers, lawyers, elected politicians, academics, and Argentinean-born immigrants. My conclusions are three-fold: first, political citizenship remains a crucial aspect for the full integration of immigrants in the Spanish context. Second, there is a growing gap between nationality legislation itself, which benefits Latin American citizens and persons of Spanish descent, and the increasingly restrictive way in which that legislation is applied in the current context of growing hostility towards immigration. Finally, despite these obstacles that bar the way to immigrants' full integration, Argentineans still occupy a position of privilege, due to the easiness with which their social, cultural, and human capital can be transformed into political belonging to the Spanish nation-state.

Keywords: Immigration, political citizenship, Latin Americans, Spain.

Francisco Vivoni, University of Illinois at Urbana-Champaign. Email: vivoni@uiuc.edu; *Wild in the Streets: Skateboarding, Direct Action and Urban Unrest*

The quest for alternative social horizons continues through mounting dissatisfaction towards present day life conditions. Spearheaded by sporadic youthful insurgencies, direct action social movements with imagined political links to the Situationist International seek to undo corporate globalization. A performative framework from which to delve in and out of the complex narratives of resistance that dot the current milieu of unrest is concocted through an exposition of variations on the theme of skateboarding. Politics through play seek to intertwine the centrality of negation with the productive onslaught of creativity focused on the imperative of taking back the streets. This study locates street skateboarding as an alternative use of public space within a wide

gamut of direct action initiatives that challenge business as usual. The city as playground is explored as unintended consequence of capitalist accumulation. Through this study, I seek to broaden meaningful interpretations of the built environment in order to forward nuanced visions of embodied social change. The insights gained through the coupling of skateboarding and direct action are useful for framing future research through critical ethnography of the intersections of spatiality, democracy and public life.

Keywords: social movements, public space

Yvette Vlack, Kent State University. Email: yvlack@excite.com; *Reasons For The Seasons: Creating Hands-On Inquiry-Based Activities From Cookbook Labs*

Cookbook laboratory investigations have effectively removed the fundamental element of ingenious discovery from the classrooms. When used in a classroom setting, cookbook laboratories require students to only follow a set of perfunctory directions, hindering the development of concepts and higher order thinking skills beyond the mechanistic understanding. However, through the utilization of adaptive principles such as allowing students to design laboratory experiments, formulate hypotheses, and use prior knowledge to make predictions, lessons can be transformed from cookbook to inquiry. The mini-unit 'Reasons for the Seasons' was developed from multiple cookbook activities and modified to use inquiry techniques. The activities incorporated into this mini-unit investigate each of the potential explanations for seasons through laboratory activities in which quantitative data is obtained by students. From this data, students draw their own conclusions concerning which potential cause has the greatest impact on the Earth's seasons. Specific exercises call for students to investigate the angle of incoming solar radiation and then determine the change in solar radiation for perihelion and aphelion using flashlights, soccer balls, rulers, and overhead transparencies. Kinesthetic activities, combined with discussions, peer consultation, and critical analyses of results, provides an array of educational tools to reach and engage diverse learners. These techniques require that students incorporate higher order thinking skills such as inference, extrapolation, and implications into their schema, allowing for greater understanding and retention.

Keywords: seasons, seasonality, education, inquiry, GK-12

Robert A. Voeks, California State University Fullerton. Email: rvoeks@fullerton.edu; *Transformations in Biocultural Diversity: The Complex Case of Invasive Species*

Invasive species affect both biological and cultural systems. Although the ecological and economic impacts of biological invasions are increasingly apparent to scientists and policy makers, the cultural impacts of invasive species remain largely unexamined, and therefore unrecognized. We have yet to address critical questions such as: how have biological invasions impacted our social systems and cultural landscapes? Are these impacts entirely negative, as is the case in most ecological systems? Might biological invasions, seen through a socio-cultural lens, straddle a continuum of positive and negative aspects? This paper aims to identify and compare known cultural impacts of biological invasions by examining the socio-cultural and biogeographical dimensions of biological invasions worldwide. By comparing historical and current data on cross-cultural introductions of non-native species, we propose a conceptual framework delineating the differential cultural impacts of invasive species. In the case of "culturally enriching" invasives, the incorporation of non-native flora and fauna into local cuisines, pharmacopeias, rituals, and other traditional practices results in cultural expansion as new species are adopted and new traditions generated. "Culturally facilitating" invasive species, which precede or accompany human migrations, allow a level of continuity in traditional ethnobiological practices. In contrast, the appearance of "culturally impoverishing" invasive species in local environments leads to cultural contraction, i.e., the displacement of culturally important native species and associated traditions.

Keywords: ethnobotany, invasive species, biogeography, cultural geography

Eve Vogel, University of Oregon. Email: evevogel@uoregon.edu; *Do Japanese fisheries cooperatives promote social and ecological sustainability?*

Japanese fisheries cooperatives have often been held up as successful models of local community, common property management of natural resources. This paper, based on documentary and interview research, considers the influence of salmon fishing cooperatives in Hokkaido on social and ecological sustainability. Fisheries cooperatives are community-based groups with monopolies on salmon fishing in local near-shore waters, self-controlled membership, and tremendous influence on wider fisheries and fishing policy. The cooperative system is built on centuries-old traditions; the modern legal structure was built decades ago after rejection of the western individualized fishing model. Cooperatives are widely lauded as successfully supporting viable fishing livelihoods and vibrant fishing communities, as well as helping to manage fisheries sustainably. For this paper I asked: 1) Have fisheries cooperatives helped sustain salmon population,

biodiversity and ecosystems? and 2) Have salmon fishing cooperatives supported community and livelihood sustainability? I found that cooperatives help maintain salmon populations but are much less interested in biodiversity; and because they fish for chum salmon which may be released directly into the ocean from hatcheries, cooperatives have embraced an unrivaled national hatchery program while condoning widespread transformation of rivers into concrete canals. In contrast, cooperatives are undoubtedly socially beneficial. They have helped Japanese salmon fishermen to weather both national and global market pressures, sustaining both fishing livelihoods and communities.

Keywords: Community natural resource management; common property resource; Japanese fisheries; fisheries management; salmon

Brandon J. Vogt, M.A., Doctoral Candidate, Arizona State University. Email: brandon.vogt@asu.edu; Robert Edsall, Ph.D., Arizona State University. Email: robedsall@asu.edu; Geovisualization of laser scanned images as a systemic strategy to aid in stone conservation

Rock art is an invaluable remnant of past cultures. Because it is, by definition, on rock, this cultural resource will ultimately disappear. Some rock art panels are in greater risk of loss than others. A critical step in the preservation of rock art is to develop an objective system for the classification of rock art panel's likelihood for decay, disintegration, or collapse. This paper describes a computer-based system for providing rock weathering experts a strategy to assess and rank rock instability. The identification, quantitative description, abundance, and condition of features such as fissures, textural variations, weathering rind erosion, and tafoni, - major indicators of rock instability - play a key role in the research. Multiple linked views (MLVs), an interactive and exploratory geovisualization technique, supports the project analyses.

Keywords: geovisualization, rock weathering, 3D laser scanning, rock art, southeastern Colorado

Igor Vojnovic, Michigan State University. Email: vojnovic@msu.edu; The Urban Built Environment, Travel Behavior, and Physical Activity: A Michigan Context

Obesity is a leading health issue in the U.S., generating considerable health risks for large segments of the population. According to the Centers for Disease Control and Prevention (2004), approximately 37% of the U.S. adult population is overweight, and 22% of adults are obese. The State of Michigan has been leading national trends in obesity. Michigan ranks sixth in the U.S. in the proportion of population overweight and obese. Physical activity is considered an important variable in affecting overweight prevalence and associated health costs. In fact, the Governor's Council on Physical Fitness revealed that the cost of inactivity in Michigan was \$8.9 billion in 2002. In meeting physical activity objectives, analysts have recognized the role of urban form as one variable that might influence pedestrian activity. While the relationship between accessibility and non-motorized travel is well-known, much less is known of how variations in income, race, age, and gender affect pedestrian activity. The objectives of this research are to: measure neighborhood accessibility for two inner-city Lansing sites, quantify functional differences and the differences among these two sites compared to four suburban sites based on socioeconomic conditions and ethnicity; explore how perceptions of walking vary by income, race, age, and gender; explore whether inner-city residents are walking less in terms of distance and frequency than suburban residents; and explore the association between obesity, based on BMI, and walking, accessibility, income, race, age and gender.

Keywords: Urban geography, urban planning and design

Rainer Vom Hofe, University of Cincinnati. Email: rainer.vomhofe@uc.edu; Saurav Dev Bhatta, University of Illinois at Chicago. Email: sdbhatta@uic.edu; The Importance of Interregional Trade in Regional Cluster Analysis

Space always has been of major importance in industrial cluster analysis. However, defining geographic and/or industrial boundaries for analysis can be challenging given that inter-industry linkages are not confined to political boundaries. In the input-output literature, the question has been posed as one of choosing between a regional and a national framework. But neither framework captures non-local transactions, which may be particularly important for small study regions. This research presents an input-output and principal component analysis based methodology for identifying location-specific clusters that account for both local and non-local inter-industry transactions (i.e., commodity imports and exports by industry). Clusters identified using this methodology are referred to as domestic clusters. Using the Chicago region as a case study, it compares these domestic clusters with regional clusters identified on the basis of local inter-industry transactions alone. The comparison shows similarities as well as some significant differences between the two types of clusters, strengthening the argument that integrating non-local inter-industry transactions into applied

industrial cluster analysis is important for gaining a more complete picture of the industrial clusters in a region.

Keywords: Regional Industrial Cluster Analysis, Economic Geography

Jurgen Von Mahs, The New School - Eugene Lang College. Email: freiher@newschool.edu; The Geography of Homelessness in Post-Industrial Berlin

This paper seeks to explore how geography and the configuration of power-relations in different spaces both serves to enable and constrain homeless people's chances to effectively overcome homelessness depending on homeless people's distinct life courses and the extent to which they are affiliated with the societal mainstream. To conceptualize the geography of homeless people's daily lives and their long-term exit chances, I conducted a longitudinal ethnographic study of 28 single homeless adults in three service facilities in Berlin. Specifically, I examine the impact of punitive policies (i.e. criminalization and displacement) on homeless people survival strategies and mere existence in public spaces, the effects of the spatial distribution of service and shelter facilities (i.e. containment) on homeless people's social networks and their community ties, and the nature and extent of their daily and periodic mobility patterns with regards to their attempts to find jobs, housing, and social contacts. I will provide an argument that the conjunction of these different homeless geographies have an adverse impact on homeless people's exit chances in that they produce and reproduce multiple layers of social and spatial exclusion that ultimately prevent homeless people from moving out of homelessness and poverty. Identifying the multiple geographies of homelessness has important policy implications in that more attention is warranted to the spatiality of homeless people's lives and life chances.

Keywords: Homelessness, Social Exclusion, Criminalization, Containment, Welfare, Ethnography, Berlin, Germany

Christiane Von Reichert, University of Montana. Email: Chris.vonReichert@mso.umt.edu; Regional Development Through Tourism in the Republic of Georgia

With the breakup of the Soviet Union, the Republic of Georgia moved from a relatively prosperous Soviet Republic to a struggling independent state. Geographically part of Asia, Georgia seeks to re-orient itself toward Europe, after she all but lost the ties to Russia. Located in the complex Caucasus region, it is culturally distant from its neighbors, such as Turkey and Azerbaijan, and geographically distant from its cultural and political allies, including Europe and the United States. This work draws on Fall 2006 field experience in the Republic of Georgia, a country known for natural beauty, rich culture, and warm hospitality. It explores the challenges that Georgians face, such as shortcomings in infrastructure. It also examines the economic opportunities that Georgians seek to grasp. A sector that holds promise for Georgia is tourism: the country possesses natural and cultural amenities that are suitable for developing niche tourism, including spa and wellness, outdoor and hiking, culinary, and cultural tours.

Keywords: Georgia-Republic-of, tourism, development

Tim Vorley, Said Business School, University of Oxford. Email: trv1@le.ac.uk; Marketisation of Academia: Corporate Universities and the Knowledge-Based Economy

Universities can be seen to have emerged as powerful actors acting as engines of the knowledge-based economy, referred to in terms of 'academic capitalism' or as 'corporate universities'. Although UK universities continue to remain public institutions prevailing regimes of neo-liberal government, and governance, continue to promote and perpetuate Third Mission ideologies of university and industrial/societal engagement. Amidst declining research incomes and the increasing emergence of third stream activities alongside teaching and research as a core mission of universities, the traditional view of the ivory tower university is necessarily changing. The marketisation of academia includes realising the economic potential of universities through various mechanisms of technology transfer and commercialisation, but also includes other forms of market engagement of which attracting students now constitutes an important dimension. The paper draws on two case studies examining an 'ancient university' of national significance and a 'new university' of local significance as corporate institutions to illustrate the importance of commercial engagement and the importance of institutional governance/management in promoting and achieving this. The changing perspectives and practices of academia have had a profound impact on the (corporate) knowledge-based economy, with statistics of university and industrial/societal engagement masking the variation in strategies, motives and forms of corporate institutional engagement.

Keywords: Universities, Knowledge-Economy, Commercialisation, Enterprise, Entrepreneurship

Thomas Vought, Kansas State University. Email: tvought@ksu.edu; County-Level Geographic Threat Assessment of Biological Terrorism or Disease Outbreaks to U.S. Agriculture

Encompassing a vast area and consisting of a highly specialized and clustered enterprise, U.S. agriculture is extremely vulnerable to bioterrorism. Geographers have helped identify how place, culture, and environment are critical components to better understanding the causes of, and how to best respond to, terrorism. Unfortunately, while many geographers have described issues surrounding the defense of agricultural resources, fewer have undertaken practical research resulting in reduced vulnerability of food supply and production systems. This paper presents two equations for determining county-level vulnerability to agricultural bioterrorism. These equations are used to analyze the vulnerability of U.S. counties to bioterrorist attacks on ten major agricultural commodities. The emphasis is not on finding the individual counties that are most vulnerable to agricultural bioterrorism, but rather on identifying major clusters of high-vulnerability counties. This work can be used in conjunction with future studies to prepare local and regional authorities for quickly isolating outbreaks of agricultural diseases, whether such outbreaks are naturally occurring or human-induced. By better allocating limited resources to the most vulnerable areas, perhaps the threat of agricultural terrorism can be mitigated.

Keywords: hazards, terrorism, disease, agriculture,

Timothy Vowles, University of North Florida. Email: t.vowles@unf.edu; Spatial Domination of US Airlines

The goal of this paper is to determine the extent of spatial domination by US airlines over a five-year period (1998-2003). It reveals spatial domination is higher in the hinterland of hubs and therefore the smaller airports dominated by a particular carrier are subject to higher fares and nuisance (in the form of decreased access to the air transport network) when a carrier, US Airways for example, pulls down a hub. The paper examines the spatial results coming from the US Airways/America West merger. It also illustrates that although low cost carriers are to a degree flourishing in the United States their market dominance is somewhat spatially limited.

Keywords: Air Transport, Airline, Spatial Domination, Hub and Spoke, US Airways/America West merger

Vienne Vu, California State University Fullerton. Email: vienne79@gmail.com; Food as an Indicator of Vietnamese-American Cultural Change

Immigrants to the United States lose the culture of their homeland as they assimilate to the culture of their new country of residence. As new generations are born in the U.S., the culture of the homeland is reduced or lost as a result of the Americanization of the immigrant family. The generational spread of Vietnamese refugees and immigrants makes the ethnicity ideal for this study. There is a strong presence of recent first generation migrants who preserve the culture of the mother country to the best of their ability, while second and third generation Vietnamese Americans have maintained the culture to varying degrees. Language, food, dress, and religion are among the cultural traits that are lost as families assimilate. This study examines food as an indicator of cultural change. Some ethnic dishes are altered as a result of a lack of availability of ingredients that were available in the home country, and others are lost because the preparation of the dish is not learned by the newer generations or because the newer generations find the dishes distasteful. The amount of food that is kept by second and third generation Vietnamese Americans can be compared to those of the first generation to gauge how much of the original culture is lost.

Keywords: Food, migration, ethnicity

David J Wachal, City of Denton, Texas; University of North Texas. Email: david.wachal@cityofdenton.com; Kenneth E Banks, City of Denton, Texas. Email: kenneth.bank@cityofdenton.com; Runoff from Natural Gas Exploration and Production: Deriving a CN Value from Empirical Data

Over 30,000 natural gas wells are constructed nationwide each year. Natural gas exploration and production (NGE&P) disturbs several acres of land, increasing the potential for accelerated soil losses due to modifications of land cover, increased slopes, and concentration of flow. Assessment of soil losses from NGE&P sites can be conducted using water quality models. Many of the candidate models (CREAMS, EPIC, SWRRB, AGNPS, SWAT, KINEROS2, GWLF, and RUSLE2) use the USDA runoff curve number method to estimate surface runoff from rainfall. The method is sensitive to the curve number (CN), which is the parameter used to represent runoff potential. Since a 15-20% difference in the CN can result in a 50% difference in estimated runoff, a reliable estimate of CN is crucial for predicting soil losses using these models. Although CN values have been empirically derived for a wide range of land management conditions, these values are currently not available for NGE&P sites. The objective of this research is to estimate a CN value for NGE&P using rainfall and runoff data collected at three natural gas well sites located in North Central Texas. Specifi-

cally, this study applies two commonly used methodologies for deriving CN values from empirical data, compares their results, and discusses advantages, disadvantages, and techniques for evaluating confidence for each method. Developing a CN value specifically for NGE&P potentially provides a more reliable estimate of runoff, which will result in more accurate estimates of soil losses in future NGE&P water quality modeling assessments.

Keywords: curve number, natural gas, water quality, modeling, runoff, Texas

Theodore Wachs, Managing Editor, Mountain Research and Development, Centre for Development and Environment. Email: mrd-journal@giub.unibe.ch; An International Journal of Geographical Significance

Mountain Research and Development (MRD) is a global, inter- and transdisciplinary journal focusing on the world's mountain regions. Illustration of this peer-reviewed, development-oriented international journal will focus on follow-up to the International Year of Mountains 2002, as 2007 marks the IYM+5 milestone. Special attention will be given to the significance of mountains and why issues such as sustainability, security, livelihoods, cultural diversity, empowerment and economic globalization in mountain regions are of concern to geographers.

Keywords: Development, sustainability, mountains, geography

Alisa Wade, Colorado State University. Email: awade@cnr.colostate.edu; David Theobald, PhD, Colorado State University. Email: davet@warnernr.colostate.edu; Assessing Urbanization's Influence on Aquatic Systems Across Multiple Scales

As urbanization continues to expand across the landscape, it is critical that we understand the dynamic relationship between spatial arrangement of development patterns and influences on ecological processes. Because rivers integrate influences from throughout the entire hydrologic catchment, the study of aquatic systems provides an excellent opportunity to assess how urbanization affects natural systems. Modeling the relationship between catchment land use and aquatic system integrity requires consideration of three aspects of space: scale, neighborhoods, and distance. This research explores the first of the three spatial aspects, spatial scale. Defined here as the spatial extent of the study area considered, it is critical to any ecological analysis as different scales may result in different model inferences. The relationship between the physical environment and the biota may change depending on the scale of observation, and different processes dominate natural systems at different scales. Using Bayesian hierarchical modeling techniques to compare effects across multiple scales simultaneously, the research provides insight into how processes interact across scales and how this affects inferences about urbanization's influence on aquatic systems.

Keywords: urbanization, aquatic systems, hierarchical modeling, Bayesian modeling, scales

Gail Wade, GIS Specialist, USDA/National Agricultural Statistics Service. Email: Gail_wade@nass.usda.gov; National Agricultural Statistics Service Map Products

National Agricultural Statistics Service (NASS) creates various Agricultural map products including maps for the 2002 Census of Agriculture and a Cropland Data Layer (CDL) for major agricultural commodities. The Cropland Data Layer is a crop specific landuse classification covering 12 states for crop year 2006. The ResourceSat-1 AWiFS sensor was used for all of the classifications.

Keywords: Census, Agriculture, Classification, Cropland

Vandana Wadhwa, PhD, University of Akron. Email: vandana.w@comcast.net; Lessons from the Dynamics of AIDS Awareness Among Indian Women: Case Studies, New Delhi and Hyderabad, India

Women are at inordinate risk of HIV/AIDS infection in India, mostly due to heterosexual transmission from spouses, who often have not or do not adhere to the rules of monogamy that are traditionally enforced upon women (Ghosh 2002). In a country that now has the greatest number of HIV/AIDS cases in the world (UNAIDS report 2006), this is a situation of great concern, and the issue of prevention becomes imperative. AIDS awareness is prerequisite to such prevention. Women in slum areas are particularly prone to being at risk for HIV/AIDS infection since they lack the literacy, urban infrastructural resources and empowerment to arm themselves with prevention tools, or in many cases, even awareness of the issue. The present study, made possible by an AAG Research Grant (2006), examines AIDS awareness and its attributes among slum women from two cities: Delhi and Hyderabad/Secunderabad, based on their similarities as large cities and dissimilarities with respect to AIDS incidence and awareness campaigns. The methodology is qualitative, culling data from structured and semi-structured interviews of slum women as well as government public health personnel immediately responsible for the slum. The preliminary analysis shows low levels of awareness in Delhi as compared to Hyderabad, and a combination of lack of awareness of prevention methods, and lack of autonomy to utilize these

methods. The analysis leads to policy implications for government action, greater NGO participation, and a case for greater empowerment of women, particularly in terms of their reproductive and sexual health.

Keywords: India, HIV/AIDS, women and health

Jeroen Wagendorp, Grand Valley State University. Email: wagendoj@gvsu.edu; *Applied Geography in the Office of Academic Institution Analysis: An Examination of Key Population Movements.*

Higher education in the United States is increasingly structuring itself following the corporate model. In response to increased competition for students, a higher education has adopted a managerial approach. The role of market analysis and market competition in higher education is gaining momentum. Remarkably, in the above contexts, standard geographic techniques are rarely used. This paper looks at a number of geographic techniques to help analyze market saturation and tracks the relative movement of enrollment of key public universities in Michigan over a 15-year period. The geographic synthesis and subsequent geo-visualization has proven valuable and revealing.

Keywords: geographic analysis, higher education, student populations

Jacob A. Wagner, Ph.D., University of Missouri-Kansas City. Email: wagnerjaco@umkc.edu; *New Orleans as a Way of Life: Creole Urbanism*

New Orleans after the levee failure of 2005 is not a "clean slate." Despite the myriad proclamations that the city and its historic neighborhoods are a blank page, nothing could be further from the truth. This essay introduces the "creole urbanism" as a framework for understanding New Orleans and the specific features that have contributed to the city's urban culture. In order to link the New Orleans experience to a broader understanding of urban life we should analyze its particular urbanism. The concept of Creole Urbanism helps to explain the particular characteristics of New Orleans as a deeply urban place while also providing a framework for the restoration of the city in the post-levee failure era. What makes New Orleans rare among North American cities, and worth fighting for, is the city's creole urbanism: the everyday interplay between historic urban neighborhoods with a density of social life that promotes a unique street culture rooted in an ethos of assimilation and diversity. In Lefebvre's conceptualization, New Orleanians now find themselves at the center of a great "trial by space" in which competing ideologies are seeking dominance through the transformation of urban space (Lefebvre, 1991, p.416). Which vision of the future will be realized is a matter of practical politics unfolding daily. The concept of creole urbanism outlined in this essay defines the characteristics of New Orleans as a way of life - as lived space - in an effort to resist the tendency to homogenize the city and its neighborhoods.

Keywords: New Orleans, Urban Morphology, Space and Culture

David B. Wahl, United States Geological Survey. Email: dwahl@usgs.gov; *Evolution of a Neotropical Wetland: The Paleocology of Lago Paixban*

This paper will present the results of analyses carried out on a 6-meter sediment core from Lago Paixban, a perennial wetland in the northern Peten of Guatemala. Pollen, d13Corg, magnetic susceptibility, charcoal, and LOI have been used to track the evolution of this basin from 10,000 BP to present. Lack of fossil preservation in the basal sediments suggest drier conditions leading into the early Holocene followed by increased humidity and the presence of a shallow marsh by ~9000 BP. By 7400 BP an open-water lake occupied the basin. Around 5500 BP, lake levels dropped dramatically, indicated by a 1-m thick sapric peat horizon dominated by wetland taxa. The shift from lake to marsh at this time reflects the onset of drier conditions in the late Holocene. Anthropogenic impacts are evidenced by a dramatic increase of disturbance and agricultural taxa during the period of prehistoric Maya settlement. This interval, from ~3500-1100 BP, is marked by a 1-m thick horizon of calcareous clay marl, indicating a distinct change in local hydrology. Shortly after the area was abandoned, a perennial wetland dominated by sawgrass developed and has persisted to the present.

Keywords: pollen, climate, impacts, Guatemala, Maya

Eugene R Wahl, Alfred University. Email: wahle@alfred.edu; Caspar M Ammann, National Center for Atmospheric Research. Email: ammann@ucar.edu; *On Optimization of Last Millennium Climate Reconstructions*

Recent scientific issues with high-resolution (annual to sub-annual) millennial reconstructions of Northern Hemisphere (NH) temperatures have focused on the ability of reconstructions to capture the full amplitude of temperature variation. This issue has been addressed by new reconstructions and by a growing body of climate model-based studies. We performed a sequence of model-based analyses using the truncated empirical orthogonal function (EOF) method of climate field reconstruction (CFR) employed by Mann, Bradley, Hughes (MBH) and Luterbacher et al. to reconstruct global and European regional

climate fields, respectively. Preliminary results indicate that these methods reconstruct temperature variability with only relatively small losses of amplitude when the period over which they are calibrated has excursions reflecting the variability of the climate over the reconstruction period. The use of canonical regression (regressing principal components (PCs) of instrumental values on proxy PCs) exhibits somewhat better performance than the use of indirect regression (regressing proxies on instrumental PCs and then inverting this relationship to reconstruct the instrumental PCs based on proxy values). Improved performance is achieved by using a longer (~50%) time period for calibration (containing greater variability), even though the instrumental data density for this longer period is reduced ~80%. For the NH average, a simpler method (forming a composite of the proxy values and scaling this series to the mean and standard deviation of the calibration period temperature) performs even better, although it cannot reconstruct entire climate fields as can CFR methods. Performance of the regularized expectation maximization CFR method will also be explored.

Keywords: Climate, Climate Field Reconstruction, Last Millenium Climate, Climate Change

Emma Wainwright, Brunel University. Email:

Emma.Wainwright@brunel.ac.uk; Elodie Marandet, Brunel University. Email: elodie.marandet@brunel.ac.uk; *'It gives you a lot: in your house, out there, with your children': mothers' belongings through participation in family learning.*

Family learning is now a major mode of education that sits within the UK learning market (Edwards, 1997). Aimed at encouraging social inclusion, family learning refers to formal programmes - often run in schools and nurseries - that engage parents in tackling educational under-achievement (DfES, 2003), encourage family members to learn together, and lead adults and children to pursue further learning (LSC, 2002). Although family type and composition vary, it is mainly mothers who participate in family learning, often as a first step into education after a period of childcare. Focusing on research undertaken with mothers on family learning courses in West London, many of whom are recent immigrants to the UK, this paper explores the motivations for and outcomes of participation in this type of learning. In particular, by drawing on Probyn's (1996) writings on 'belongings', the paper explores how the site of family learning is used to create, alter or expand a sense of belonging to a range of different spaces, including the home, school(s), community and neighbourhood, and how it precipitates general understandings of the 'British system'. Through these sites of belonging, the paper further explores how participation in family learning is tied to desired identities of 'good' mother, neighbour and citizen.

Keywords: family learning, belongings, mothers, inclusion

Joel D Wainwright, The Ohio State University. Email: wainwright.11@osu.edu; Trevor Barnes, University of British Columbia. Email: tbarnes@geog.ubc.ca; *The space-place distinction after Derrida*

This paper reconsiders the distinction between the concepts of space and place. We argue that, rather than prioritizing or favoring one side of the place-space debate?or attempting to do away with it by treating space and place dialectically?we should approach this distinction as a key site in (the play of) Western metaphysics. Our paper addresses the distinction and departs from recent attempts to supersede it by Anglo geographers. Drawing inspiration from Jacques Derrida, we discuss three key concepts that both derive from, and in turn structure, the space-place distinction: nature, economy, and temporality.

Keywords: dialectic, space, place

Louise Waite, University of Leeds. Email: l.waite@leeds.ac.uk; *Migrant labourers: The new 'precarious'?*

Despite the circulation of the French term *precarité* since the early 1990s, it is only recently that the neologism 'precarity' has been coined by English speakers and gained prominence in social movement struggles. Precarity has become particularly, although not exclusively, associated with casualisation and flexible exploitation in the labour market which therefore intimately touches the life-worlds of migrant workers. Although such insecurity is not a new experience for working classes, social activists suggest that the precarity labourers are feeling in the 21st century has different characteristics in that it is a product of intensifying trajectories of neo-liberalism and globalisation. This paper will explore what these different characteristics are, and what a geographical imagination can bring to an exploration of whether migrant labourers can and should be considered as the new 'precarious'; either within the proletariat or as a class in/for itself. It will interrogate the concepts of 'precarity' and 'precariousness' and deploy geographical frameworks, especially those of space and scale, to deepen our understanding of these concepts. In particular, the paper will suggest that precariousness of migrants' work is a complex and contested process that is refracted through subject positions to leave precarity as multi-faceted; for example, precarious labour practices can be interpreted as the oppressive face of

post-Fordist capitalism, but they may also contain potentialities that emanate from migrants' own agentic demands for flexibility. The paper will further explore what hope the concept of precarity may bring for strategies of migrants' resistance to hegemonic power.

Keywords: precarity, migrant labourers, neo-liberalism

Elizabeth M. Waithanji, Clark University, Graduate School of Geography. Email: ewaithanji@clarku.edu; *A Feminist Analysis of Sedentarization among Somali Nomads in North Eastern Kenya*

Reduction in residential mobility caused by sedentarization of nomads in Mandera Central Division of North Eastern Kenya provokes other mobilities that help shape and are shaped by gender relations in both sedentarizing communities and the sedentary communities that host them. This study is based on data collected in Mandera central in 2005 through focus group discussions and individual face-to-face interviews with 62 women and 61 men. The extreme competition for scarce resources after sedentarization leads to an out-migration of young men in search of employment elsewhere as older more powerful men restrict access to and control available resources. Because women are culturally restricted from out migrating, surplus marrying age women in the community leads to the erratic marriages and divorces in this polygamous Muslim society. The affected women resist their condition with hostility and through veiling and unveiling. The outcome of resistance by these women is more misery and poverty as they become exploited further by men from outside the community. There are two broad policy possibilities for reducing women's suffering identified here. First, a law could restrict men to a maximum of four living wives during their lifetime, and fathers could be forced to support both legitimate and illegitimate children. Second, to provide a basic livelihood, affected women could be employed in the recently identified potential food processing and packing facilities in times of food abundance.

Keywords: Sedentarization, Mobility, Gender, Nomadic pastoralists, Mandera, Kenya

Gordon R. Waitt, University Of Wollongong. Email: gordon_waitt@uow.edu.au; Robert Figueroa, Colgate University. Email: rfigueroa@mail.colgate.edu; *Cracks in the Mirror: (Un)covering the moral terrains of environmental justice at Uluru-Kata Tjuta*

Relational geographies demand rethinking place, subjectivities, and ethics through the body. We argue that environmental ethics is always more than how discourses are layered over place, by situating moral agency through the body's affective repertoire of being-in-the-world. At Uluru-Kata Tjuta National Park, Northern Territory, Australia, the joint management board is actively refashioning the normative moral terrain through extending a pedagogical arm of reconciliation to make all considerate visitors undergo an opportunity to respect Anangu law. In an effort to communicate to visitors an appropriate ethic for this moral terrain, we rethink scholarship on non-anthropocentric relational ethics to include a more complete picture of what is entailed by addressing the failure to account for environmental justice. Self-reflexive accounts of American students in a study-group are used to illustrate the dilemmas even the most well-prepared visitor has in negotiating moral pathways invoked by the policy of reconciliation. Problematizing the pedagogical arm of reconciliation are personal itineraries loaded with bodily memories of reliving the thrill derived from exploring or witnessing rock-places elsewhere, or expectations of a spiritual enlightenment.

Keywords: environmental justice, affective geographies, Australia

Michele Wakin, Ph.D., Bridgewater State College. Email: mwakin@bridgew.edu; Robert Amey, Ph.D., Bridgewater State College. Email: ramey@bridgew.edu; *Sheltered and Unsheltered Homeless Populations in California Communities*

This study compares the locations of the sheltered and unsheltered homeless populations in three California Counties: Santa Barbara, Sonoma, and Santa Cruz. Although similar in terms of population size, housing prices, and the prevalence of both tourists and homeless people, these locations differ dramatically in terms of the types and locations of homeless services. Mapping the location of homeless services and the unsheltered homeless population will demonstrate the complex relationship between needs and available services. It will also suggest strategies for maximizing the effectiveness of outreach and shelter programs.

Keywords: Homeless, GIS, California

Kevin T Walby, Carleton University. Email: kwalby@connect.carleton.ca; Aaron Doyle, Dr, Carleton University. Email: adoyl2525@rogers.com; *'Battling the Body': Risk, Edgework, Masculinities and Tree-Planting in Canada*

Because numerous women join men in the arduous yet highly rewarding occupation of tree-planting, it allows for a unique study of the interplay of risk, edgework, the body and masculinities. Edgework involves pursuits or occupations

in which an experience of transcendence is achieved in part through skillful controlling of the body to persevere in risky situations. The edgework concept has been criticized for focusing overly on the experiences of men. Our data show, however, women often compete evenly with men in this physically grueling activity and that tree-planting provides a context for the embodiment of masculinities by women as well as men. Drawing from tree planters' articulated experiences in a set of open-focused interviews, we show how female and male planters are compelled to "toughen," to be independent, to control their bodies, to overcome risk, to display skill, and how these practices are oriented towards certain attitudes and ideals traditionally associated with the "masculine". We thus show how previous research on gender and edgework is problematized by the example of tree-planting. We argue further that, for both women and men, tree-planting generates the embodiment of a paradox sometimes present in edgework, as planting blends elements of escape from the late-modern urban world through skillful control of the body under conditions of risk with other elements of laborious monotony that push the body to exhaustion and often harm it severely. Tree-planting simultaneously produces a sense of release from the structural conditions of late-modernity even as it reproduces those structural conditions.

Keywords: risk, masculinities, embodiment, edgework, tree-planting, gender

Susan M. Walcott, University of North Carolina-Greensboro. Email: smwalcot@uncg.edu; *Wenzhou's Way: The Making of a Political-Economic Model*

Lodged in semi-isolation between the two booming deltas, Wenzhou provides the premier example of successful autonomous, bottom-up development in contemporary China. Not only is the urban area highly prosperous, the rural farm cooperatives are developing a new model of financing that integrates three previous periods. This presentation outlines the "Wenzhou Model", how it evolved since pre-Mao days, and what this place can portend for other Chinese medium-size metropolitan regions.

Keywords: China, development, model

John D. Waldron, University of West Florida. Email: johndwaldron@yahoo.com; Weimin Xi, Knowledge Engineering Lab, Texas A&M University. Email: xi@tamu.edu; Charles Lafon, Department of Geography, Texas A&M University. Email: clafon@tamu.edu; David Cairns, Department of Geography, Texas A&M University. Email: cairns@tamu.edu; Maria Tchakerian, Knowledge Engineering Lab, Texas A&M University. Email: mtchakerian@tamu.edu; Robert Coulson, Knowledge Engineering Lab, Texas A&M University. Email: ; Kier Klepzig, USDA Forest Service, Southern Research Station. Email: kklepzig@fs.fed.us; *Predicting Impacts of Hemlock Woolly Adelgid on Forest Composition in the southern Appalachian Mountains*

The hemlock woolly Adelgid, *Adelges tsugae* (Annand) (Homoptera: Adelgidae) (HWA), is an invasive species that infests and causes mortality to Eastern and Carolina hemlock (*Tsuga canadensis/caroliniana*) throughout eastern North America. HWA has recently entered the southern Appalachian Mountains and its full potential impact has yet to be ascertained. We used the LANDIS II model to predict changes in landscape function and composition under an altered disturbance regime due to the effects of the HWA. We calibrated LANDIS II to run different scenarios of hemlock decline in the southern Appalachian Mountains. We compare these scenarios in regards to their potential impact on forest composition and discuss the ramifications of this invasive insect disturbance to the management of public forests.

Keywords: Forest Disturbance, Succession, Appalachian-southern, LANDIS

Jayne Walenta, Ph.D. Candidate, University of British Columbia. Email: jwalenta@interchange.ubc.ca; *"I used to work at Enron, but don't quote me on that": an economic geographer breaks silences on fieldwork*

"I used to work at Enron, but don't quote me on that"? My interview subjects never uttered these exact words to me during field research, but the scared looks, dead end contacts and overall reluctance to speak about Enron suggested as much to me. These frustrations characterized my trip to the field and left me with a sense of failure as a Ph.D. student and as an economic geographer. In turning to the sub-discipline for guidance in the practice of research, I was equally frustrated by the lack of conversation within economic geography regarding fieldwork. This dual set of silences, my difficulty in gaining access to interviews and information, and the lack of discussion within economic geography on the practices of research, open this paper. To begin, I briefly outline the ways in which the sub-discipline has approached the topic of methods and field research. In doing so, I suggest this literature scantily acknowledges fieldwork, thereby masking it as an academic practice. In turn, I look to studies written by feminist geographers, which explore the politics and practicalities of doing research. Then, using my own experiences in the field, and drawing from feminist methodologies and strategies, I offer launching points for more open discussions in economic geography regarding fieldwork.

Keywords: economic geography, qualitative methods, feminist geography, fieldwork

David M. Walker, University of Kentucky. Email: dwalk2@uky.edu; *The adoration of La Santa Muerte, Vernacular Albuere, Spatial Politics and opposition to the Neoliberalization of Space in Mexico City's Historic Center*

In this paper I will present findings of a research project documenting the neoliberalization of space represented by gentrification in Mexico City's Historic Center. Particular attention will be given to how the re-production of space in the Historic Center is driven by the desire of the promoters and financiers of this gentrification project, under the rubric of 'roll-out' neoliberalization, to create an imagined, regal, neocolonial urban space. Juxtaposed to this task, I will then describe how the 'culture of fear' in Latin American urban centers coupled with examples of well organized vernacular, cultural/linguistic resistance and socio-spatial political resistance by opponents to gentrification have prevented the neoliberalization of space in the Centro Histórico. In addition, I will discuss how vernacular religion, in the form of the adoration of la Santa Muerte also works in the configuration of a counter-culture identity that resists the linear development policies of neoliberalization. Finally, I will introduce different ways of theorizing urban change in Latin America that complicate current theory on investment and flows, through a discussion of how the multiple examples of 'timespace' that exist in a post-colonial space such as Mexico City contribute to the reproduction of urban space in this locale and thwart attempts to neoliberalize the spaces where the residents and ambulantes of Mexico City's Centro Histórico have worked and lived for centuries.

Keywords: Neoliberalization, Gentrification, La Santa Muerte, Albuere, Resistance

David P Walker, University of Nevada, Reno. Email: walker73@unr.nevada.edu; *Climate variability and avalanches at two sites in the Northeastern Sierra Nevada Range*

This research will investigate avalanche activity and associated climate variables at two ski areas in the Sierra Nevada of California and Nevada. Mt. Rose and Mammoth Mountain ski areas are both on the eastern scarp of the Sierra Nevada and have nearly the same ranges of elevation, 7,900-9,700 feet and 7,953-11,053 feet respectively. They are separated by 1.7 degrees of latitude and about 124 miles. Both of these ski areas have collected and archived avalanche data for more than 20 years. Preliminary analysis of the data suggest that during a number of winter seasons both ski areas have increased avalanche activity while other winters exhibit avalanche activity that is high at one area and lower at the other. The research question for this study is: are the differences in seasonal avalanche frequency influenced by storm type? Preliminary findings suggest that Mammoth Mountain and Mt. Rose avalanche frequencies are in phase during winters with anomalously high pressure in the Gulf of Alaska. Storm tracks are much more meridional coming from the north during these winters as well. The winters when avalanche frequency at each area is out of phase the heights and storm tracks are markedly different from winters when avalanche frequency is in phase.

Keywords: Climate, Avalanche, Sierra Nevada

Gordon Walker, Lancaster University. Email: g.p.walker@lancaster.ac.uk; *Exploring the Complex Geographies of Pluralised Environmental Justice*

In evolving spatially, culturally and theoretically environmental justice is taking on a new plurality. The material and sociological themes of concern are extending far beyond pollution, risk and race. The spatio-cultural and institutional contexts in which justice claims are being made and justice-inequality-equity discourses are being articulated are globalising and becoming differentiated and diverse. The conceptualisation of what makes injustice is extending beyond the distributional to more fully recognise the multiplicity that is both needed and practised within environmental justice discourse (Scholsberg 2004). This paper considers the implications of the new pluralism for geographical analysis. In what ways does a geographical concern for understanding space, scale, place and temporality intertwine with a pluralised environmental justice in theory and praxis? Drawing on Harvey (1996) and on recent work in urban political ecology (Heynen et al 2005) this paper explores the implications of new pluralism for the co-constitution of geography and environmental (in)justice.

Keywords: environment justice geography

Ian James Walker, Ph.D., Associate Professor, University of Victoria. Email: ijwalker@uvic.ca; Beca Cumming, MSc candidate, University of Victoria. Email: beca@uvic.ca; *Airflow behaviour over a driftwood-laden macrotidal beach-dune system*

Coastal dune morphodynamics on high-energy, macrotidal beaches are not well understood given complex interactions between near-surface winds, tides, surface roughness (e.g., driftwood, vegetation), and dune topography. These interactions control the effective fetch (f) and resulting rates of sand transport to coastal dunes. This study examines airflow behaviour over a macrotidal, forest-backed dune system with a distinct backshore driftwood jam (DWJ). Measurements from an 8-hr wind event from 2D and 3D ultrasonic anemometers were sampled at seven locations from the beach to the forest. Incident wind speeds at 5-m increased from 10 to >12m/s from 284° (52° onshore). Three sub-events are examined: oblique (f=265m), oblique-onshore (f=250m), and shifting (f=600 to 285m). The population of 10 minute averages (n=55) for key flow properties (U, W, CVU) are also analysed for location-specific responses to over 50° change in flow direction. Near-surface flow over the backshore deviates by 55° from the incident wind due to DWJ roughness effects and flow stagnation from the dune and forest. Turbulence increases in the DWJ and negative relationship exists between turbulence and fetch due to the enhanced boundary layer development distance. Flow accelerates up the dune due to streamline compression effects then expands and decelerates in the lee. The colonizing tree stand causes a flow stagnation of 30-40% and significant flow steering along the treeline. due to a longer boundary layer development distance. Downward velocities are greatest in the lee and at the treeline. From this, implications for sand transport and dune dynamics is discussed.

Keywords: aeolian, dune, coastal, driftwood, geomorphology

Jill R Walker, University of Wyoming. Email: jrwalker@uwyo.edu; *From Ozzie and Harriet to the Jetsons: The Geography of the American Family as Demonstrated in Situation Comedies*

Many people identify or at least feel some commonality with the families portrayed in American situation comedies. Also, a large number of people abroad glean much of what they know about the United States and Americans from watching our television programs. Where situation comedy families live, what sort of housing they inhabit, and what that information might tell us is the subject of this study. Data will be gathered based on the following criteria: (1) American situation comedies involving a family, as opposed to those featuring groups of friends or work colleagues; and (2) programs successful enough to run over multiple seasons, enter into syndication and/or be broadcast internationally. Data from situation comedies included in the study will be gathered from internet resources and viewing of programs, then entered into a spreadsheet for ready analysis. Physical locations (or reasonable estimates) of the selected situation comedies will be plotted on a map, and conclusions drawn about the geography of the American family based on the spreadsheet data and the plotted map.

Keywords: popular culture, family, housing, television

Johnathan Walker, James Madison University. Email: walkerjx@jmu.edu; *They Seek More Than Medals: Taiwan Sports Participation and the Geopolitics of National Identity*

In an ongoing effort to remain a viable political entity, the government of Taiwan has employed participation in international sport both to cement its position in the world and further its political goals. Sports participation has therefore been useful as a tool to establish an identity that underscores Taiwan's de facto separation and secure it a place in the global village. The research investigates identity politics through the variety of tactics used by Taiwan as well as the countermeasures employed by the People's Republic of China to confront, limit, or undermine the effort to forge an expanded Taiwan identity.

Keywords: Taiwan, identity, geopolitics

Kyle E Walker, University of Minnesota - Minneapolis. Email: walke412@umn.edu; *Immigration, Politics, and Place in Metropolitan Minneapolis-St. Paul, Minnesota*

Across the United States, the central city's status as primary host of new immigrants has weakened, as more immigrants now live in suburbs than central cities. Moreover, many of these immigrants settle in suburbs upon arrival without "assimilating" to their host society in the traditional sense, a trend that seemingly contradicts some theoretical models explaining immigrant settlement such as spatial assimilation theory. As immigrants settle in new destinations across the country, the political ramifications of these settlement patterns become increasingly relevant. Immigrant concentrations in non-traditional destinations such as outer-ring suburbs may provoke potent reactions from native-born residents who are not accustomed to immigration in their communities. Using the Minneapolis-St. Paul metropolitan area as a case study, the essay considers the relationship between immigrant settlement geography and the localized politics of immigration. Drawing upon GIS analysis, review of Census

data, observation, and interviews with suburban community members, this paper asks the following research questions: (1) How have immigrant settlement patterns evolved in the Minneapolis-St. Paul metropolitan area? (2) Can spatial assimilation theory adequately explain the dynamics of these settlement patterns? (3) Have immigrants concentrated in outer-ring Twin Cities suburban communities? Have they impacted the cultural and physical landscapes of these communities? (4) What is the relationship between immigrant concentration and a "territorial politics of immigration" in outer-ring Twin Cities suburbs? In addressing these questions, this essay explores how contact with immigrants influences native-born Minnesotans' political views toward immigration as well as how newly diverse communities adapt to changing demographic realities.

Keywords: immigration, suburbs, Minnesota

Margath A. Walker, University of Kentucky. Email: mwalk2@uky.edu; Cultural Production and the Role of Creativity on the US-Mexico Border

Cultural production and the social practices embedded therein play a key role in the revitalization of contemporary cities (Scott 1995; Logan and Molotch 1988; Zukin 1991). Yet, there is a particular geography to the study of the linkages between culture and economy as they tend to privilege capital and world cities while generalizing aspects and outcomes of globalization (Crewe and Beaverstock 1998). This paper is in part a response to such geographical gaps. A key task is an understanding of some of the first sites of globalization in the Global South where reductionism has led to transformations in the urban being conceptualized as primarily an economic phenomenon. Specifically, I situate the larger debate through an analysis of the cultural practices of Tijuana's municipal government- a city whose economy has diversified somewhat beyond maquila industrialization and gained prominence as a cultural mecca. The paper opens by charting elements of Tijuana's new urban imperative whereby the symbolic economy is becoming firmly entrenched alongside the industrial economy. It then moves into an engagement with notions of culture contextualized through the city. The structure and discourses embedded in the Tijuana Municipal Plan 2005-2007 are analyzed to interrogate the work that culture performs with an eye to the impacts (both material and discursive) of official strategies across time and space. The paper closes by questioning the implications of particular mobilizations of culture and the ways in which they are reflective of larger neoliberal agendas.

Keywords: border, culture, economy

Robert Toovey Walker, PhD, Michigan State University. Email: rwalker@msu.edu; John O Browder, PhD, Virginia Polytechnic Institute and State University. Email: browder@vt.edu; Eugenio Arima, PhD, Hobart & William Smith Colleges. Email: arima@hws.edu; Globalization, Deforestation, and the Cattle Sector of the Brazilian Amazon

Cattle ranching is the main driver of tropical deforestation in Latin America, and its role in the Brazilian Amazon has been particularly pronounced. Spurred by government fiscal incentives and rural credit programs, herd sizes have grown dramatically, especially in Pará, Mato Grosso, and Rondônia. The Amazon's livestock sector was, until recently, a relatively minor player in Brazil's cattle industry, but by 2002, Amazonian cattle ranchers were herding 57 million animal units, nearly one-third of Brazil's total bovine livestock population of 185 million animals, the largest commercial cattle herd in the world. This increase appears to be a generalized phenomenon throughout the Brazilian Amazon, although rates of growth vary widely by state. Cattle ranching in the region long stirred controversy. Some have argued that ecological factors greatly limit its sustainability, while others have suggested that ranching is not economically viable here in the absence of government subsidies. Recent research shows that ranching can be more profitable than other agricultural land uses. Whether viable or not, in ecological or economic terms, few would deny that ranch development, by small and large producers alike, has become the major proximate cause of forest loss in the Amazon Basin. The paper to be presented provides a political ecological explanation of the emergence of the Amazonian cattle economy, documenting its growth from a minor sector serving local and domestic markets, to an important component of Brazil's globalized agricultural economy.

Keywords: Ranching, Brazil, Deforestation

R Alan Walks, University Of Toronto. Email: awalks@utm.utoronto.ca; The Politics of Gated Community Residents

Perhaps no other urban form is more associated with neo-liberal times than gated communities. Gated communities have been characterized as producing the perfect neo-liberal citizens - sequestered and segregated from the rest of society, it is assumed their residents should be, or become, fearful of others, distrustful of government, and supportive of individualism and self-sufficiency as promoted by neo-liberal political parties. However, despite some surveys which have dealt with social attitudes 'behind the gates', the politics of gated community residents have yet to be explored. This paper fills this gap via analysis of both aggregate

election results at the level of the polling station and survey data from a larger survey of metropolitan residents in Canada, including approximately 300 gated community residents living in 12 different gated communities in four metropolitan regions. This data is analyzed in order to show whether gated community residents vote any differently, and whether they harbour attitudes that are different, from their non-gated counterparts. The implications of gating is then discussed, and the causal relationships between residing in a gated community and political attitudes are explored.

Keywords: Gated Communities, Privatisation, Neoliberalism

Tamara Wall, University of Montana. Email: tam.wall@umontana.edu; Why are Parents Living in the Forest to Raise Their Children in a "Natural" Environment?

In a larger study that focused on concepts of place-based identity, a surprising theme that emerged was how important it was for parents with young and teenage children in the study to raise their children in what they felt was a "natural environment." Parents with children living in several forested communities in southwestern Montana often attributed this desire as a primary reason for moving into their current residence. These parents had often migrated from urban areas located in other regions of the United States to rural areas of southwestern Montana. In some cases, one or both parents were return migrants to Montana who accepted significant wage reductions to ensure that their children had experiences similar to their own childhood and that they passed on specific values to their children. All of the parents felt that a natural environment was inherently safer than an urban environment and allowed "kids to be kids" or a chance to be "normal." In addition, some parents felt that growing up in a forested environment encouraged positive attributes in their children such as confidence and self-efficacy.

Keywords: migration, children, place identity, montana, wildland urban interface

Candice Y. Wallace, University of Kentucky. Email: candice.wallace@uky.edu; Wie Yusuf, University of Kentucky. Email: wie@uky.edu; Southern/Eastern Kentucky 511 Tourism Information Service: An Economic Impact Evaluation

In 2003, Kentucky implemented a tourism-based ITS system covering 46 counties in the Southern/Eastern region of the state. Known as the 511 Tourism Information Service, this program enhanced the state's existing 511 Traffic and Travel Information System. The program connects users to "live" telephone operators who have access to an extensive regional tourism database and can provide information such as special events, local points of interest, dining and lodging. This program was intended to promote tourism, thus contributing to economic development in the region. Southern/Eastern Kentucky has continually lagged behind the nation and the state in terms of economic growth and prosperity. Unable to rely on more traditional mechanisms for development, this region has turned to tourism to encourage economic opportunities. Given the importance of tourism and the expectation that the 511 Tourism Information Service will contribute to tourism, an evaluation of the program is both timely and necessary. In this paper we attempt to determine if and how the 511 Tourism Information Service has had an economic impact on tourism in Southern/Eastern Kentucky. We use data from a survey of 511 Tourism Information Service users, and industry data generated by the Kentucky Tourism Board. At this early stage of research, we feel that it is unlikely, given existing and available data, that a conclusive finding can be made. As such, we conclude the paper with a discussion of possible evaluation metrics and suggestions for data collection and program evaluation.

Keywords: economic development, information technology, program evaluation

Cynthia S.A. Wallace, Research Geographer, U.S. Geological Survey. Email: cwallace@usgs.gov; Stuart E. Marsh, Office of Arid Lands Studies, University of Arizona. Email: smارش@ag.arizona.edu; Characterizing the Spatial Structure of Endangered Species Habitat Using Geostatistical Analysis of IKONOS Imagery

Our study used geostatistics to extract measures that characterize the spatial structure of vegetated landscapes from satellite imagery. These measures were used to map endangered Sonoran pronghorn habitat for a study site in southwestern Arizona on the Cabeza Prieta Wildlife Refuge. Fine spatial resolution IKONOS data provided information at the scale of individual trees or shrubs that permitted analysis of vegetation structure and pattern. We derived images of landscape structure by calculating local estimates of the nugget, sill, and range variogram parameters within 25x25-meter image windows. Previous studies have shown that these variogram parameters, which describe the spatial autocorrelation of the 1-meter image pixels, can discriminate between different species-specific vegetation associations. By coupling the derived measures with Sonoran pronghorn sighting data, we constructed two independent models of

pronghorn landscape preference: a distribution-based model and a cluster-based model. The distribution-based model used the descriptive statistics for variogram measures at pronghorn sightings, whereas the cluster-based model used the distribution of pronghorn sightings within clusters of an unsupervised classification of derived images. Both models define similar landscapes, and both effectively predict the locations of an independent set of pronghorn sightings. Such information, although not a substitute for field-based knowledge of the landscape and associated ecological processes, can provide valuable reconnaissance information to guide natural-resource management efforts.

Keywords: Geostatistics, IKONOS, habitat, NDVI, pronghorn

Iain Wallace, Carleton University. Email: iwallace@connect.carleton.ca; *God, Gays and Guerrillas [aka flying bishops]: Postcolonial Ecclesiastical Geopolitics in the Anglican Communion*

The Anglican Communion, the worldwide association of churches originating from the Church of England, has a geographical structure comprising national or regional churches that are essentially independent and territorially mutually exclusive. Institutional cohesion and doctrinal unity among member churches has until recently accommodated diverse expressions of theological understanding and has not been maintained authoritarily. However, recent moves within North American Anglican (Episcopal) Churches to become more inclusive of homosexuals has sharpened doctrinal differences and led to demands from some traditionalist priests, dissatisfied with their bishops, for "alternative episcopal oversight." Permitting such "flying bishops" to create inliers of alternative jurisdiction within existing dioceses undermines both theological and institutional coherence and potentially creates a geography of 'theological franchises.' As part of the changing global geography of Christendom, membership of Anglican churches in Africa now numerically dominates the Communion. These churches and their bishops are generally (not exclusively) theologically traditionalist, so the tensions within North American Anglicanism have created opportunities for traditionalists globally to develop transnational strategies to increase their control of the loosely-structured institutions of the Communion. This paper focuses in particular on links between the Church of Nigeria and traditionalist Episcopalians in the United States and the geographical re-imagining of the Church it entails. Postcolonial Christian theology has developed progressive critiques of western theological orthodoxy. The emergence of a Nigerian-led "Global South" within Anglicanism appears, however, to involve a geopolitics of institutional power that, rather than developing new theological understanding, aims to entrench traditionalist (and specifically anti-gay) doctrine.

Keywords: geopolitics, geography of religion, Anglican Church, postcolonial theology, Nigeria, United States

Maria A Wallis, Ph.D., King's University College, University of Western Ontario - Canada. Email: mwallis@uwo.ca; *Disease, Commerce and Global Health: The Racialization of SARS in Toronto, Canada*

The SARS crisis in Toronto was the result of social forces emerging from globalization and the emergent global network of cities. Advanced capitalism, in addition, has facilitated the structural conditions of transnational migration, the "just-in-time" characteristics of the labour market and the racial diversity of the labour force worldwide. This paper will focus on the racialization of the SARS crisis in Toronto by analyzing issues of white privilege, advanced capitalism and transnational migration.

Keywords: Disease, Commerce, Global Health, SARS, Racialization, Canada

Megan K Walsh, University of Oregon. Email: mwals2@uoregon.edu; Cathy Whitlock, Montana State University. Email: whitlock@montana.edu; Patrick J Bartlein, University of Oregon. Email: bartlein@uoregon.edu; Christopher A Pearl, USGS Corvallis Research Group. Email: chris_pearl@usgs.gov; *Reconstructing the Holocene Fire and Vegetation History of the Willamette Valley, Oregon and Washington, Using High-Resolution Macroscopic Charcoal and Pollen Analysis*

Debate concerning the state of the natural environment of the Americas prior to Euro-American settlement extends to the Pacific Northwest and even the Willamette Valley where it is unclear if pre-settlement vegetation patterns were a construct of the native inhabitants, or the result of natural environmental variations. The goal of this study is to reconstruct the Holocene fire and vegetation history of the Willamette Valley, using high-resolution macroscopic charcoal, pollen, loss-on-ignition, and magnetic susceptibility analysis of lake sediments, in order to understand the influence that both changing environmental conditions (e.g., climate variability) and anthropogenic activity (e.g., land management through the use of fire) had on those histories. Presented in this paper are results from four study sites: Battle Ground Lake, WA (a Holocene-length record), Beaver Lake, OR (a Holocene-length record), Lake Oswego, OR (a 3000-year long record), and Warner Lake, OR (a 1000-year long record). These records are currently being evaluated and compared with local tree-ring records, regional climate records, and local and regional archaeological/anthropo-

genic records in order to assess the role that both climate variability and human activities had in creating the Valley's prehistoric landscapes. So far these histories provide evidence of local vegetation and fire activity responding to both millennial- and centennial-scale changes in regional climate, and provide possible evidence of human influence on the ecological history of the Valley. Although these records go a long way in answering the climate versus human debate in the Willamette Valley, more records are needed to complete the picture.

Keywords: macroscopic charcoal, pollen, fire history, oregon

Stephen J. Walsh, University of North Carolina - Chapel Hill. Email: swalsh@email.unc.edu; Sean A. McKnight, University of North Carolina - Chapel Hill. Email: mcknight@email.unc.edu; *Composition and Spatial Structure of Turf-Banked Terraces in Glacier National Park, Montana, USA*

Turf-banked terraces are studied across five sites within the alpine treeline ecotone (ATE) in Glacier National Park, Montana, USA. Widths of vegetation risers and rock treads were collected along 55 field transects positioned in five distinct basins located on the east-side of the Continental Divide. Slope angle, slope aspect, and elevation of the 50-meter transects were measured in the field and by using a 10-m digital elevation model; their geographic position was described using Earth coordinates collected using a GPS. Run-length coding was used to describe the extent and sequential properties of the risers and steps for the field transects. The transect data were analyzed using measures of composition, spatial structure (i.e., using semi-variograms and pattern metrics), and cluster analysis and Principal Components Analysis to relate field transect of similar compositions and spatial organization to a set of terrain descriptors. Results indicate that solifluction terraces exhibit a typical composition and spatial structure with a greater variety of widths for vegetation risers than rock treads. An association exists between terrace structure and elevation: lower elevation terraces exhibit less spatial structure and higher vegetation composition. Lack of spatial structure and high vegetation content indicate relict turf-banked terraces whose rock treads have been colonized by *Dryas* vegetation present on neighboring terrace risers.

Keywords: Solifluction, turf-banked terraces, spatial structure of steps and risers, semi-variograms, ecological pattern metrics, Glacier National Park, Montana, USA

Andy Walter, University of West Georgia. Email: awalter@westga.edu; *Mapping the Geographical Politics of the Coalition of Immokalee Workers: The Spaces, Scales, and Places of the Taco Bell Campaign*

This paper examines the geographical politics of the Coalition of Immokalee Workers' (CIW) fair wage campaign against Taco Bell. The CIW was formed in 1993 by a small group of farmworkers in south Florida with the goal of improving conditions in the fields and community in which they worked and lived. By 2006 the CIW had received nationwide attention for a variety of successful human and workers' rights campaigns, including one against the parent company of Taco Bell, Yum! Brands, that substantially raised the wages of any worker in Immokalee, Florida, who picks tomatoes purchased by the fast food retailer. The Taco Bell campaign, which represented an important victory for workers' organizations in the contemporary United States, strategically targeted the production chain of a multinational corporation and demonstrated that marginalized groups are not powerless to (re)shape structures of the world economy in which they struggle to make a living. In this paper I analyze the geographies of the CIW's successful Taco Bell campaign, emphasizing its spatial and scalar dimensions and dynamics as well as the crucial role of place.

Keywords: food, labor, political, economic

Claudia K. Walters, University of Michigan-Dearborn. Email: ckwalter@umd.umich.edu; Julie A. Winkler, Michigan State University. Email: winkler@msu.edu; *The Synoptic-Scale Environment of Northerly Low-Level Jets*

In an earlier portion of this study, the airflow patterns of northerly low-level jets (NLLJ) were investigated at the level of maximum wind as identified at individual rawinsonde stations. Jet events were categorized into sixteen airflow configuration types using a subjective map-typing approach based on isotach and streamline patterns on isentropic surfaces. In this portion of the study, the synoptic-scale environment of NLLJs is investigated. First, the sea-level pressure (SLP) fields for all 0000 and 1200 UTC observation times for 1991 were grouped objectively using a K-Means clustering algorithm. Unique sea-level pressure patterns were identified and composite SLP fields derived. Then, the location of a rawinsonde station where a NLLJ maximum was observed was superimposed onto the SLP composite for the corresponding time period. The stratification of NLLJs by airflow type, elevation, and wind speed revealed that (a) the preferred location for NLLJs relative to surface pressure features varies by airflow configuration type, (b) strong northerly LLJs with well-defined speed maxima in the vertical (i.e., jet noses) are observed with only a few configuration types, (c) differences in the elevation of jet noses are evident for different synoptic

patterns.

Keywords: climatology-synoptic, low-level jet, North America

William Walton, University of Aberdeen. Email: w.walton@abdn.ac.uk; *The Changing Geography of Tort Reform in the USA*

The reform of the US tort system is a central objective of the Federal and various state administrations in the USA. They claim that the abuse of private law suits through, for example, the pursuit of so-called frivolous and spurious class actions, imposes high costs on business activity and is prejudicial to wealth creation. At the Federal level the Bush administration has had mixed success in attempting to introduce reforming legislation; its Class Action Reform Act has placed limits on the availability of class actions but its efforts to introduce an asbestos compensation fund to cap liabilities have so far failed. At the state level, however, there have been numerous initiatives successfully introduced including those curbing claims against medical malpractice and malfunctioning products as well as those limiting the availability of punitive damages to successful plaintiffs. This paper considers the arguments for tort reform in the USA and then examines its geographical dimensions.

Keywords: Tort; law; reform; USA; class-action

Margaret W. Walton-Roberts, Associate Professor, Wilfrid Laurier University. Email: mwalton@wlu.ca; *Transnational Entrepreneurs and the Trade and Immigration Debate*

Global economic processes are intimately tied to the global circulation of people, yet convincing illustrations of these linkages are limited by a lack of reliable data. For example in the case of trade and immigration economists have been intrigued by the link, yet struggle to model and quantify it. Recently social scientists interested in transnational entrepreneurs have explored the trade-immigration connection, and the immigrant entrepreneur has been interpreted as the archetypal transnational actor, despite the gendered and classed limitations of this view. In this paper I examine trade and immigration links between India and Canada. In place of economic models and measures I use qualitative material gathered from traders and government officials in order to supply more satisfying examples and explanations for how trade and immigration might be linked within a transnational framework. Using this approach highlights other processes at work such as; the deployment of complex and contradictory stereotypes, the role of the state, and the need to decentre economic explanations in the consideration of complex economic interactions that are actually deeply culturally embedded. I conclude by arguing that attempts to represent these links quantitatively fails to capture the complexity of immigrant actions with regard to trade development between India and Canada, and suggest that this inability to quantify the extent of such relations may actually be a positive thing.

Keywords: immigration, trade, India, Canada, transnational

Wai-San Sancia Wan, University of Hong Kong. Email: wss@graduate.hku.hk; *The Role of the Skywalk System in the Development of Hong Kong's Central Business District*

Despite arguments for decreasing physical interpersonal business contacts, largely concluded from widespread use of new telecommunication technologies, one can still easily find the greatest concentration of offices, the largest vehicular and pedestrian traffic, and the highest density of tallest buildings in many central business districts (CBDs). Because of high functional diversity and development density, the CBD of Hong Kong has an extensive network of pedestrian facilities, including street-level, elevated and underground passages, linking many commercial buildings to accommodate the amazingly high flows of pedestrians, particularly during the daytime of weekdays. In this paper, I firstly examine the spatial pattern of the CBD skywalk network in Hong Kong in relation to the spatial extent and the location of major transportation nodes in the CBD. Using data collected from pedestrian counts on the skywalks during weekdays, I then quantitatively analyse the pedestrian flow patterns characterising commuting and business trips within the skywalk network, as well as exploring the relationship between these patterns and connected structure, including types and densities of buildings and transport infrastructure. In addition, I make general comparisons between the results of my pedestrian counts and those of studies of other cities, such as Lower Manhattan and the CBD of Minneapolis. As evident from the intense connections and dense pedestrian flows, the study finds that, the skywalk system with growing spatial extent has successfully encouraged people from further parts of the CBD to interact, and thus facilitated the internal linkages of the area.

Keywords: central business district, CBD, skywalk, pedestrian walkway, Hong Kong

Baoling Wang, UBC. Email: baoling@interchange.ubc.ca; *Canadian Firms in China's Mining Industry*

The world has witnessed China's growing importance in world mining and metals markets both as a major producer and consumer since the early 1990s. Two decades of rapid industrialization and sustained high overall economic growth has fuelled the demand for industrial minerals in China, which accounted for almost half of the increase in global demand over this period. On the other hand, frequent and rampant explosion and other accidents in China's coal mines also shocked the world and invited more intense attention on the mining industry in the country. This paper thus provides a close examination of the mining industry in China, including its development, regulation/policy involvement, and challenges facing the industry. China's voracious appetite for minerals combined with recent regulation reforms in the industry have led to growing enthusiasm on the part of the international mining community to participate in the development of China's mining industry. As one of the strongest competitors in global mining sector, Canadian companies have been among the leaders in exploring Chinese mining potential since the early 1990s, especially in the gold sector. Canadian presence in China's mining industry is one of the few bright spots of Canadian FDI in the country. This paper explores Canadian firms in China's mining industry, including their entry modes, geographical distribution, and specifically opportunities and challenges these firms face in China. It aims to answer such a question as "on balance are home or host country factors at work in causing difficulties for Canadian companies in China's mining industry?"

Keywords: Mining industry, China, Canada

Cuizhen Wang, University of Missouri. Email: wangcu@missouri.edu; Bo Zhou, University of Missouri. Email: bz9n9@mizzou.edu; Harlan L. Palm, University of Missouri. Email: PalmH@missouri.edu; *Detecting Invasive Sericea Lespedeza (Lespedeza cuneata) in Mid-Missouri with Hyperspectral data*

Weed invasion is a current threat to productivity in croplands and biodiversity conservation in natural ecosystems. Missouri ranks the second in cow-calf numbers in the nation and its pastureland has experienced invasion of many plant species. Sericea lespedeza (*Lespedeza cuneata* L.) is one of these invasive weeds and is becoming a serious threat to pastures in Missouri. Multi-spectral remote sensing application in weed invasion is limited because the spectral signature of the weed is often mixed with natural vegetation. In this study we applied hyperspectral remote sensing to detect sericea and to map its invasiveness in pasturelands. One public and one private grass fields in Mid-Missouri were selected as study areas. From June 15th to August 24th, 2006, we visited the study fields five times to collect the spectral data (350nm-2500nm) with the Analytical Spectral Devices (ASD). A hyperspectral spectral library of sericea and tall fescue (*Festuca arundinacea*), the major natural grass in pasturelands in Missouri, was built. On August 24 the airborne hyperspectral image was acquired with the AISA Imager developed at the Center for Advanced Land Management Information Techniques (CALMIT), University of Nebraska. The image has a spatial resolution of 1 meter and spectral resolution of 2.9nm in the range of 430-900 nm. This study examined the optimal time and spectral bands to separate sericea from fescue. The classified fescue map will serve as a first step in alerting landowners and the general public about the seriousness of the problem in pastures and natural ecosystems.

Keywords: invasive weed, hyperspectral remote sensing

Donggen Wang, Hong Kong Baptist University. Email: dgwang@hkbu.edu.hk; *Activity and Time Use Patterns in Virtual Space: An Empirical Study of Hong Kong*

Time allocation to daily activities in physical space has been an important topic of activity-based travel behavior analysis for decades. The penetration of Information and Communication Technologies (ICT) into individuals' daily life has led to more time spent in virtual space for activities such as internet-based browsing, shopping and entertainment. The fact that every person has a time constraint of 24 hours a day implies that if more time spent for activities in virtual space, less time might be used for activities and travel in physical space. Alternatively, activities in virtual space may lead to more activities and travel in physical space. In order to better understand individuals' activity-travel behavior in physical space, it becomes important and imperative to study their activity and time use patterns in virtual space. This paper presents some empirical evidences on the types of activities that individuals conduct and the time they spend in virtual space. Data are derived from the 2005 thematic household survey on information technology usage and penetration conducted in Hong Kong. The survey involves 10,092 households. Analytical methods including statistical tests and regression models are employed to identify the factors influencing activity and time use patterns in virtual space. The socio-economic variables of individuals and the availability of and accessibility to various ICT products are found to be significant determinants.

Keywords: time use, activity patterns, virtual space

Enru Wang, University of North Dakota. Email: erwang@und.nodak.edu; *Services Growth and Regional Development in China*

The uneven development of regional economies in China has become the subject of increasing scholarly attention in recent years. The patterns of regional variation in service development and the contribution of service industries to regional economic development remain poorly explored. Using newly released data, this paper analyzes the levels and trends in regional variations in services and examines the contribution of services to the economic base of regional economies in China. Although China is now often referred to as a rising "global factory" where manufacturing is of vital importance in the rapidly industrializing economy, the paper demonstrates the increasing significance of service industries in economic growth and their uneven development among regions. It also argues that economic restructuring in China is similar to the trajectory of developed countries in some ways and "tertiarization" of the economy seems to be an inevitable trend; nevertheless, the dynamics of changes towards an increased role for services in China displays some idiosyncrasies, as many transition-related factors (such as market-oriented reforms and shifting developmental strategies at both national and local levels) have played an important role in the processes of economic restructuring and regional development.

Keywords: services; regional development; regional inequality; economic restructuring; reform; China

Eugenia Wang, PhD Candidate, University of British Columbia. Email: ginawang@interchange.ubc.ca; *"this society eats their children": separated youth asylum seekers, refugee determination, and challenges to the Canadian state*

Traditionally, debates about citizenship, democracy, and state formation have largely neglected to include an analysis of the roles of young people within these larger theoretical discussions. This paper will draw upon Arendt's (1986) work on refugees and statelessness as well as contemporary concerns with the intersections of geography and law as a means of exploring the relationship between refugee youth, discourses of citizenship, and the nation-state. In the past decade, Europe and North America have seen significant increases in the numbers of unaccompanied/separated children who are entering their countries and seeking refugee asylum status. Gibney (2004) identifies a kind of 'schizophrenia' that accompanies Western nations' responses to asylum seekers and refugees that is demonstrated through public displays acknowledging their legal responsibilities to refugees, while at the same time implementing ever restrictive measures aimed at keeping the asylum seeker from reaching the territorial borders of the nation. Through an examination of asylum decisions of separated youth that were adjudicated by the Immigration and Refugee Board of Canada, I explore the ways that historical and contemporary representations of 'refugeeness' and 'childhood' merge to perpetuate the construction of refugee youth as 'alien', 'non-citizen', and 'other.' Throughout the paper, a central concern is with developing a theoretical analysis and understanding of the ways refugees, particularly separated refugee youth, call forth certain ethical and political responses and the geographies of how such responses are exercised and enacted upon within the context of larger debates on citizenship and state formation.

Keywords: refugee, citizenship, nation-state, youth geographies

Fahui Wang, Northern Illinois University. Email: fwang@niu.edu; *Cancer Disparities in Illinois: Exploring Multilevel Determinants of Late-Stage Diagnosis*

Early diagnosis is critically important in efforts to reduce mortality and improve quality of life for cancer patients. In the U.S., there are wide disparities in cancer stage at diagnosis that reflect underlying variations in early detection tied to social, economic and geographic disparities. This presentation examines geographic variation in late-stage cancer in Illinois and the relationship with spatial access to primary care, cancer screening services and other socio-demographic covariates. We argue that the risk of late-stage disease varies not only with individual socio-demographic characteristics, but also with contextual factors including spatial access to health care. These associations are examined using multilevel modeling with data from the Illinois State Cancer Registry. Breast, colon and prostate cancers, all of which are amenable to early detection, form the focus of the study. Findings reveal that spatial access to primary health care is important and that it often reinforces inequalities based on race and rural-urban location.

Keywords: Late-stage cancer, healthcare access, GIS, multilevel modeling

Fei Wang, Louisiana State University. Email: fwang3@lsu.edu; Nina Lam, Louisiana State University. Email: nlam@lsu.edu; *Land Cover/Use Classification, Change Detection, and Predictive Modeling Using Genetic Algorithm and Cellular Automata*

Genetic algorithm offers a promising approach to analyzing many complex geographic problems. However, its capability and performance, in terms of land cover/use classification, change detection, and predictive modeling, has not been well understood. The primary goals of study are: 1) To examine the relationships among the accuracy of genetic algorithm based land cover/use classification, genetic operators / parameters, and spatial scales; 2) To examine the capability and performance of genetic algorithm in land cover/use change detection; 3) To examine the capability and performance of genetic algorithm based cellular automata in land cover/use predictive modeling. The study area, namely Tickfaw River watershed (711mi²), is located in the southeast Louisiana and southwest Mississippi. The major dataset includes Landsat TM/ETM images, DOQQs, aerial photographs, topographic maps, transportation maps, and DEM. The finding from this study can be used to better understand genetic algorithm and the process of land cover/use change, which can help in developing sound natural resource management policies.

Keywords: land cover/use study, genetic algorithm, cellular automata

Guorong Wang, California State University, East Bay. Email: guorongwgr@yahoo.com; Gary Li, California State University - East Bay. Email: gary.li@csueastbay.edu; *Seeing the Great Wall of China from Space*

Whether the Great Wall of China is visible from space by naked eye has been discussed by many with conflicting stories from astronauts and media. Chinese scholar Dai et al published a paper in the journal Physics (2005). Based on the analysis of visual recognition to point objects, Dai et al concluded that astronauts cannot see the Great Wall of China from space of 320 km above ground. However, our recent analysis lands on a contradictory conclusion. Based on the visual acuity of the human eye to linear objects which is much more recognizable than point objects from distance, the Great Wall of China should be able to be seen from space although Earth surface or near Earth surface condition may sometimes dampen the success of such an event.

Keywords: astronauts, visual acuity, analysis, Great Wall of China

He Wang, Syracuse University. Email: whqt@hotmail.com; *Global Production Networks, the Role of the Chinese State: the Guangzhou Automotive Industry*

In this globalizing era, the role of the state in its national economy has been reshaped by the footless capital, the supranational economic power and its historical institutional characteristics. Pressures on developing countries are changing the role that state can play both internationally and within their borders. While the Chinese state is still powerful in its economy and other social areas. Even within the global production networks, facing the global auto makers, it still has its own strategies to promote the domestic economic development. The formation and evolution of the Guangzhou automotive industry cluster has become a new hot bed of the automotive industry and regional development policy research. This paper, from the theoretical perspective, examines the role of the Chinese state in the Guangzhou automotive industry cluster within the frameworks of global production network, together cluster theory, state theory and institutional turn in economic geography; from the empirical perspective untangles the process of the formation and development of the cluster, within the context of the changing environment, especially after the access of China to WTO Previous work on China's automotive industry has focused on either the guidance of the government or the typical automotive firms in Changchun and Shanghai. I assert that the Guangzhou automotive industry is one case with on the one hand its special characteristics of the location and the Japanese auto makers cluster; on the other the general mechanism with could be adopted in other regions for their economic development.

Keywords: global production network, Guangzhou automotive industry, the Chinese State

Hungkai Wang, Professor, National Taiwan University. Email: hungkaiw@ntu.edu.tw; You-Ren Yang, Dr., National Taiwan University. Email: yyren@ms34.hinet.net; *The experimental redevelopment of "village in the city" in urban China: The Case of Senzheng*

The phenomenon of "village in the city" had attracted many attentions of scholars in urban China's study. However, few had noticed the redevelopment of such special village in the context of urban development. Furthermore, from our earlier exploration, we observed that Senzheng had become the pilot of urban institutional reform in China. Therefore, by investigating the experimental redevelopment of two "village in the city" in Senzheng?the Yu-min village and Yu-nong village, this article aims to explore the mechanism of such specific urban renew from the perspective of China's urban-rural transition. By such

exploration, we hope to point out some new trends in China's urban development, especially the consequence of China's dual-track land institution, as well as the urban policy to solve such socialist historical debts.

Keywords: urban redevelopment, village in the city, urban-rural transition, property right, land institution, urban policy

James Jixian Wang, Dr., School of Geography, University of Hong Kong. Email: jwang@hkucc.hku.hk; *Economic Coastalization and Port Development in China*

After the economic prosperity boomed in the Pearl River Delta of Guangdong Province and then in the Yangtze River Delta centered at Shanghai, other provincial governments have begun to plan their economies towards the coast wherever possible. Special attention is given to the economical restructuring of coastal cities within each province. A stronger hand of state in each level of local government with huge visible or invisible sunk costs in port and related infrastructure has substantially changed the distribution of ports and terminals along the Chinese coast, leading to a fierce competition among port cities for better global connectivity and accessibility. Each of these port cities however, has to accommodate two 'super powers' in order to go further. One super power is the central government, to which the local needs its 'official recognition' such as the city being listed as 'hub port' in the National Port Development Plan by the Ministry of Communications. The other super power is market forces, often represented by the international shipping lines that choose port of call according to the cargo demand. This paper illustrates how the port cities dance with the two super powers and the possible outcomes of this process of coastalization.

Keywords: Port, China, Economic Development

Jialing Wang, Slippery Rock University of Pennsylvania. Email: jialing.wang@sru.edu; *The Impact of Urban Development on Longleaf Pine Forests in the Red Hills Region*

Longleaf pine-wiregrass ecosystem is an important ecosystem in the Southeastern Coastal Plain. It contains the greatest diversity of plant life ever found in a temperate zone. However, the number of longleaf pine forests has been drastically reduced in the past century. This study intends to explore the relationship between the urban development and longleaf pine forest landscape change in the Red Hills Region of south Georgia and north Florida. The case study region is chosen due to that this area has a significant amount of privately-owned relatively undisturbed longleaf pine forests. The land use/land cover and longleaf pine habitats in this region are mapped using time-series Landsat 5 TM images. The changing characteristics of the landscape from 1987 to 2005 are investigated using landscape metrics.

Keywords: Longleaf pine forest, Urban, Landsat TM, Landscape Metrics

Jiao Wang, Texas State University - San Marcos. Email: jw1501@txstate.edu; *Research for geometric correction method of Beijing-1 remote sensing image*

The Disaster Monitoring Constellation is the first satellite cluster dedicated to monitoring disasters from space and will provide more frequent and reliable images to relief agencies. The aim is to provide the ability to revisit and return imagery from any part of the globe, on a daily basis. China launched a Disaster Monitoring Constellation satellite last year, officially known as "Beijing-1". This study makes some research for the Beijing-1 image geometric correction method. The image was acquired in November 2005, 600 kilometers in breadth, covering the North China area with the capital Beijing in the centre. In this research, the geometric correction is carried on according to 129 pieces of 1: 100,000 topographic maps. Nearly 200 control points are collected, as far as possible distributing in the entire picture, including the boundary and four edges. Geometry distortion is discovered in the mountainous region area, as a result of the hypsography change. While in the plain area, the obvious geometry distortion was little. Therefore, select more points in the mountainous area, with the bigger point density, 2-3 times which of the plain area, regards to the situation. The finite element model is adopted for the space position transformation. The advantage is making the coordinates of the image consistent with its corresponding coordinates on the topographic maps completely. By selecting adequate control points, adopting finite elements to do space position transformation, the geometric correction precision of Beijing-1 remote sensing image can satisfy the following land use and land cover change research requirement.

Keywords: geometric correction, disaster monitoring constellation, finite element

Le Wang, Texas State University. Email: lewang@txstate.edu; silvan jose, Texas State University. Email: ; *Classification and density mapping of Saltcedar using Landsat TM, ASTER, QuickBird and AISA imagery*

In the Rio Grande basin, water shortage has been significantly impacted by the invasion and spread of one invasive weed species: Chinese tamarisk (*Tamarix chinensis* Lour.), also known as saltcedar. In order to gain a better understanding of implications of saltcedar to the water shortage problem, it is critical to map the extent and density of the occurrence of saltcedar in a large spatial area. In this study, remote sensing at various spatial resolutions, ranging from Landsat TM, ASTER to QuickBird and AISA were employed for the purpose of species classification and density mapping. Results indicated that hyperspectral AISA imagery achieved the best classification accuracy at species level and Landsat TM imagery achieved a promising accuracy in estimating the density of saltcedar.

Keywords: classification, remote sensing, invasive species

Lei Wang, Texas A&M University. Email: wanglei@geog.tamu.edu; Hongxing Liu, Texas A&M University. Email: liu@geog.tamu.edu; *Investigating Impacts of Natural and Human-induced Environmental Changes on Hydrological Processes and Flood Hazards Using a GIS-based Hydrologic/Hydraulic Model and Remote Sensing Data*

Natural and human-induced environmental changes have been altering the earth's surface and hydrologic processes, and thus directly contribute to the severity of flood hazards. A detailed flooding scenario analysis using analytical hydrologic/hydraulic models is performed in Houston area of Texas. Using a time series of Landsat images, a retrospective analysis of surface imperviousness has been conducted to assess the hydrologic impact of urbanization. The analysis reveals that with rapid urbanization the impervious surface has been increased from 10.1% to 38.4% for the case study area during 1974 - 2002. As a result, the peak flow for a 100-year flood event has increased by 20% and the floodplain extent has expanded by about 21.6%. The quantitative analysis suggests that the large regional detentions basins have effectively offset the adverse effect of increased impervious surface during the urbanization process. Based on the simulation and scenario analyses of land subsidence and potential climate changes, some planning measures and policy implications have been derived for guiding smart urban growth and sustainable resource development and management to minimize flood hazards.

Keywords: Environmental change, flood, hydrologic/hydraulic model

Linda Q. Wang, Ph.D, University Of South Carolina Aiken. Email: lindawa@usca.edu; *Tourism in China?an industry undertaking capitalism and individualism*

Prior to 1985, tourism in China was a state monopoly. Controlled and regulated by the Chinese government, intra-national tourism in China was more of a political strategy deployed in its international diplomacy rather than a consumer service with economic potentials. In 1985, a law was passed to end state monopoly of tourism and thus started an era of commercial tourism in China. Tourism since has been pursued primarily for economic gains. Active promotion of China's tourism resources has attracted growing number of international tourists and the volume of intra-national tourist flows in China is expanding steadily. Through my participant observation as a faculty escort to a learning tour in China during Summer 2005, this paper attempts to analyze the current characteristics of China's intra-national tourism and the mechanism in place for service quality control. Preliminary results of the analysis point to some fundamental changes in China's service industry and significant growth in business professionalism within the lingering web of collective socialism.

Keywords: China, tourism, intra-national tourism, business professionalism

Lu Wang, Dr., Ryerson University. Email: luwang@ryerson.ca; *Immigration, Ethnicity, and Accessibility to Culturally Diverse Family*

The study concerns ethnicity, spatial equity, and healthcare access in the context of diversity and integration. The paper first explores how Chinese immigrants in the Toronto Census Metropolitan Area choose between ethnic Chinese family physicians and other family physicians, based on a probability survey. It then applies and modifies gravity-type accessibility measures, of which a special type is the so-called floating catchment area (FCA) method, to evaluate three types of geographical accessibility in family physician utilization. The data used in accessibility calculation includes information about the location and language ability of physicians that were obtained from the CPSO (College of Physicians and Surgeons in Ontario), as well as geo-referenced census data at a census tract level. The study suggests a certain degree of spatial inequality among Chinese immigrants in accessing culturally sensitive care. The paper yields important methodological and policy implications.

Keywords: accessibility, ethnicity, and physician

Ophelia Wang, University of Texas. Email: opheliawang@mail.utexas.edu; Kenneth Young, University of Texas at Austin. Email: ; Rodrigo Sierra, University of Texas at Austin. Email: ; Milton Tirado, Herbario Nacional en Ecuador. Email: ; *Causes and consequences of heterogeneity in tropical rain forest: A multi-scale study from the Ecuadorian Amazon*

Tropical rain forests are remarkable not only for their high number of species, but for their great spatial heterogeneity, associated with subtle topographic changes, legacies of past disturbances, and resulting habitat diversity and other place-to-place changes in forest structure and composition. This project documented the fine-scale patterns of trees and palms found on two one-hectare plots inventoried for all plants with woody stems >greater than 10 cm in diameter. Each of the two tree inventory plots had approximately 580-620 individuals and consisted of 180-220 species. The dominant genera included Virola, Eschweilera, Oenocarpus, Inga, Ocotea, Pouteria, Licania, and Micropholys. There is little overlap in the composition of dominant species compared to the Amazonian forests in Yasuni National Park about 150 km away in northeastern Ecuador, indicating different forest communities, species distribution, and possible species endemism in the study area. There appeared to be two or three different tree communities within each plot, suggesting spatial heterogeneity of species diversity and distribution even at scales of 10 to 40 m. The average percentage canopy openness and leaf area index of the two plots were 5.6 and 3.7, respectively, and some within-plot heterogeneity appeared to be associated with changes in light environment. Ongoing and planned research will attempt to use this fine-scale detail to generalize to larger areas of rain forest in the study region through the use of high and relatively coarse remote sensing products (Quickbird, Landsat ETM).

Keywords: Biodiversity, Scale, Tropical forests

Qian Wang, University of Iowa. Email: qian-wang@uiowa.edu; George P Malanson, . Email: george-malanson@uiowa.edu; Analysis of Effects of Landscape Pattern on Species Dynamics Using Colonization - Competition Models

Abstract: The objective of this research is to gain better understanding of the effects of the representation of spatial pattern on species dynamics in the competition - colonization (CC) class of ecological models. With the rapid development of human society, habitat destruction, as a global environmental problem, has been realized as an important factor that causes the extinction of species, which interests many ecologists. I will use an extinction debt model, a spatially explicit version of the CC class of model, to study the effects of different quality and structure, and changing pattern of landscapes on simulated species dynamics. The model will include five theoretical species with hierarchical competition, reproduction, dispersal, and mortality inhabiting on an artificial landscapes consisting five landscape types. Landscape metrics will be used to quantify the different patterns and structures of landscapes. Sensitivity analysis will be used to analyze effects of different settings of landscapes; and correlations and visual interpretations will be used to examine the relationships between spatial metrics and species diversity and evenness over the course of the simulation. These simulations can allow me to assess how spatial representations in landscape ecology could affect interpretation of the effects of habitat fragmentation on species dynamics as applied to biological conservation.

Keywords: Landscape pattern, species dynamics, simulation models

Qingfang Wang, University of North Carolina at Charlotte. Email: qwang7@email.uncc.edu; Ethnic Entrepreneurship and Urban Contexts: Asian Self-employment in the US South

Previous research suggests that entrepreneurship can provide ethnic minorities and women a springboard for economic progress and social integration. However, rates of self-employment are different among ethnic groups, between men and women, and in different places. The prevailing literature suggests that personal characteristics, human capital, discrimination, ethnic networking, and institutional regulations are all associated with ethnic entrepreneurship. However, very few recent studies have analyzed how different urban socioeconomic contexts influence this process. Using the Public Usable Microdata Samples (PUMS) in year 2000, this quantitative study examines how Asian ethnic entrepreneurs perform in three different metropolitan areas in the US South. The results show that gender, education, length of stay in the US, and different nationality among the Asian subgroups are significantly associated with self-employment. At the same time, the ethnic diversity, history of immigration, and the economic structure in each local area have provided different opportunities and challenges for Asian ethnic minorities to start up and maintain their own businesses. For example, in the established immigration gateways, the long history of immigrant settlement frequently has evoked an organizational, service-delivery, and advocacy infrastructure familiar with the needs of immigrants and their families. In contrast, the new immigration destinations may not have these facilities. This study suggests that the process of economic incorpora-

tion of ethnic minorities depends significantly on the institutional capacity and social, cultural and political resources of local communities.

Keywords: Ethnic entrepreneurship, Asian Americans, urban contexts, American South, immigration

Shaowen Wang, University of Iowa. Email: shaowen-wang@uiowa.edu; Marc P Armstrong, The University of Iowa. Email: marc-armstrong@uiowa.edu; Mary Kathryn Cowles, The University of Iowa. Email: kate-cowles@uiowa.edu; Wenli He, The University of Iowa. Email: wenli-he@uiowa.edu; Yan Liu, The University of Iowa. Email: yan-liu-1@uiowa.edu; Brian J. Smith, The University of Iowa. Email: brian-j-smith@uiowa.edu; Jun Yan, The University of Iowa. Email: j-yan@uiowa.edu; Junfeng Zheng, The University of Iowa. Email: junfeng-zheng@uiowa.edu; Developing GISolve as a TeraGrid GIScience Gateway for Geographic Information Analysis

Grid computing has emerged as a key focus of scientific research during the past five years. We will present a U.S. National Science Foundation TeraGrid Science Gateway for GIScience. This Gateway is designed to provide user-friendly access to computational Grids, and to help non-technical users directly benefit from access to TeraGrid capabilities. GISolve has been developed based on a service-oriented architecture that allows scalable integration between geographic information analyses and basic Grid services. Several analysis methods have been integrated within GISolve as a way to prototype a workflow engine for generic cyberinfrastructure-based geographic information analysis. This workflow engine supports interoperable access to both TeraGrid and Open Science Grid computational resources based on the GridShell and Globus Toolkit 4 technologies. In this presentation, a Bayesian geostatistical model is used to demonstrate how the GISolve architecture can be adapted to support communication-intensive parallel geographic analysis applications. To fit this Bayesian geostatistical model, Markov chain Monte Carlo (MCMC) methods that require linear algebra operations are used; these are computationally intensive when the number of measurement locations is large. Because an MCMC sampler typically must be run for thousands of iterations, each requiring numerous operations, the run-time for sequential Bayesian algorithms quickly becomes prohibitive. Even with parallel MCMC algorithms running on single clusters, run-times may be unacceptable, especially for large geographic datasets. Therefore, Grid-based cyberinfrastructure provides an ideal platform to develop parallel MCMC algorithms for Bayesian geostatistical models by taking advantage of dynamically configurable Grid resources that can be expanded to accommodate large problems.

Keywords: Bayesian geostatistical models, Cyberinfrastructure, Markov chain Monte Carlo, Service-Oriented Architecture (SOA), TeraGrid Science Gateway

Shuguang Wang, Ryerson University. Email: swang@ryerson.ca; Foreign Retailers in China Revisited: Who Are Winners?

Since China's admission to the WTO in 2001, significant changes have taken place in both the market conditions and its regulatory system including the elimination of unconventional trade barriers. This has provided further opportunities for foreign retailers to expand in China. In this paper, the author revisits the major foreign retailers with regard to their growth patterns and performance. It is found that the Western retailers, which possess the most resources and do business with advanced information technologies and in new retail formats, are taking the lead in penetrating the Chinese market. Those from Southeast Asia, which mimic the Western retailers by copying the hypermarket format, have also expanded with impressive results, but their staying power is unclear. Although the Japanese retailers received the least negative publicity, they have made the least inroad into the Chinese market due mainly to the economic difficulties of their parent companies and the less competitive format that they adopted to expand in China. This paper also notes that the battle among foreign retailers for a share of the Chinese market will become more intense, as a number of foreign retailers are moving towards "independence" in an effort to consolidate their power in business decision making, and new players including the American Best Buy, Home Depot and Business Depot, all have firm plans to enter the market through the path of acquisition.

Keywords: internationalization of retailing, China

Wenfei Winnie Wang, Ph.D, UCLA. Email: wfwang@ucla.edu; Cindy Fan, UCLA. Email: fan@geog.ucla.edu; Economic and social impacts of return migration in China

Urban-rural return migration may have significant impacts on rural development and reducing urban-rural inequality in developing countries. Through their migration experience in cities, temporary migrants have acquired skills as well as experience, and have been exposed to the urban life style and different social values. Once migrants return, they bring back not only capital and improved human capital, which may facilitate their engagement in economic activities in rural areas, but also new life styles and new points of views on social

life, which may have direct impact on their own family relations as well as the natal villages. This paper analyzes the economic and social impacts of return migrants on their rural communities on the basis of an empirical study of Sichuan and Anhui provinces in China. It examines the economic and social impacts of urban-rural return migration, as well as the factors that influence these impacts, based on analyses including a binomial logit regression model. The findings of the paper have implications for policy makers on rural development strategies and for narrowing the economic gap between urban and rural societies in China.

Keywords: Urban-rural return migration, impact, China, rural development

Xiao Wang, Lan Mu, University of Illinois at Urbana-Champaign, University of Illinois at Urbana-Champaign. Email: xiaowang@uiuc.edu; Evaluating the suitability of the site selection in urban development using computational geometric methods

One of the central issues in the urban development is the site selection. A considerable literature introduces a variety of urban development models and assesses their effectiveness and suitability. Among the diverse approach to evaluate the urban growth pattern, few researches touch the base from the perspective of computational geometry. This paper aims at examining the suitability of proposed urban development sites by using their own internal shapes and external spatial relationship among neighboring areas with different land use type. For example, Alpha shape and Beta skeleton, among others, can be applied to conduct the analyses for external and internal shapes of a set of points. Our experimental designs are based on several simulated areas with various shape and land use function, i.e. from regular square shape to irregular polygon; land use types are changing from residential area, industrial area, open space, to commercial area, etc. We need to modify and expand point-based methods to evaluate polygons. In addition, a set of conversion rules will be generated in order to decide the level of difficulty for making conversion among different land use type. These rules are determined by the empirical research. The expected results include demonstrating that the computational geometry perspective is an effective addition to deal with site selection problems, and also developing a series of empirical rules to perform more complicated analyses for the real world problems. The methods will be implemented in an integrated GIS environment.

Keywords: Site selection; Computational geometry; GIS

Yi-Chen Wang, National University of Singapore. Email: geowyc@nus.edu.sg; Barry J Kronenfeld, George Mason University. Email: bkronenf@gmu.edu; Forest landscape change in the western New York from presettlement to the present

Understanding how human activities influence forest change and where that change occurs are both important issues for ecosystem management. This study compares data on tree species occurrence in Presettlement Land Survey Records (PLSRs) circa 1800 with recent US Forest Service Forest Inventory and Analysis (FIA) survey data to examine forest changes in western New York. Because the PLSRs and FIA have different sampling schemes and potential biases, the study first examines issues of comparability, and then develops appropriate methodology to compare forest composition at the times of the two surveys. Taxa that show the most significant increase or decrease in percentage are then modeled using geostatistical interpolation methods to investigate patterns of spatial change. Finally, possible reasons for observed non-spatial and spatial changes in taxa distributions are discussed. The results show that taxa which declined the most over the past two centuries include chestnut, beech, basswood and hemlock, while the greatest increases are observed in poplar, black cherry, red maple and ash. The decline of slow-growing species (e.g. beech, hemlock), and the corresponding increase in pioneer species (e.g. poplar, cherry) suggest that much of the change in forest composition may be due to the increased frequency of forest disturbance caused by changing patterns of human land use. Accidental introduction of non-native pathogens has contributed to the decrease of certain species, including chestnut and possibly beech. Evidence for the effects of climate change is inconclusive, and some southern species actually decreased in dominance since the presettlement survey.

Keywords: forest change, presettlement, New York

Yipeng Wang, Department of Geography, Texas A&M University. Email: wingedroc@neo.tamu.edu; Environmental Impacts of the Qinghai-Tibet Railway: An Initial Exploration

The recently completed Qinghai-Tibet Railway (QTR) is a major strategic investment by the central Chinese government for both economic and political purposes. Yet the environmental impacts of QTR have been debated since the project's inception, and currently are still not well understood. Relying on a variety of secondary databases, this paper conducts an initial investigation on QTR's environmental impacts from the perspective of landscape fragmentation. GIS-based RFLI (Road-Induced Landscape Index) analysis was conducted. Preliminary results indicate that the RFLI increased most prominently in cultivated vegetation and temperate steppes areas. Both conceptual and policy

implications of our findings will be discussed in detail.

Keywords: human-environment interaction, Qinghai-Tibet Railway (QTR), gis, landscape ecology

Young-Doo Wang, University Of Delaware. Email: youngdoo@udel.edu; Gerard Alleng, Center for Energy and Environmental Policy. Email: galleng@udel.edu; John Byrne, Center for Energy and Environmental Policy. Email: jbyrne@udel.edu; Holly Conte, Center for Energy and Environmental Policy. Email: hconte@udel.edu; Jyoti Karki, Center for Energy and Environmental Policy. Email: jyotik@udel.edu; Sharath Rao, Center for Energy and Environmental Policy. Email: psrao@udel.edu; Sebastian Jose, Center for Energy and Environmental Policy. Email: seby@udel.edu; Jennifer deMooy, Center for Energy and Environmental Policy. Email: jdemooy@udel.edu; Andrew Belden, Center for Energy and Environmental Policy. Email: acbelden@udel.edu; Aditya Sood, Center for Energy and Environmental Policy. Email: asood@udel.edu; Synergic Effects of Sustainable Water and Energy Planning

Linkages between water and energy exist in numerous ways throughout the generation, distribution, and utilization phases of these resources. Water-energy nexus occurs during energy exploration, power generation, pumping water, water treatment, water distribution, and end uses of water and energy. Despite significant synergic benefits to be explored by taking a holistic view of energy-water nexus, the policy-level evidence supporting the link seems to be almost non-existent. To enhance synergic benefits, state and local governments could form partnerships between water and energy agencies in planning and implementation, especially given the initiation provided by federal legislation (as shown in several Sections of Energy Policy Act of 2005, including Sections 135, 136, 979, 1334 and 1860). This paper aims to explore state and local government strategies that can be used to derive water-energy nexus benefits. Current demand- and supply-side practices associated with energy and water integration are to be identified by conducting two surveys. A general fact-finding survey will be conducted to all 50 states and Washington DC. In addition, an in-depth survey will be conducted to those states and local governments that have already employed their initiatives. The survey results are to be coupled with a literature review to suggest the water-energy policy and program options that enhance synergic benefits in most effective ways.

Keywords: water and energy, linkages, synergic benefits, policy options

Elizabeth Edna Wangui, Ohio University. Email: wangui@ohio.edu; Pastoralism, crisis and interventionism: Understanding Maasai livelihood change in historical perspective

This presentation focuses on the Ilkisingo Maasai pastoralists of Loitokitok Division, Kajiado District, Kenya. The research discusses the major external environment and development interventions beginning with the colonial period. Using a political ecology framework, I examine the context surrounding each intervention and evaluate the impact on Maasai livelihood. I pay particular attention to the differential impact that Maasai livelihood change has had on men and women in the division.

Keywords: Pastoralism, Kenya, Arid and Semi-Arid Lands

James A. Wanket, California State University, Sacramento. Email: jwanket@csus.edu; A Holocene Pollen Record from Medicine Lake, Southern Cascades, California

A 2.2 meter-long sediment core from Medicine Lake, in the southern Cascades of California, yielded a record of vegetation change for the last 12,000 years. Fossil pollen suggests that this lake, on the dry leeward side of the Cascade and Klamath Mountains, was surrounded by a pine-dominated forest throughout the period of record. However, significant changes in aquatic and secondary terrestrial and pollen taxa through the Holocene are probably related to changes in effective moisture. Artemisia pollen was the dominant secondary terrestrial taxa between 12,000 and 7,000 cal yr BP, probably reflecting a sagebrush-montane forest ecotone that was higher on the slopes than today. From 7,000 cal yr BP until the present, Abies pollen has increased in importance at the expense of Artemisia, perhaps reflecting the lowering of the ecotone and a more consistent winter snowpack in the Late Holocene. This change in vegetation is consistent in timing and nature with those reconstructed from wetter sites in the Klamath Mountains and the Pacific margin. Variations in the abundance of Isoetes pollen in the Late Holocene likely represent regular oscillations in lake level driven by changes in effective moisture

Keywords: paleoecology, Holocene, pollen, northern California

John V. Ward, Environmental Dynamics Program, University of Arkansas. Email: jvward@uark.edu; *Land Use Change in the Illinois River Basin of Northwest Arkansas, 1941-2004*

An understanding of historical land use and land cover (LULC) patterns can provide valuable insight into the impact of human activities on the landscape, and can help to predict future trends with regard to anthropogenic driven landscape changes. This study utilizes aerial photography from the years 1941, 1982, and 2004 to map and quantify LULC changes in the Illinois River basin of Northwest Arkansas. Data sets were integrated into a GIS, and LULC was visually classified and quantified using a map generalization methodology. The preliminary results of this study indicate an increase in land clearing in valley bottoms and in the rural-urban interface, suggesting agriculture and urbanization as drivers of landscape change. In addition, reforestation in some areas of federally owned lands suggests resource management practices as an important driver of overall land cover change in the area. The study is part of a larger project that examines relationships between LULC change, basin morphometry, and stream channel geomorphology within the study area.

Keywords: Land Use, Land Cover, Land Change Science, Ozark Mountains, LULC, GIS

Neil Ward, University of Newcastle upon Tyne. Email: neil.ward@ncl.ac.uk; Peter Jackson, University of Sheffield. Email: p.a.jackson@sheffield.ac.uk; Polly Russell, The British Library. Email: polly.russell@bl.uk; Katy Wilkinson, University of Newcastle upon Tyne. Email: k.s.wilkinson@ncl.ac.uk; *Commodities, Materialities and European Agricultural Reform: the Case of Sugar*

Changes in British and European agricultural policy and institutions over the past two decades have been characterised by social scientists as a transition from a productivist to a post-productivist framework. This account of policy change has been the subject of critical re-evaluation in recent years and has been accused of being overly structuralist and deterministic. This paper makes the case for taking a commodity approach to analysing European agricultural policy reform to contribute to understandings of the specificities and contingencies of agricultural productivism, the interplay between external and internal pressures which help drive the reform process and the implications of the material properties of foods in understanding regulatory change. The paper examines the recent reform of the European Union Sugar Regime ? widely regarded as the last bastion of the highly regulated and protectionist Common Agricultural Policy. It argues that the case of sugar helps shed new light on the extent to which, and mechanisms through which, the productivist order is being dismantled, and opens the prospect of a much more international perspective on the drivers of agricultural policy change in the EU.

Keywords: agriculture; Common Agricultural Policy; sugar; productivism; post-productivism

Peter M. Ward, Ph.D, C B Smith Chair in US-Mexico Relations, University Of Texas At Austin. Email: peter.ward@mail.utexas.edu; *Self-help housing and Informal Homesteading in Peri-Urban America: Settlement Identification Using Digital Imagery and GIS*

This paper develops a methodology for integrating Remote Sensing/aerial photographs and GIS techniques to identify low income informal homestead subdivisions (also known as colonias) in peri-urban areas of US metropolitan areas. Unlike their self-build counterparts in Latin American cities which start as illegal occupations of totally un-serviced lots, in the USA housing production is largely self-managed (embracing trailer homes, manufactured homes, modular units with self-help home improvement, etc.), placed on legally developed lots, albeit poorly or minimally serviced. As researchers begin to understand the logic and rationale underpinning their existence, and better appreciate where (spatially), and what (physical) "footprints" to look for, it becomes possible to identify and quantify the full extent of these peri-urban settlement phenomena. This paper reports on a three Metropolitan Statistical Areas in the USA to demonstrate the methodology and argues that this has wider application both in the USA and elsewhere.

Keywords: Housing, colonias, remote sensing, GIS, peri-urban sprawl

Patricia Ann Warke, PhD, Queen's University Belfast. Email: p.warke@qub.ac.uk; Joanne Curran, PhD, Consarc Design Group. Email: joanne.curran@consarc-design.co.uk; Bernard John Smith, PhD, Queen's University Belfast. Email: b.smith@qub.ac.uk; *Superficial sandstone weathering and breakdown under contemporary dryland conditions*

Rock weathering is rarely if ever the product of a single process but reflects the cumulative and sequential effects of many spatially and temporally variable processes. In drylands rock weathering tends to be characteristically superficial and selective reflecting limited moisture availability and high evaporative losses. Despite this superficiality, weathering in drylands is still an extremely important process as it is primarily through the small-scale comminution of rock that

sediment fine enough to be removed by aeolian activity and/or episodic fluvial events is released ultimately providing the basis for long-term landform development. Data are reported illustrating the complexity of interpreting contemporary dryland weathering and breakdown of an exposure of Entrada sandstone (Utah). This sandstone displays widespread evidence of surface scaling and flaking with the associated breakdown and loss of a manganese-rich rock varnish. Scanning Electron Microscopy (SEM) identified extensive evidence of biological colonisation on both the sandstone surface and within substrate material with a hierarchy of biological forms identified from inter-granular biofilms through individual algal bodies to complex algal communities. Evidence tends to suggest that together these different biological forms are contributing to surface lowering of the sandstone and physical disruption of the substrate through hyphal penetration, which in turn facilitates the ingress of moisture that is taken up by interstitial clays. SEM analysis of a section through the upper 2-3mm of sandstone showed a clear micro-structural stratification with surface/near-surface concentration of interstitial clays underlain by a more porous substrate in which clays were present only as isolated deposits.

Keywords: sandstone, weathering, biological, rock varnish, drylands

Michael B. Warner, United States Geological Survey. Email: mwarner@usgs.gov; *Development of Geospatial Datasets for Natural Resource Assessments and Reconstruction Activities in Iraq*

A major challenge facing reconstruction planners in Iraq is the lack of a consistent geographic information system (GIS) that can aid in the decision making process. Currently remotely sensed data, digital elevation models (DEMs), and vector data including transportation networks, hydrography, and geographic place names are a few of the basic datasets required for an effective and operational decision support GIS. The objective of this project is to develop a current, accurate, and publicly available countrywide geospatial dataset for Iraq. Framework geospatial data were acquired first, including post-processed Landsat imagery, void-filled Shuttle Radar Topography Mission (SRTM) DEM data and historical maps. Processing of the Landsat imagery included pan-sharpening the imagery to its highest resolution of 15m, color balancing and histogram matching, orthorectification, storing the imagery in a visible (7, 4, 2) band combination, tiling the imagery in 1 degree by 1 degree cells and storing the imagery in a user-friendly geotiff format. In addition, the void-filled SRTM DEM provides a single consistent elevation model to be used for national scale mapping, GIS, and remote sensing applications. These framework datasets served as the basis to derive a series of vector datasets including roads, hydrography, dams, oil fields, marshes, and cultural features (place names) as well as raster based landform and land cover classification datasets. Together, in a GIS, the framework data and their derivatives effectively aid in reconstruction activities by providing the ability to accurately assess, map, and monitor Iraq's natural resources, cultural resources and infrastructure.

Keywords: reconstruction, natural resource, GIS, Iraq, geospatial data

Stacy Warren, Eastern Washington Univ. Email: swarren@ewu.edu; *The Air Above Us: Pirate Radio and the Struggle to Control Urban Airwaves*

Since its invention in the late 19th century, radio technology has offered an important medium of communication in and across urban space. In the United States, its role as a 'voice of urban America' has been shaped by both its historical connections to military, corporate, and government interests and by the technological opportunities for transmission and reception it presents. Unlike other more costly forms of mass communication, radio from the beginning has been an affordable technology - virtually anyone with a few dollars, tools, and some basic technical skills could build their own community radio station. Thus radio has played a uniquely hegemonic role in discourse over urban spaces and cultures, as the site of struggle between powerful corporate interests and community voices. This paper examines that hegemonic struggle and its urban implications by focusing specifically on unlicensed, or pirate, radio throughout the 20th century to the present. A combination of archival research, interviews, and GIS analysis is used to, first, construct an empirical overview of changes in radio station demographics and the regulatory and commercial environments within which they have existed, and, second, to critically analyze the ways in which people have moved outside the regulatory boundaries to offer unlicensed pirate broadcasts. The paper concludes that the efforts of broadcast lobbies and governmental regulatory bodies to define and restrict access to the airwaves has increasingly discriminated against urban settings, and that a new generation of pirates has arisen to provide this otherwise missing urban voice.

Keywords: cultural, urban, radio, GIS

Thad Wasklewicz, University of Memphis. Email: twsklwcz@memphis.edu; Dennis Staley, Ph.D., University of Memphis, Department of Earth Sciences - Geography. Email: dstaley@memphis.edu; *Endogenic Controls on Debris Flow Fans, Death Valley, California, USA*

Spatial patterns are produced from an arrangement of geographic elements in a landscape. Unlike geographic functions (processes), geographic patterns can not be initially weighed or measured, rather they must be mapped. Maps of combined geomorphometric variables from 1-meter Airborne Laser Swath Mapping (ALSM) data of debris flow fans in Death Valley, CA assist in unraveling spatial patterns present in all the fans under investigation in the current study. Semivariance analyses and pixel correlations between adjacent features in debris flow levees, lobes, and channels provide strong evidence for consistent spatial patterns between and within the debris flow fans. The systematic spatial patterns point toward internal factors related to surface topography controlling the surface complexity of debris flow fans. The length of time associated with this internal control is unknown. However, this does not diminish the role of internal controls. Rather, there are strong indications that surface form is a factor in depositional processes and ultimately surface topography for some finite period of time on debris flow dominated fans. Furthermore, the finding runs counter to the concept of external forces (i.e. tectonics and climate) controlling fan evolution. The formation of the spatial patterns across flows of varying age strongly suggests the periodic structures result independently of external forcings.

Keywords: geomorphology; DEM; LiDAR, alluvial fans

Anders Wästfelt, . Email: anders.wastfelt@humangeo.su.se; *Continuous landscapes in finite space - analysis of remote sensed images as a source in social science.*

Remote sensed images were created in the era of exploring space and as an instrument in the cold war. In civil use satellite images have been inserted into a tradition of cartography and GIS. In opposite to maps they consist of non classified and boundless information which paradoxically is fully open for different interpretations. The opportunity to interpret satellite images within a social science framework has hitherto not been used to its full potential. This paper will present research which critically examines what the boundless characters of satellite images imply and what it means that for example Google earth creates an understanding of the world as finite. From another angle the qualitative perspectives derived from inside knowledge by local land users will be discussed, and how the remote sensing community has avoided a social and humanist perspective in the interpretation of images. Another question of the paper is the interpretation of the embedded power relations in the images and especially the power created by the panoptical eye.

Keywords: Remote sensing, cartography, social science

Rudolf Wastl, University of Klagenfurt. Email: rudolfwastl@gmx.at; *Where is Europe? Cartographic Representations and Imaginations of a Continent*

With the enlargement of the European Union, Europe and its eastern boundary have been dealt with more often, especially by politicians and have been used as an argument for or against further enlargements. In this context the geography of Europe has become an issue. This paper analyses in a first step, how Europe was and still is represented as a continent in school atlases and as a world region in U.S. and European text books. The boundaries examined are very different and do not correspond to any of the European institutions or organisations (EU, OSCE, EUROVISION, etc.). In a second step, the cooperation and integration with European institutions and organisations will be addressed and examined as to what extent these different institutional spatial layers fit with each other and the continents or world regions of Europe, discussed before. The development over the last 20 years will be presented with maps of an integration index with the assumed integration effect of being a member in selected European organisations in 1985, 1995 and 2005. One can see that there is no uniform Europe but many layers. Finally, using the results of an empirical study the imagined Geographies of Europe will be shown.

Keywords: Cartographic Representation, Europe, Political Geography

Doris Wastl-Walter, Dr. Prof., Department of Geography, University of Berne, Switzerland. Email: dwastl@giub.unibe.ch; *Searching for Neighbours: A new approach in border and security studies*

After years of research in Border studies, committed to cross-border cooperation and more recently to theories on the process of othering, a new approach is on its way. We can observe a shift from the construction of difference and its theorising to the focus on seeking to highlight best practices in the building up of good neighbourhood thereby crossing political and social borders. A research project funded by the EU looks at areas of conflict at national borders as well as neighbourhoods in cities to learn the different ways of

overcoming social, political and cultural boundaries.

Keywords: Border Studies, security studies, europe

Stanley Waterman, University of Haifa. Email: waterman@geo.haifa.ac.il; *The 2001 United Kingdom Census and the Jews*

The 2001 United Kingdom Census included a religion question for the first time in which one of the categories was "Jewish". Despite the simplistic form of this question and the fact that the religion question was the only voluntary one on the Census, it has yielded a valuable dataset on Britain's Jewish population. The data both confirm existing knowledge on this group and raise new questions about the location and social organization of this population. Jews are the most highly concentrated group of people in the UK, with 60 percent living in Greater London. At the same time, they live in every Local Authority in the UK bar one, a tenth in areas with no organized Jewish community. Because they often live close to one another, their geographical distribution often straddles Local Authority boundaries, understating the intensity of the clustering. Likewise, the Census undercounts Jews by between 10 and 20 percent, with many people of all outlooks opting not to respond. It also provides data on household composition, intermarriage and cohabitation patterns for the first time. Analysis of a write-in option on the question on ethnicity highlights the need for a Jewish ethnic category in the 2011 Census.

Keywords: Census, United Kingdom, Jews, religion

Garey Waters, North Carolina Central University. Email: gareywaters2@yahoo.com; *Applying Diamond's Criteria for Societal Collapse to Iraq: Comparisons to Haiti and Japan*

The subject of how societies in the past and present have developed and collapsed is a subject surrounded by myth and folklore. With the development of the scientific method and a more accurate understanding of the earth and its systems scholars have been able to explain some of the causes of these societal collapses. Some societies were able to avoid total collapse while others could not change quickly enough to avoid the inevitable. The poster that I have prepared applies Jared Diamond's theoretical platform for societal collapse to present-day Iraq. Five criteria are used to explain societal collapse: environmental change, hostile neighbors, friendly trade partners, climate change and societal response. These criteria are discussed and compared to the situation in Haiti. The two societies being compared have both suffered considerable environmental change and geopolitical degradation. Both societies have endured economic sanctions and have entered a state of constant turmoil and chaos that is rarely experienced in the more developed western world. The response of these societies to the collapse of their governing bodies and the struggles for power within these countries is also a constant reoccurring theme that plagues both of these collapsing societies. In contrast to the societal collapse in Iraq, Japan was able to curtail its societal decline once the root cause of collapse was recognized, and the society as a whole implemented appropriate remedies.

Keywords: politics, political, collapse, Iraq,

Johanna L. Waters, University Of Liverpool. Email: J.L.Waters@liv.ac.uk; *Cosmopolitan enclaves and transnational spaces: some recent geographies of international education*

This paper explores the socio-spatial implications of recent developments in the internationalisation of education, which includes the growth in numbers of foreign students and overseas-educated graduates, the branding of national education systems and the development of offshore schools and university campuses. Drawing on fieldwork in Hong Kong, Canada and the UK, it argues that international education is transforming the spatial scales over which, and the means by which, social reproduction is achieved. In the West, universities are able to offset cuts in public funding of education through actively increasing numbers of fee-paying international students. These lead to communities of international students that are at once spatially and socially concentrated and transnational. At the same time, upper-middle-class populations in contemporary East Asia are able to assert and secure their social and economic power, ensuring social reproduction through the acquisition of a 'Western education'. This has created distinctive enclaves of overseas-educated cosmopolitan professionals within student-sending societies, with implications for local patterns of inequality and social exclusion.

Keywords: International education, transnational migration

Nigel Waters, University of Calgary. Email: nwaters@ucalgary.ca; Sunita Gurung, University of Calgary. Email: sgurung@ucalgary.ca; Shahid Raza, University of Calgary. Email: sraza@ucalgary.ca; *Web-Based GIS Tools for Acquiring Public Input on Transit Service in Canmore, Alberta: Sensitivity to Respondents' Computer Experience and Other Socio-Economic Characteristics.*

The Town of Canmore has over 15,000 permanent and non-permanent residents. Located in the Rocky Mountains just one hour's drive west of the

major metropolitan centre of Calgary, Alberta, this small, picturesque, mountain community is facing unprecedented growth. In 2005 we launched a GEOIDE sponsored project to determine the efficacy of using web-based GIS decision support software to promote sustainable growth in this tourist haven that currently attracts over 900,000 visitors annually. The software that was chosen to implement the web-based GIS was MapChat, a program that is in continuous development at the University of Waterloo. To test the usefulness of this software a web-based GIS questionnaire was designed to gather public responses to four transit routes that were proposed by the consulting company, D. A. Watt in 2006, as a way of introducing transit service to Canmore. This paper analyzes the responses to that questionnaire, the efficacy of the web-based GIS decision support system and suggests ways in which the tool might be developed in the future. The sensitivity of the results to the respondents' computer experience, gender, age and other socio-economic characteristics is discussed.

Keywords: SDSS, GIS, web-based

Stephen F Wathen, Ph.D., University of California Davis. Email: sfwathen@ucdavis.edu; A 2 000 year environmental history of the Sierra Nevada: Abrupt climate change, fire, erosion, and global climate teleconnections

There is scientific disagreement concerning the global extent of abrupt climate change events during the Holocene. There is also concern that additional global warming could trigger destructive changes in the Earth's climates with severe environmental consequences. I investigated the environmental effects of abrupt climate change at Coburn Lake, California over the past 2 000 yrs, testing the hypothesis that Coburn Lake charcoal peaks represent stand-replacing fires in the Coburn Lake watershed in response to climate change. I compared the timing of Coburn Lake charcoal peaks with high-resolution precipitation and temperature chronologies from the Sierra Nevada and Greenland. Coburn Lake charcoal peaks were deposited at the beginning of all ten droughts (with associated cold temperature extremes) in the northern Sierra Nevada over the past 2 000 yrs. Coburn lake charcoal peaks also coincided with seven of eight periods of peak drought conditions in Greenland over the last 2 000 yrs. These results suggest an abrupt climate change-severe fire hypothesis that abrupt climate change during the late Holocene caused vegetation and mountain slopes around Coburn Lake to be seriously out of balance with changing climates - resulting in forest die-off, stand-replacing fires, and severe soil erosion. The results also suggest climate teleconnections between the Sierra Nevada and Greenland over the last 2 000 yrs.

Keywords: charcoal, Greenland ice cores, environmental history, global climate change

Suzie Watkin, University of Wales, Aberystwyth. Email: srw@aber.ac.uk; Welfare to work and youth exclusion in rural Wales: Resistance may not be futile

New Deal is an explicitly governmental state project of welfare to work delivered by New Labour across the UK. The policy attaches a range of client responsibilities, such as attendance on mandatory courses and work experience placements, to the right to receive unemployment benefit. This paper discusses empirical participant observation of 18-24 year olds taking part in one such course in order to provide a detailed tracing of local governmental practices as a way of 'peopling the state' in terms of both the deliverers and recipients of policy. An experiential methodological approach facilitated these tracings, and also revealed moments where the young people were able to undermine the one-size-fits-all workfare policy that they negotiate through brief moments of prosaic, everyday resistance. The paper will use empirical tracings of young people's experiences of a programme designed to help alleviate social exclusion, in order to speak to wider debates about (local and rural) state power and resistance to this.

Keywords: young people, exclusion, welfare, UK, rural geography

Case Watkins, Texas State University. Email: aw1272@txstate.edu; Vulnerability and Hurricane Katrina: Measuring the Social Landscapes of Flood Inundation in New Orleans

This study determines the effects of poverty, income level, and ethnicity on flood inundation levels due to Hurricane Katrina in New Orleans. Most vulnerability inquiries are instruments used in planning and mitigation efforts, and therefore concentrate on the social and biophysical factors that infer vulnerability to a realm of potential hazards. This paper measures the social dimensions of biophysical vulnerability to a specific hazard event—Hurricane Katrina. Using a GIS and statistical methods, this study combines a flood depth dataset with census block group data to measure the socio-economic and ethnic variation of the inundated population. A multivariate regression model reveals the effects of poverty, income, and ethnicity on flood inundation levels. The results of the analysis suggest that ethnicity played a central role in determining vulnerability to Katrina's floodwaters. These results illuminate historical settlement patterns and reveal the relationship between social indicators and floodwater in 2005 New

Orleans.

Keywords: urban geography, hazards, GIS, New Orleans, Katrina, environmental equity, vulnerability

Annette Watson, University of Minnesota. Email: wats0148@umn.edu; Can We Merge Subjects and Objects?: Indigenous Knowledge of the Non-Human and the Scales of Political Practice for Waterfowl Management

Waterfowl migrations necessitate an international scale of management. Thus the US Migratory Bird Management structure attempts to erase this distance by populating decision-making positions with tribal, Federal, and state agency representatives. Yet the collective formed around waterfowl poses immediate difficulties for making management decisions because indigenous people and wildlife biology differ regarding the 'nature' of the non-human. Wildlife biology presents the 'facts' of waterfowl population trajectories to justify managers' season dates and bag limits—derived from scientific practices that separate subjects and objects. On the other hand, Indigenous Knowledges (IK) develop through local subsistence practices, which exhibit a spatiality informing a relational ethics; IK is not exclusively a knowledge about objects, but about how to live with non-humans. However, indigenes at the international scale of waterfowl management, primarily represented through the Alaska Migratory Bird Co-Management Council, are relegated to positions that address the 'rights' of indigenous peoples to harvest resources, rather than positions that recognize their knowledges. Drawing on the literatures from science studies and indigenous governance, in this paper I argue that the very conception of the non-human in the regulatory regime as object rather than agents effectively dislocates indigenous peoples from key positions that impact decision-making, as decisions recognize only their 'values' rather than their knowledges. Yet is it possible to 'scale up' the agency of non-humans to allow more meaningful indigenous participation in waterfowl management? What could such a management system look like at the international scale if it recognizes different ontologies of wildlife?

Keywords: Indigenous knowledge, migratory birds, environmental governance, non-human ontologies, Alaska

Elizabeth Burke Watson, Geography DEPT., UC Berkeley. Email: bethw@socrates.berkeley.edu; Kerstin Wasson, Elkhorn Slough National Estuarine Research Reserve. Email: ; Andrea Woolfolk, Elkhorn Slough National Estuarine Research Reserve. Email: ; Eric VanDyke, Elkhorn Slough National Estuarine Research Reserve. Email: ; Applications of paleoecology to wetland conservation at Elkhorn Slough, California

Elkhorn Slough is the second largest area of estuarine tidal wetlands in California, and the first U.S. estuarine sanctuary. Region-wide, 90% of historic tidal wetlands have been lost or restricted from tidal flow due to diking for agricultural use, salt pond construction, and development. However, wetland loss at Elkhorn Slough is currently being driven largely by tidal erosion, and the subsequent expansion of tidal channels and shoreline recession. This study reports on the use of paleoecological analyses to support and inform current restoration and conservation activities at Elkhorn Slough. Analyses of three sediment cores for fossil pollen, organic content, accretion rates, and the removal and stratigraphic description of twelve additional cores have established the timing of marsh establishment, current and prehistoric estuarine salinity, wetland plant abundance and distributions, and the relative contributions of mineral and organic sediment to wetland sediment accumulation. By understanding prehistoric processes and conditions and past variability more thoroughly, managers will be able to evaluate conservation, restoration, and management alternatives in a more informed fashion.

Keywords: paleoecology, conservation

Kelly Watson, Florida State University. Email: kcw03c@garnet.acns.fsu.edu; Non-Timber Forest Products and Conflicts of Natural Resource Access in a Post-Industrial Context: Tupelo Honey Production in Northwest Florida

Tupelo honey producers in Northwest Florida retain a natural resource-based livelihood, one that sustains a rural way of life and helps define a unique and culturally rich region. Tupelo honey is a valuable regional non-timber forest product, and its production is a long-time rural livelihood practiced by skilled beekeepers for generations. Beekeepers have worked bees along the banks of the Apalachicola River for more than a century, and possess an irreplaceable knowledge of the tupelo forests upon which they depend. However, forests that have long been used for tupelo honey production are undergoing a number of changes that render them either unproductive or inaccessible. One of the most significant changes is the rapid suburbanization of the landscape, as Florida's Deep South is divided up into parcels of real estate prime for development. This development affects beekeepers' access to tupelo forests both directly, through forest clearing, and indirectly through increased costs, renegotiation of leasing

agreements, zoning restrictions, and vulnerability to insecticides. These challenges increasingly leave beekeepers dependent upon public lands, and at the mercy of restrictive public land managers. Using the lens of political ecology, this presentation examines cross-scale power struggles and conflicts of natural resource access faced by this forest-dependent community in a contemporary, developed-world context.

Keywords: non-timber forest products, political ecology, land-use change, development, rural livelihoods, forests

Michael L Watson, ETI, contractor to the United States Geological Survey. Email: mwatson@usgs.gov; *Creation of a standard color palette for LANDFIRE existing vegetation type: Compilation of data from multiple sources to create a national coverage*

Mike Watson, ETI, contractor to U.S. Geological Survey (USGS) Center for Earth Resources Observation and Science, Sioux Falls, SD. Work performed under USGS contract 03CRCN0001. LANDFIRE is a cooperative effort involving the Department of the Interior, the USDA Forest Service, and The Nature Conservancy. The overall goal of the project is to provide spatial data and predictive models required to characterize fire fuels and fire regimes, and to evaluate fire hazard status. One of the integral data layers being developed by LANDFIRE is Existing Vegetation Type (EVT). Mapping of EVT for LANDFIRE is based on the ecological system classification developed by NatureServe, and will result in a total of 500-700 ecological system classes for the conterminous United States. As digital data layers of EVT become available, there is a need to merge the data across map zones to create regional and national data sets and map products. When merged EVT data sets were first developed, it was clear that the colors assigned to EVT classes were not consistently applied across map zones. The objective of this study is to achieve a universal color palette for merged, multi-zone EVT data sets. All unique EVT classes will be sorted and reclassified, assigned new colors, and labeled. Cartographic principles of color will be applied to standardize colors across large regions. Preliminary results show that when similar classes are represented with variations of the same hue, color differences between adjacent zones diminish and the regional map appears reasonably seamless.

Keywords: LANDFIRE, Cartography, Geography, Environment

H Doug Watts, University of Sheffield. Email: H.Watts@sheffield.ac.uk; *An endangered species? The large manufacturing plant in the twenty first century,*

The last quarter of the twentieth century was characterised by a decline in manufacturing employment. Accompanying this decline was a dramatic fall in the number of manufacturing plants with one thousand or more employees. Data from the UK show a fall from just over 1000 such plants in 1978 to just under 150 in 2004. In employment terms this represents a fall from almost three million employees in 1978 to fewer than 300 thousand in 2004. In employment terms, the large plant sector has been truly decimated! Two mechanisms have been involved in the process of employment decline in large plants: plant shutdowns and enhanced labour productivity in surviving plants. The causes of manufacturing employment decline in general have been well rehearsed elsewhere and the original contribution of this paper is to explore the aggregate date to outline the changing role of large plants in the UK and then, at the micro level, to explore the process of re-structuring among large plants in a number traditional industrial sectors in the former steel town of Sheffield UK. The analysis demonstrates the complexity of the process of change and the important interactions between corporate actors resulting in outcomes discernable in contemporary manufacturing activities.

Keywords: economic geography, manufacturing, plant closure, United Kingdom

Lisa Patricia Watts, MA, University of Melbourne. Email: lisawatts@iinet.net.au; Simon Fisher, MA, University of Melbourne. Email: simon@warlpiri.org.au; *A Political Ecology of Warlpiri water rights: land alienation and denial of access to perennial water sources on leased lands.*

DRAFT ONLY A political ecology of Warlpiri water rights: land alienation and denial of access to perennial water sources on leased lands. The Warlpiri lands are situated in the Tanami Desert that includes portions of the Great Western Desert in the Northern Territory, Australia. Since the arrival of Europeans in the early 1900s, a radical transition in land and water management regimes has emerged. As a result of this transition Warlpiri people have been marginalized through land alienation and denial of access to perennial water sources on leased land. Political and legal precedence is given to pastoralists over Warlpiri interests to water. This paper examines Warlpiri processes in utilizing Australian legislation based on the foundations of customary law to assert rights to perennial water sources on leased lands. The Pikilyi Movement comprises Warlpiri traditional owners of the most culturally valued permanent water source in the bioregion referred by Warlpiri as 'Pikilyi'. The Warlpiri combines the Western knowledge system with the Warlpiri knowledge system to develop practical strategies that

aim to intercept processes of land alienation and denial of access. A political ecological analysis assists Warlpiri in the development of these strategies that are applied to the Australian legal and political systems to gain greater recognition of Warlpiri knowledge and interests to water. The Pikilyi Movement is a social movement that adopts a collaborative water management approach to prevent further environmental degradation caused by the proliferation of artificial watering points, overgrazing and lack of grazing management.

Keywords: Warlpiri water rights

Paul R Watts, Louisiana State University. Email: junkdepository@hotmail.com; *Turbulence in the stream: counter protesters in New York City and Washington, D.C.*

Public protests are mobile events in which a variety of groups and individuals participate by marching through the streets as a form of political expression. Although ideological disagreements exist among these groups and individuals, there are underlying themes that create a unifying bond among protesters. Counter protesters, on the other hand, generally operate in a small group within the larger protest event and frequently use contentious tactics to express their opposing points of view. Because counter protesters can be provocative, the police segregate them at a fixed location to reduce confrontation with the passing protesters. But even with a police presence, vociferous exchanges between counter protesters and protesters are inevitable. By drawing from fieldwork conducted in New York City and Washington, D.C., this presentation examines how counter protesters contribute to the already dynamic geography of a public protest by creating a spectacle and thereby affecting an event's mobility and flow.

Keywords: Counters protesters, public protests, spectacle

Raymond D Watts, United States Geological Survey. Email: rwatts@usgs.gov; Vivian Queija, United States Geological Survey. Email: vqueija@usgs.gov; *Land Use Density Near the Shore of Puget Sound Correlates With Reduced Probability of Herring Spawning*

Over the past thirty years, the Puget Sound Basin has experienced intense urban growth that has resulted in the degradation of natural habitat for aquatic species. Because of increased toxic levels in Puget Sound and decreased riparian habitat, several salmon species are now listed as endangered and the resident orca population as threatened. Integral to the diets of both salmon and orcas are several forage fish species, such as herring, that spawn in the nearshore zone of Puget Sound. Although upland areas, rivers and streams, and their riparian areas have been investigated for mitigation efforts and restoration projects, greater understanding of the nearshore environment and processes are needed to connect terrestrial and aquatic mitigation efforts. This paper describes an initial effort in a long-range interdisciplinary study by the U.S. Geological Survey and its partners to explore the effects of urbanization on nearshore processes and ecosystems. We examine land use patterns along the near shore of an embayment of Puget Sound to determine anthropogenic indicators of stresses to forage fish spawning. We use a spatial analysis of parcel counts along the shoreline to show that increased urban density near the shore is positively correlated with reduced probability of herring spawning. Scientists in the USGS Coastal Habitats in Puget Sound (CHIPS) Project use results from this analysis of associations between urban and ecological status, and other similar analyses, to focus process-based investigations of causes and effects.

Keywords: development ecology estuary land-use

Richard A. Waugh, University Of Wisconsin, Platteville. Email: waugh@uwplatt.edu; *The Persistence of Utopia: Postmodern Geographies of Fantasy*

It can be argued that utopia is an inherently Modern concept, at least in the form originally described by Thomas More when he coined the term in 1516. That original work, as well as subsequent utopias, often reflected these Modernist characteristics: the domination and reworking of nature; the geometric rigor of the physical plan of the utopia; the proscribed and inflexible code of behavior expected of utopian residents; and the essential optimism reflected in the belief that humans were capable of such an audacious accomplishment as the perfection of society. So connected to the Modern worldview has the concept of utopia been that it has been suggested by many that, with the weakening of modernist ideas, "utopia" is no longer a valid concept. Indeed, it has been suggested that the postmodern terms "dystopia" and "heterotopia" are more valid current ideas. This research examines the degree to which these modernist characteristics of utopia are still current in the geographies of fantasy held by people who have been heavily influenced by postmodern culture. Examination of over 500 such geographies of fantasy indicates substantial resiliency of certain modernist ideas, such as the morphological construction of fantasy, in postmodern imaginative geographies.

Keywords: utopia, postmodern, geography of fantasy, heterotopia, imaginative geography

Henry Way, University of Kansas. Email: henryway@ku.edu; *It's the geography, stupid! The culture of politics and the politics of culture in Kansas*

Few places are as politically interesting as Kansas. The politics of this state have long been noted and in recent times the conundrum of Kansas has been as prominent as ever. This paper attempts to introduce the problem of Kansas politics through the primary perspective of cultural geography. Original research from a number of battle lines of the state political field will be presented. The centrality of economic, social, and historical geographies to the character of Kansas politics will also be demonstrated. In addition, a case will be made for the understanding of the place of geography in the rhetoric of politics. Finally, the utility of politics in understanding place will be explored, again in the context of Kansas.

Keywords: political geography, cultural geography, Kansas, identity

Kristina Weaver, MPhil, Glasgow University. Email: kristina.nellweaver@gmail.com; *Foolish Deconstruction: Justice as a Gaggle of Clowns*

Kristina Weaver and Dr. Paul Routledge Department of Geographical and Earth Sciences, University of Glasgow, Glasgow G12 8QQ, Scotland. Email: kristina.nellweaver@gmail.com Abstract for AAG 2007 session on Geographies of the Circus One of the most colorful innovations of the 2005 convergence against the G8 summit in Gleneagles, Scotland was the forming of the Clandestine Insurgent Rebel Clown Army (CIRCA). A global movement of autonomous, non-hierarchical clown 'gaggles,' CIRCA combines creativity with local direct action in resisting militarisation at home and abroad. Inspired by the archetypal role of the trickster or buffoon, rebel clowns are fools who have run away from the Circus and into the King's Court. Armed with a methodology that has roots in many fooling traditions (including but not limited to circus clowning), CIRCA critiques state violence and extra-state 'terror' as being intrinsic to a neoliberal agenda for corporate control of human and environmental resources. This paper critically assesses CIRCA's tactics during and since the G8 summit, with attention to its transplantation in the United States, in terms of new strategies for radical deconstruction and the re-making of identity or issues-based politics. A duo of clownbattants, Kristina Weaver and Paul Routledge have been active in CIRCA as clowns, trainers, and theorists since 2005. www.clownarmy.org

Keywords: Rebel Clown Army, Deconstruction

Stephen Daniel Weaver, PhD candidate, Pennsylvania State University. Email: sdw135@psu.edu; Ritesh Agrawal, PhD candidate, The Pennsylvania State University. Email: ragrawal@psu.edu; *On the Brink: Using Visual Analytics to Explore Decisions Made During the Cuban Missile Crisis*

The 1962 Cuban Missile Crisis was a pivotal time in the history of civilization. Many difficult decisions were made by a plethora of persons having different backgrounds, motives, beliefs, and intentions?while under extraordinarily intense pressure. In our paper, we discuss an approach designed for exploratory analysis of the decisions made using ontologies and based in visual analytics. With customized software to support our work, we will demonstrate how the Cuban Missile Crisis unfolded with a novel approach.

Keywords: Visual Analytics, Cuban Missile Crisis, Ontology, Critical Thinking

Stephen D Weaver, Msc., GeoVISTA Center, The Pennsylvania State University. Email: sdw135@psu.edu; Patrick Laube, Dr., GeoVISTA Center, The Pennsylvania State University. Email: p.laube@auckland.ac.nz; Mark Gahegan, Prof., GeoVISTA Center, Pennsylvania State University. Email: mng1@psu.edu; *Revisiting Groundhog's Day - An Analysis of Digital Personae Generated From An Individual's Digital Footprint*

Pervasive and ubiquitous computing, federated databases, and location-aware technology allow almost unlimited tracking of individuals in nearly all dimensions of their life in geographical, social, and digital spaces. We use the concept of a digital footprint to capture and commingle these dimensions over individual lifelines. The digital footprint of an individual is the highly dimensional, perpetually-increasing space characterized by geocoded digital transaction data, augmented by surveillance, and influenced by associations and patterns through space and time. In this paper we propose a novel way of inferring digital personae from space-time-activity and other digital footprint data. We illustrate our methods with a use case providing the detailed digital footprint of an individual, covering a span of four months. We apply various exploratory data analysis techniques, specifically relative motion and regular expressions, using multiple spatio-temporal reference frames and granularities. Our approach is twofold. First, we profile our test person by inferring individual partialities in space-time and consumption patterns. Second, by treating each single day of the multi-day itinerary as a new 'personality,' we obtain a rich, dense dataset simulating a closely related peer-group, providing interesting opportunities for social interaction analysis. Lastly, we evaluate the feasibility of our various analytical and visual approaches in helping us understand the space-time-activity

patterns of individuals and cohorts; and we discuss the practical ramifications of using these patterns to then infer digital personae.

Keywords: digital footprint, exploratory data analysis, space-time-activity, relative motion

Jena Webb, Doctoral candidate, McGill University. Email: jennifer.webb@mail.mcgill.ca; *Black Gold and Quick Silver: Deforestation, petroleum extraction and mercury in the Upper Amazon*

This research employs an Ecosystem Approach to examine human exposure to contamination resulting from deforestation and pollution by petroleum companies in the Ecuadorian and Peruvian Amazon. Work conducted in the Brazilian Amazon indicates that deforestation, and the subsequent erosion of soils naturally containing mercury, is an important source of mercury to aquatic ecosystems. One of the Amazonian regions undergoing rapid land cover change is located in the Ecuadorian Amazon - the Napo deforestation front - where the construction of roads for petroleum exploitation has facilitated the extensive colonization of this frontier region. However, since the 1970s, this region has also seen large-scale contamination by hydrocarbons and the chemicals associated with the extraction of petroleum. The Corrientes and Pastaza watersheds in Peru have also undergone intensive petroleum exploitation resulting in large-scale pollution; however, in these two watersheds no roads were built and consequently little deforestation has occurred. The objective of this research is to disaggregate the potential sources of mercury to these three watersheds using a combination of data and a comparative design. Results from original research on mercury levels in fish and Amerindian populations, benzene levels in human urine, interviews on diet and work history, and focus groups are synthesized and the politico-economic, biogeochemical, and socio-cultural factors which fashion resource use, the dynamics of mercury contamination, exposure to mercury and the consequent health implications are highlighted. The hope is that this research can be used to influence evidence-based policy in directions favorable to the well-being of local people.

Keywords: health, environment, Amazon, Indigenous peoples, petroleum, mercury

Simon Webber, Post-graduate, Queens University Belfast. Email: swebber03@qub.ac.uk; Patricia A Warke, Ph.D, Queens University Belfast. Email: p.warke@qub.ac.uk; Jennifer McKinley, Ph.D, Queens University Belfast. Email: j.mckinley@qub.ac.uk; *GIS Scale Linkage: Case Study of Aeolian Depositional Bedforms*

Landscapes comprise a hierarchical assemblage ranging from micro- to macro-scale features that together give a landscape its distinctive characteristics. A body of literature exists on issues related to these weathering features and the processes that form them. However, much research still needs to be done on identifying links between scale boundaries of such features. The issue of scale linkage is a complex one that incorporates a number of processes and controls that may work independently and in combination in defining the scale boundary. This research attempts to address the issue of scale linkage through the use of spatial analysis, Geographical Information Systems (GIS) and geological interpretation. GIS should provide a useful tool as the characteristics of different scales of weathering feature will be analysed using spatial data analysis techniques and GIS to identify the spatial variability of these characteristics. This information can then be used to identify links between scale boundaries and the processes and controls that define them. Data is reported from a pilot study aimed at testing the technique through a combination of aerial photos and ground survey data, set within a GIS framework applied to a coastal dune system in Northern Ireland comprising a hierarchy of Aeolian depositional bedforms. The ultimate intention will be to up-scale the technique through application to a large desert landscape unit in the South-West United States of America.

Keywords: gis, scale linkage, scale boundaries, landforms, landscape, weathering

Joe Weber, University Of Alabama. Email: jweber2@bama.ua.edu; Brandy Phillips, Alabama-Tombigbee Regional Planning Commission. Email: ; *Accessibility Change and Economic Development along Corridor X*

The relationships between improved transportation, economic development, and resulting socioeconomic changes have been the focus of much debate over the years. Yet proving there is a link between transport infrastructure investment and economic development has been difficult. This research examines the relationships between socioeconomic factors and accessibility change resulting from highway construction along the Corridor X highway project, running from Memphis, Tennessee to Birmingham, Alabama. This new freeway has been justified on economic development grounds, and is expected to open up areas to growth. However the results show only minimal increases for several accessibility measures between 1990 and 2000, largely concentrated in communities already thought to be accessible. When accessibility models used travel costs that were adjusted for inflation and fuel costs, only two locations

experienced any gains. Statistical analysis found that socioeconomic characteristics and accessibility improvements showed little correlation. Regression was then used to examine the relationships of forty-four independent variables to eight socioeconomic characteristics, but the accessibility measures were included in only one model. This shows a nearly complete lack of evidence that a relationship between increased accessibility and quality of life exists, raising important questions about the role of transport in improving conditions in many areas of the U.S.

Keywords: Accessibility, Highways, Economic Development

Lisa Wedding, University of Hawaii at Manoa. Email: wedding@hawaii.edu; Alan Friedlander, NOAA Biogeography Program. Email: afriedlander@oceanicinstitute.org; Russell Yost, University of Hawaii at Manoa. Email: rsyost@hawaii.edu; Matt McGranaghan, University of Hawaii at Manoa. Email: matt@hawaii.edu; Deriving digital surface models from bathymetric LIDAR data for benthic terrain analysis

Benthic habitat complexity is a major determinant of fish assemblage structure, and these complex areas represent important biodiversity hotspots that have significant implications for marine conservation and management. Considering the documented importance of the relationship between habitat complexity and fish assemblage structure, it is critical to improve methods of calculating spatial complexity in the marine environment at broad geographic scales that are commensurate with resource management decision making. Remotely sensed Light Detection and Ranging (LIDAR) data has recently been utilized to derive measures of habitat complexity in the marine environment. However, there are a number of geostatistical methods that may be applied to interpolate LIDAR data for further benthic terrain analysis. In this study, we compared several geostatistical methods for creating digital surface models (DSMs) of the benthic environment in order to determine the best method to interpolate LIDAR data for benthic terrain analysis and calculation of habitat complexity. We concluded that the geostatistical method of conditional simulation was the most appropriate method for creating DSMs of a complex coral reef environment. The results of this work demonstrate the advantage of the geostatistical method of conditional simulation as a step in measuring habitat complexity, and the efficacy of remotely sensed LIDAR data to provide benthic habitat complexity measures of a coral reef habitat at a scale commensurate with the resources and applicable to regional-level management actions.

Keywords: remote sensing, LIDAR, marine geography, GIS

John R. Weeks, PhD, San Diego State University. Email: john.weeks@sdsu.edu; Do Slums Promote High Urban Fertility? Neighborhood Differences in Fertility in Accra, Ghana

The achievement of low fertility in the richer nations, and the widespread, albeit uneven, declines experienced by less-rich nations have taken the attention away from fertility levels as topic of interest among demographers. But in countries like Ghana fertility is still well above replacement level and appears to have stalled at about four children each. Even in the capital city of Accra, women are having nearly three children each, and the declines there seem also to have stalled. The average for Accra, however, hides a great deal of variability within the city and explaining that spatial variability is the goal of this paper. We test the hypothesis that slum characteristics of neighborhoods account for fertility variability within Accra, net of individual characteristics. We do this by using data from a ten percent sample of anonymized individual records from the 2000 census. We group enumeration areas into contiguous slum areas by applying a new spatial clustering technique called AMOEBA. We then evaluate the importance of slum neighborhoods as predictors of fertility at the individual level using logistic regression analysis, and at the neighborhood level using spatially filtered multiple regression analysis.

Keywords: fertility, slums, Accra, Ghana

David L. Wegner, Ecosystem Management International, Inc.. Email: emiwegner@aol.com; Adaptive Management and Water Conflicts: Is More Geographic Data the Answer?

In the near future conflicts over water will make the current disagreements over oil seem like small potatoes. Demand for drinkable water and intact ecosystems requires a scientifically valid approach to management of water. Traditional approaches to managing water has depended upon political support, administrative power and single issue management. Today we are faced with developing integrative and cooperative approaches to managing water that reflects the complex issues. The concept of Adaptive Management and its proposed balancing of management, policy and scientific components has been hailed as an alternative approach to managing water. The concept has support - the reality however has been found to be lacking in actual improvement in environmental conditions. This presentation will outline key areas of concern in the use and application of adaptive management in addressing water conflicts, endangered species and societies need for water. The use of scientific tools

including GIS, watershed models and instream flow programs in a geographic context will be explored and discussed with recommendations for the next steps identified.

Keywords: adaptive management, endangered species, water conflict

Hu Wei, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: wei.97@osu.edu; Ram C. Tiwari, Statistical Research and Applications Branch, Division of Cancer Control and Population Sciences, National Cancer Institute. Email: tiwarir@mail.nih.gov; Alan T. Murray, Center for Urban and Regional Analysis and Department of Geography, The Ohio State University. Email: murray.308@osu.edu; A spatial semiparametric Bayesian model for predicting cancer mortality rates

We present a spatial semiparametric Bayesian approach for predicting future cancer mortality rates at small area level (e.g., county, census tract). On the one hand, the model assumes that the mortality series is linear (or quadratic) over short time intervals. The change (or the rate of change) for any two consecutive time periods is assumed to follow a nonparametric distribution with a Dirichlet process prior. This assumption allows a rich class of distribution as well as clustering of the slopes. On the other hand, the dependence of errors among different locations is considered as a Gaussian process in a hierarchical form in this model.

Keywords: Spatio-temporal, semiparametric Bayesian, cancer rates

Yehua Dennis Wei, University of Wisconsin-Milwaukee. Email: weiy@uwm.edu; Yuqi Lu, School of Geography, Nanjing Normal University. Email: luyuqi@263.net; Wen Chen, Nanjing Institute of Geography and Limnology of the Chinese Academy of Sciences. Email: wchen@niglas.ac.cn; Government Policies, Global Capital, and Regional Development in China:

The industrial district literature is centered on the Marshallian industrial district and emphasizes SMEs, local networks, and self-sustaining endogenous capabilities in regional development. This literature, however, has been criticized for its failure to take account of the role of states and the importance of external networks. Globalization has transformed core cities and city regions in developing countries into globalizing cities and emerging global city regions. They are often the most globalized places and the focus of foreign investment in developing countries, and more significantly, emerging nodes of the global economy. This is especially the situation in the Shanghai-centered Yangtze Delta, where Suzhou, an ancient capital of China, serves as a sub-center. This paper analyzes the development and transformation of Suzhou Municipality, known previously for its local state-led Sunan model based on township and village enterprises (TVEs). Suzhou, however, has been undergoing drastic restructuring to remake itself a globalizing high-tech center, or in Amin and Thrift's conceptualization, a neo-Marshallian district. We analyze how Suzhou transforms itself from a region dominated by TVEs and state-owned enterprises (SOEs) to an emerging FDI and high-tech center. We argue that the key to the transformation of Suzhou is the efforts of the states in utilizing global and local resources to globalize the municipality. We also argue that Suzhou's development path is heavily dependent on the external forces, with a weak domestic sector. Lastly, we examine the challenges the city is facing to develop into a high-tech center with national, even global significance.

Keywords: Globalization, Foreign Investment, Industrial District, Regional Development, China

Ryan Douglas Weichelt, University of Nebraska. Email: edwest_86@yahoo.com; Hispanic Influence on the Roll-Call Voting of U.S. House Members 1993 - 2005

After the passage of the Voting Rights Act in 1965, political scientists measured the impact new black voters had on influencing the roll-call voting of federally elected officials. They discovered in areas with large populations of blacks, the roll-call voting of officials became more liberal over time. With the increased number of Hispanics in the United States, similar tests can be administered to measure the impact on the liberalness or conservatism of elected officials in areas with large Hispanic populations. Therefore, this study will analyze the roll-call voting of House members from 1993 to 2004 in states with Hispanic populations greater than 5% of the total population. Using a measurement derived from the Americans for Democratic Action (ADA), this study will determine if growth in Hispanic populations of Congressional districts will lead to an increase in the liberalness of House members over time.

Keywords: Politics, U.S. House, Hispanics

Adi Weidenfeld, BA (Geog), MSc (D&P), Department of Geography, University of Exeter. Email: aw233@ex.ac.uk; Do we need them Clustered? Competition, Cooperation and Innovation between Tourist attractions

The spatial and tourist-thematic determinants of co-operation and competition between tourism attractions are examined in the context of two competing arguments. The first is that distance and proximity between tourist attractions affect cooperation and competition between them. As has been done in previous studies in other industrial sectors, the study explores whether proximity between attractions increases or decreases traded and untraded interdependencies including knowledge transfer, innovations and competition between them. The second argument is whether the sources of such competition and collaboration lie in any tourist-thematic similarity between tourist attractions irrespective of their locations. The study in Cornwall, England is based on in-depth interviews with tourist attractions managers and key informants including tourism officers, local government councillors and representative of tourism associations as well as a survey among 400 tourists in tourism areas of high and low concentration of tourist attractions conducted throughout 2006. Initial findings throw light on the on the interactions between tourist attraction enterprises, which should help operators of individual attractions and policy makers in decision-making on locations for new tourist attractions. As well, the study aids in measuring the impacts on existing attractions of the constant need to remain competitive, productive and innovative while avoiding land-waste and minimising the use of greenspaces. Initial findings from the study improve our understanding of the benefits and disadvantages for tourism destinations of high and low levels of spatial clustering.

Keywords: Tourism clusters, attractions, knowledge transfer, tourism marketing

Timothy Weigel, University of Nevada Reno. Email: weigeltim@hotmail.com; Mapping Reseeding Potential in Elko County, Nevada: A weights of evidence approach.

The Great Basin region of the western United States is under going rapid change in part due to exotic annual grasses such as Cheatgrass (*Bromus tectorum* L.). Introduction and the spread of these species will effectively decrease native species, increase fire frequency, and indirectly effect watersheds, water quality and livestock grazing. Following one of the worst fire seasons in the summer of 1999, the Bureau of Land Management (BLM) instituted the Great Basin Restoration Initiative in an effort to assess the deteriorating ecological condition of the Great Basin and to develop a strategy for effective restoration. This paper proposes a weights-of-evidence method for modeling areas within Elko County, Nevada with high potential for reseeded success. Restoration and success of recovery is a complex issue requiring consideration of a number of factors. Weights-of-evidence can provide insight into the physical processes from which success is measured allowing for managers to evaluate the effectiveness of current rangeland management methods.

Keywords: GIS, Weights-of-Evidence, Restoration Management

Julie Marie Weinert, Southern Illinois University-Carbondale. Email: jweinert@siu.edu; Gender of Work: A regional study of employees' perceptions of ecotourism jobs

A number of studies have explored how tourism may affect gender roles in surrounding communities, but few have addressed tourism employee's perceptions of the gender of their jobs. This presentation draws on information learned in interviews with employees that worked at seven different ecolodges in Ecuador. One lodge was located on the Pacific Coast (Costa), three lodges were located in the cloud forest west of Quito, three lodges were located in the Andes Mountains (Sierra), and lodge was located in the eastern rainforest (Oriente). A regional comparison highlights how regional labor traditions influence employment patterns at ecolodges.

Keywords: gender, ecotourism, Ecuador

Geri Weinstein, Doctoral Candidate, University of Wisconsin - Milwaukee. Email: geri@uwm.edu; Representations of Nature: Implications for Urban River Access and Use

Urban nature is not a counter intuitive concept. People who want nature nearby come from all walks of life and cultures (Burgess, Harrison & Limb:1988). An increasing significance of nature in urban settings coincides with a growing need to accommodate heterogeneity and difference in its material representation. Using the discursive landscape of river revitalization, I examine conceptualizations of what is nature and what is not nature in a culturally pluralistic community on Milwaukee's south side. The study's focus is the Kinnickinnic River. This river is the most severely impaired of Milwaukee's three rivers. Discursive representations of a revitalized river, articulated by environmental advocates, private sector interests and municipal planners are compared and contrasted with conceptualizations of a 'natural' river held by Polish and Latino residents in the south side Milwaukee community of Lincoln Village.

Through in-depth interviews, the ways in which residents' conceptualizations of a natural river are informed by their life experience in the neighborhood urban park emerge as do dominating, contested and unifying images of what is nature and what is not nature. In the realm of policy and practice, this research, as the first study to examine conceptualizations of nature held by working class residents of a demographically changing neighborhood, can suggest a river revitalization model which recognizes and affirms plural values and life experiences.

Keywords: discourse, nature, river revitalization.

David Weisburd, Ph.D., Hebrew University and University of Maryland. Email: dweisburd@crim.umd.edu; Elizabeth Groff, Ph.D., Institute for Law and Justice. Email: egroff@ilj.org; Sue-Ming Yang, University of Maryland. Email: smyang@crim.umd.edu; Nancy Morris, University of Maryland. Email: nmorris@crim.umd.edu; Micro Level Variation in Opportunities for Crime

The existence of concentrations of crime events across both space and time has been empirically demonstrated. This concentration of crime at certain places is robust to changes in geographic scales of analysis. However, the specific factors associated with this variation across places are less well-known. Many studies have been conducted at meso and macro levels of analysis but only a few at the micro level. These studies have revealed a set of factors that are associated with variation in crime across census tracts, cities, and states. However, most of these are cross-sectional. Taking an opportunity theory perspective this research draws from environmental criminology, routine activity theory, rational choice perspective, and situational crime prevention to examine the factors associated with micro level crime across both space and time. These theories focus on criminal events rather than why individuals commit crimes and thus are well-suited to a place-based examination of crime. A series of environmental and socio-economic factors related to the opportunity for criminal events are identified and analyzed. Specifically, the research describes micro level variation among the individual street blocks in Seattle, Washington over a sixteen year time period. In doing so, the study identifies factors that are associated with changes in crime rates.

Keywords: GIS, micro level, longitudinal

Daniel J. Weiss, University of North Carolina. Email: danweiss@email.unc.edu; Mapping tree height within the alpine treeline ecotone of Rocky Mountain National Park, Colorado

The alpine treeline ecotone in Rocky Mountain National Park ranges from narrow ecotones characterized by abrupt edges of closed-canopy, sub-alpine forests to wide ecotones containing a mosaic of tree patches, alpine tundra, and bare rock. In addition to vegetation patterns, tree height is a useful metric for characterizing and classifying the ecotone because it can be used to differentiate between upright and krummholz growth forms. Tree height is also a critical factor influencing the redistribution of snow and the resulting feedback effects, which are hypothesized to be major controls on potential ecotone responses to environmental change. For this project the tree height structure within the alpine treeline ecotone of Rocky Mountain National Park was mapped from high spatial-resolution satellite and aircraft imagery using image processing and photogrammetric techniques. Modeled tree heights were verified using over 450 field data points acquired during summer, 2005. Tree height within the ecotone was used to perform a vegetation pattern analysis, the results of which were used to make inferences about the controlling variables responsible for creating and maintaining the ecotone.

Keywords: alpine treeline ecotone, remote sensing, gis

Evan L Weissman, Syracuse University. Email: eweissma@syr.edu; Food Security in the 21st Century: Lessons from Cuban Agriculture for Materializing Realities

Worldwide, hunger poses a great problem for humanity. Despite popular belief, hunger is not an issue of agricultural production, but is a result of inequality exacerbated by neoliberal globalization. The fast-approaching global peak in oil production, the point at which half of all existing oil has been used, means that hunger, now a problem of inequality, will soon become a problem of production unless agricultural production is transformed. This project examines the promise of urban agriculture in providing food security following the collapse of petroagriculture. The case of Cuba, albeit fostered by political economic conditions and not emerging geophysical limitations, provides a model of agricultural development for the rest of the world. The collapse of the Soviet bloc in 1989 undermined Cuba's agriculture sector, as former inputs (particularly petroleum) were no longer available. As a result, Cuba initiated the largest alternative agriculture effort in history. In so doing, Cuba thwarted potentially devastating hunger and possible famine. Although much has been written on Cuba's successful agricultural transition, often overlooked is the urban response and the unmistakable popular characteristic of the urban agricultural movement.

This paper dialectically examines the rise and ultimate success of urban agriculture as a process whereby Cubans and the Cuban state struggle for self-sufficiency and self-determination in the face of hegemonic globalization.

Keywords: urban agriculture, food security, peak oil, Cuba

Gerda R. Wekerle, York University. Email: gwekerle@yorku.ca; Anders Sandberg, York University. Email: sandberg@yorku.ca; *Producing Natural(ized) Suburbs: Capital and Nature in the Greater Toronto Area*

Richard Walker's early work on suburbia saw it as a function of the internal contradictions of capital as expressed in spatial form. As he noted, "Raw land, like raw nature, is of little use to human beings without transformation into an object of utility by means of human labor" (Walker, 1986,384). We build on Walker's insights by exploring capital's ability to harness nature in support of accumulation at the urban fringe. Analyzing two exurban and suburban industries that transform both land and nature- the aggregate industry, essential for the extraction of sand, gravel and stone for urban infrastructure, and the housing development industry- we investigate capital's efforts to naturalize growth by constructing nature as productive or a byproduct of growth. In examining the activities of "the property circuits of capital", we address the creation of exclusive spaces for living and recreation on the urban fringe that are differentiated not only by class and race but also by lifestyle and the consumption of nature. We also emphasize the state's central role in producing a policy regime that supports a new form of natural capitalism that is particularly salient in the suburbs and exurbs. Our paper is based on an analysis of the policy processes associated with recent legislation that establishes a greenbelt and regional growth management plans in the Greater Toronto Area, Ontario, Canada.

Keywords: urban geography, suburban growth, nature, development industry, aggregate industry, Greater Toronto Area

Jason Welborn, Sonoran Institute. Email: jwelborn@sonoran.org; *Monitoring Recreation in National Parks: The Sonoran Desert Network Approach*

Given the National Park Service dual mandate of resource conservation and public enjoyment for current and future generations, changes in recreational activity patterns are of special concern to park managers in the Sonoran Desert Network (SODN), which is comprised of eleven park units in southern Arizona and New Mexico. Each of these public lands has unique qualities which offer challenges to monitoring the types and extents of recreation and visitor use, including park size, management zones, complexity of road and trail networks, access points, and, for some, international migration and trafficking. The recent history of the internal population growth, steady tourist inflows and border activities in the Sonoran Desert ecoregion has accentuated the need for a better understanding of the status and trends in visitation and recreational use patterns over time and space. Thus, park managers have two important information needs: 1) sound estimates of visitation numbers and 2) cogent characterization of visitor behavior, such as routes traveled, activity types and duration of stay in the park. These needs will be addressed by the SODN Inventory & Monitoring Program through an integrative approach using site inventories, administrative data collection, road and trail traffic counting and visitor surveys.

Keywords: recreation, monitoring, national parks, Sonoran Desert

Ivan Burl Welch, PhD (ABD); LTC, USA (Ret), Omni Intelligence, Inc.. Email: ivan_welch@omni-int.com; *Geohomography: What People do, Where they do it, and Why*

Purpose: The purpose of this paper is to present an emerging theory of Geographic Contextualism. In introducing this theory, the paper challenges our understanding of the energies that motivate the machines of culture, commerce, and civilization. Methods: The presentation of an expert model, its variables, and imperatives through the use of Albert Einstein's "Thought Experiment". This expert model of geographic operational dynamics has predictive qualities at several scales of analysis. Conclusion: The time has come to rekindle the fire of exploration and navigation that is the *raison d'être* of Geography. Geographic Contextualism challenges current perspectives of the landscape, rethinks causes of human activity, and introduces a new branch of geographic thought and research: Geohomography.

Keywords: human geography, predictive analysis, geohomography, expert models, geographic operational dynamics, geographic contextualism, geopolitics

Mark R Welford, Georgia Southern University. Email: mwelford@georgiasouthern.edu; *Local effects of ecotourism: a case study of the Nono-Mindo Road in Ecuador*

Since the early 1980s, money has flowed into the Nono-Mindo-Tandayapa region of northwestern Ecuador, largely through a rapid expansion of bird-related ecotourism. Recently, several informal and formal alliances have developed among residents and ecolodge owners within the area, intent on confronting two national economic development projects: (1) the recent construction of the

Trans-Andean oil pipeline following Nono-Mindo road from the top of the Tandayapa Valley to Mindo; and (2) the on-going attempt by the City of Quito to extend its eminent domain to include the Tandayapa Valley, where it has proposed to build up to seven dams to gain more drinking water. These projects threaten not only the local bird populations but also the lifestyles and livelihoods of residents and ecolodge owners in the area. Utilizing interviews with NGO representatives, ecolodge managers, and many employees, as well as ten years worth of oral history interviews with local and expatriate residents, this paper examines shifting power relations, employment strategies, and land use practices in the Nono-Mindo and Tandayapa Valley region, while also linking these changes to national and global transformations.

Keywords: Ecotourism, Ecuador

Barry Wellar, Wellar Consulting Inc.. Email: wellarb@uottawa.ca; *Adapting Walking Security Index Concepts and Procedures to Serve and Promote the Mobility of Children*

The Walking Security Index (WSI) project was approved in 1994 as an element of the Transportation Environment Action Plan of the Region of Ottawa-Carleton. During the design phase (1995-1998) ten indexes were developed to measure the levels of safety, comfort and convenience expected and experienced by pedestrians at intersections. In the pilot study phase (1999-2002) three macro indexes were tested for operationality. Over the course of the project more than 25 documents were published, including Perspectives on Pedestrian Safety (1995), Walking Security Index (1998), Newspapers as a Source of Fact and Opinion on Pedestrians' Safety, Comfort and Convenience (2000), and Walking Security Index Pilot Study (2002). In this presentation the origins of the WSI project are briefly summarized, and the index formulation processes for the Intersection Volume and Design Index (IVDI), the Quality of Intersection Condition Index (QICI), and the Driver Behaviour Index (DBI) are outlined. Consideration is then given to how each of the macro indexes (IVDI, QICI, and DBI) can be modified to explicitly represent the interests of children in road and intersection designs and operations, and in motor vehicle safety and enforcement programs. The presentation is concluded by discussing how the indexes can be applied by parents and advocacy groups, as well as by law enforcement, planning engineering and other agencies, to ensure that the levels of convenience, comfort and safety experienced by children while walking or biking exceed those of private motor vehicle operators, and thereby actively serve and promote the mobility of children.

Keywords: transportation, mobility, walking security index, children

Christopher Wellen, McGill University. Email: cwellen@po-box.mcgill.ca; Renee E Sieber, PhD, McGill University. Email: sieber@geog.mcgill.ca; *Indigenous Spatial Ontology Application*

For decades indigenous peoples have used GIS to preserve traditional knowledge, manage natural resources, and represent their interests with the state. GIS technology, in indigenous contexts, has largely been implemented as-is, typically with base data and data models created by the dominant society according to their conventions. This has resulted in very effective negotiation with the state, but less effective applications developed for the indigenous peoples, as indigenous peoples conceive of their landscapes differently from those dominant societies. Ontology has become a cornerstone of GIScience in terms of number of papers and presence at conferences. A prime goal of geo-spatial ontologies is improving understanding of and increasing interoperability among different constituencies of GIS users. This paper seeks to apply geo-spatial ontology research to the construction of a GIS for native peoples. We focus on a geo-spatial ontology of hydrographic/river features as conceptualized by the Cree and a GIS of placenames and stories. With input from our Wemindji Cree collaborators we created a conceptual ontology and then formalized it into a logical one. Instance semantics were extracted. Three user interfaces were created using different levels of semantic complexity and will be shown to Wemindji Cree research participants to gauge the usefulness of the semantic relationships. These interfaces will be on display at the conference. It is hoped that the development of participatory frameworks will further understanding of the participatory needs of ontology development among indigenous peoples and provide a geo-spatial ontological template for native/non-native collaborations.

Keywords: GIS indigenous ontology

Sally Weller, University of Melbourne. Email: saweller@unimelb.edu.au; *Trans-sectoral associations, interconnectedness and value creation*

The increasingly interconnectness and interdependence of economic processes in modern capitalism suggest the need for greater research attention to trans-sectoral associations and their role in the creation and realisation of value. Since these associations exist beyond the institutional realms of firms, value chains or places, they are difficult to identify and research, they prompt new way of thinking about the research process. The alternative approach proposed in

this paper is focused on identifying the conjunctural moments and sites at which the trajectories of multiple economic actors meet to concentrate and reinforce economic independencies through mutually reinforcing intersections of circuits of value. These processes are demonstrated in the example of Australian Fashion Week, an event in which the spatio-temporal convergence of multiple interests synchronizes different expressions of fashion ideas to actively construct fashion markets, enhance the value of fashionable commodities and reinforce inter-industry synergies. Re-conceptualising these interconnected industries as components of a globalising fashion complex dedicated to the production and reproduction of value has implications for understanding the structuring of capital, regional development, world cities, production location and the manner in which production systems 'touch down' in different places.

Keywords: economic geography; theory and method; theories of value

Kathryn J Wells, Syracuse University. Email:

kjwell01@maxwell.syr.edu; Easton Town Center: Creation of the Retail Public-esque

Easton Town Center in Columbus, Ohio is a paradoxical embodiment of the old and the new, the public and the private, and perhaps most curiously, spectacle and reality. This mega-commercial-civic-leisure space appears as a nostalgic interpretation of a mid-twentieth century American urban landscape, but its presence as a cultural artifact only hints at the breadth of aesthetic, political, and economic conditions underlying its idiosyncratic development and enormous success. Beneath its elegant facades is an extensive code of conduct and a systematic attempt to regulate everything from photography to the time spent on a bench. The major goal of this research project is to identify the role played by the aesthetic in developing Easton Town Center and ascertain the particular circumstances under which this more adventurous aesthetics was pursued. Easton's genesis and the public-private partnerships that led to its realization bring into question issues of power between the public and private sector, as urban governance shifts the decision-making process from the public to private investors. The empirical work is based on data collection from news sources, landscape observations, and relatively unstructured interviews with those officials, public and private, responsible for the development of this large and extraordinarily profitable multi-use project.

Keywords: lifestyle center, public space, spectacle, urban governance

William F. Welsh, PhD, Eastern Michigan University. Email:

wwelsh@emich.edu; Feasibility Study of a Closed-Loop Biofuel Industry in Detroit

This presentation reports progress to-date of an interdisciplinary study to determine the feasibility of a closed-loop urban biofuel industry within the City of Detroit. Land use dynamics here have resulted in an urban landscape with approximately ten thousand acres of vacant lots, a consequence of deindustrialization and the tearing down of abandoned housing over the past several decades. Various concerns have come together in an effort to improve the socio-economic and environmental viability of Detroit through redevelopment initiatives. The primary objectives of this initiative are to: develop a modeling and visualization toolkit for use in determining the feasibility and desirability of urban biofuel systems; engage public, private, and nonprofit partners to identify and address barriers to such systems; and to create and disseminate policy recommendations in support of urban biofuel production that are informed by the lessons learned in this program. To begin this process, a geospatial database was constructed of environmental and socio-economic variables. Vacant lands have been mapped and environmental analysis of these lands is being performed using image processing and GIS techniques to assess their potential for growing biofuel feedstock (e.g., switchgrass). Other potential feedstock sources, such as restaurant grease, are being identified and geo-coded. Spatial and statistical analysis of socio-economic and environmental site and situation of potential feedstock locations, and connectivity to a biofuel processing plant, then of processing plant to potential consumers, will be conducted. The results of this preliminary analysis will help determine if further research and development are warranted.

Keywords: biofuels, energy, urban geography

Yuming Wen, University of Guam. Email: ywen@guam.uog.edu;

Shahram Khosrowpanah, University of Guam. Email:

khosrow@uog.edu; Leroy Heitz, University of Guam. Email:

lheitz@uog.edu; Watershed Land Cover Change Detection in Guam

Land cover change (LCC) has been a concern for many years around the world. LCC at watershed scale can be determined using advanced geo-spatial technologies such as satellite remote sensing, geographic information systems (GIS), and global positioning system (GPS). Such geo-spatial technologies may provide an effective and economical method for evaluating watershed conditions related to disturbance from human and natural stresses. Recent surveys indicate that land cover/use changes have a direct and enormous effect on water quality and environmental change. Watershed water quality and ecosystem are threat-

ened constantly by both human impacts like forest fires and development and also natural phenomena like storms and droughts. Therefore, it is critical to conduct research on land cover change in watersheds. This study focuses on extraction of land cover information from satellite imagery back to early 1970s, and determination of LCC in watersheds of southern Guam. Integration of remote sensing, GIS and GPS to assist in land cover classification of satellite images is also addressed in this presentation.

Keywords: Watershed, Land Cover Change, Satellite Imagery, Remote Sensing, GIS

Guilan Weng, University of Washington. Email:

glweng@u.washington.edu; Kam Wing Chan, University of Washington. Email: kwchan@u.washington.edu; The Geography of Non-hukou Interprovincial Migration in the 1990s: Spatial Change and Dynamics

Since the early 1980s China has seen increasing volume of internal migration, an important factor in China's population redistribution and regional development. This paper focuses on non-hukou migration, those moving to places outside their household registration (hukou) place. Non-hukou migrants, mostly from the countryside, are important workhorse underpinning China's successful export-oriented development model. Using non-hukou migration stock data from 1995 population survey and 2000 census, this paper studies the spatial pattern of non-hukou migration stock and its change from 1995 to 2000. In addition, this paper analyzes the spatial changes of hukou migrants and non-hukou migrants through comparing various sets of systematic data including non-hukou migration stock, lifetime migration stock in 2000 and migration flow from 1995 to 2000. The study shows that while the directions of hukou-migration were relatively diverse, those of non-hukou migration were predominantly oriented to Guangdong province throughout the 1990s. However, there were clear regional shifts in the non-hukou migration flows among other provinces between the first and second halves of the 1990s. Since rural migrant labor contribute a great deal to China's success of being the "world's factory", this paper relates the regional shifts of non-hukou migration to those of the industrial structure.

Keywords: migration, lifetime migration, industrial structure, regional development, China

Ivo Wengraf, University of Liverpool. Email: ivo.wengraf@liv.ac.uk;

Places and Practices of Automobilities: Case Studies of British Car Use

Automobility (Urry, 2004), examines the automobile as a dominant form of mobility by considering a collection of interdependent components, going some way to transcending the traditionally divided accounts of the automobile within the social sciences. This paper shall present ongoing PhD research in progress into UK automobilities. This paper challenges the conceptualisations of car and car cultures in current literature, and examines, using a theoretical framework developed from problematising automobility, the places and practices of three forms of automobile manufacture, purchase and use (touring caravans, motorcycles and 'post-car' green mobilities/technologies). These case studies have been chosen to reflect the broad range of car uses and flesh out the application of automobility. The caravan is an over-developed, domesticated and 'conformist' car; the bike is stripped-down, fast and 'rebellious'; both case studies challenge the concept of car and investigate dedicated consumers and road-users, ignored by much mainstream research. The post-car study allows this study to consider the "tipping point" (Gladwell, 2001), technological fixes and the development of an important new market as an alternative to the petrol car. All three are used to investigate the range of components which comprise automobility. Using a mixed methodology of manufacturer interviews, modified BNIM user narratives, and recorded in-vehicle discussions, it considers the construction of in-car and related spaces and how these act as sites of social, domestic and economic interaction, the relationships involved between different mobilities and approaches to the work/life balance, and how different mobilities influence and relate to individual moral judgements.

Keywords: automobility, automobile, consumption, car culture, green technology

Elizabeth A. Wentz, Arizona State University. Email: wentz@asu.edu;

Urban Land Use Classification of New Delhi India

This study presents the results of classifying land use/land cover for Delhi, India using an expert system approach. For this study Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data of September 22, 2003 were used to classify 13 distinct land use/cover categories. One research goal is to report on the extent and structure of area covered by urbanization using the classified image. Thirteen different land cover categories were identified with an 85.55% overall classification accuracy based on 256 random points for validation and 50 on the ground observations. Secondly, we report on our efforts to duplicate an expert system model previously developed for Phoenix Arizona as a generalized approach for urban land use classification. Results suggest that

while some of the methodology could be duplicated; there are local factors (e.g. data availability and specific land features) that required us to modify the approach.

Keywords: urban remote sensing, New Delhi, expert system

Andrew James Wenzl, University of Washington. Email: andwenzl@u.washington.edu; Composition and shifts of income and household assets in the United States

Regional analysis has often favored income from wages as the means of assessing the structure and economic performance of regions. However, increased attention is being placed upon non-earnings income and household assets as another measure of economic growth. This empirical analysis uses statistical techniques to examine the contributions of wage and non-earnings sources of income and assets to the structure and characteristics of regional economies in the United States. It also measures the components and shifts of income at varying levels of geographic focus, noting key differences among regions in the United States. Finally, the impact of urbanization levels on the relationship of earnings and non-earnings income is examined.

Keywords: Regional analysis, income, economic change, non-earnings income

Corey M. Werner, University of Central Missouri. Email: werner@cmsu.edu; Linking past dune activity to climate: complications caused by geomorphic feedback.

Discrete dune fields are found throughout much of the High Plains of North America, and the timing of past dune activity is often used a proxy for paleoclimate because of the intuitive link between dune activity and a more arid climate. This research investigates the link between paleoclimate and dune activity in southwest Kansas and the Oklahoma panhandle. It suggests that feedbacks in the soil-geomorphic system create a relationship between dune activity and climate that varies both spatially and temporally. Moreover, older aeolian landforms are more resistant to activation because of the presence of finer soil particles in a Bt horizon, which retains moisture and anchors the deposit even during more arid times. Conversely, younger deposits lack these fines and are more easily reactivated. This spatially variable relationship is supported by soil stratigraphy, particle size analysis, and optical age control. Additionally, the water-holding capacity of the Bt horizons is quantifiably greater than that of the soils found in the younger dunes of the area. This complication in the relationship between aeolian activity and climate is important because it suggests that a cautious approach is required when using past dune activity as the lone proxy for paleoclimate.

Keywords: High Plains, aeolian activity, dunes, paleoclimate

Sonia Wesche, PhD (ABD), Wilfrid Laurier University. Email: wesc3156@wlu.ca; Derek Armitage, PhD, Wilfrid Laurier University. Email: darmitag@wlu.ca; Responding to environmental change: Assessing vulnerability and adaptive capacity through northern research partnerships

Based on ongoing interdisciplinary research in Fort Resolution, NWT, this paper examines the human dimensions of social-ecological change, vulnerability and adaptive capacity. Residents are experiencing a range of climatic and hydrological changes, and concurrent socio-cultural shifts towards modernization and Treaty implementation. Using a series of qualitative methods including Traditional Knowledge interviews, focus groups, a household survey, scenario-building, and field visits, we seek to better understand the effects of change on local livelihoods, and to determine where capacity-building efforts may be focused to encourage proactive responses. We also draw attention to the relationship among adaptive capacity and the features of social organization that facilitate collaboration for mutual benefit, such as networks, norms and social trust (i.e., social capital). Results show that relationships among past environmental change, livelihood impacts, and human adaptations are both cumulative and non-linear. Past adaptations have generally been reactive and undertaken on an individual basis; however increasing rates of change may require community-level response. While survey data indicates that contemporary socio-cultural change has disrupted traditional social bonds, a form of latent cohesion based on kinship ties and shared history may offer a vehicle to facilitate collective action. Important foci for capacity-building include local institutional development, improving community-level education, and increasing access to financial and technical resources. This research offers a potentially useful approach that can be adapted to other communities in the North (and elsewhere) confronting complex issues of environmental and socio-economic change.

Keywords: environmental change, vulnerability, adaptive capacity, resilience, resource management, traditional knowledge, north-Canada

Eric West, Professor, Department of Geography, Southern Connecticut State University. Email: westel@southernct.edu; An Evaluation of Learning in a Second Course on GIS that Involved Students as Stakeholders in Research on Campus Issues

Previous studies in pedagogical methods of teaching GIS have demonstrated the efficacy of problem-based learning. This study reports the results of an approach to teaching a second course in GIS at Southern Connecticut State University that involved students not only as researchers but as stakeholders in multiple campus-based projects that also included facilities operations, university police, and the department of physics. Various aspects of the course engaged students in activities including interviewing faculty and staff; doing fieldwork and using GPS and other scientific instruments; working with CAD data; and, explaining the results of their work to third parties from the university faculty and staff. This study uses qualitative analysis of a wide variety of sources of data, including course materials, spatial data and output generated by the students, progress reports, results of a poster session, and interviews of students after completion of the course in addition to quizzes and exams. The results indicate that many aspects of Chickering and Gamson's (1987) principles for good practice in undergraduate education and Fink's (2003) components of significant learning were present in the course. Finally, this study develops insights into aspects of the course that did not work as expected and suggests improvements for future courses.

Keywords: GIS, learning, pedagogy, stakeholder

Christopher Scott Westendorf, Morehead State University. Email: cwestend@yahoo.com; Rezaul Mahmood, Ph.D., Western Kentucky University. Email: rezaul.mahmood@wku.edu; Gregory Goodrich, Ph.D., Western Kentucky University. Email: gregory.goodrich@wku.edu; Pacific Decadal Oscillation, Streamflow, and Precipitation in the Mammoth Cave/Upper Green River Watershed, KY

This project focuses on streamflow and precipitation in the Upper Green River watershed of western Kentucky and its relationship to Pacific Decadal Oscillation (PDO). PDO is the 23-year pattern of climatic inconsistency in the tropical Pacific Ocean. PDO data from NOAA was statistically compared with streamflow data. Previously, streamflow data was prepared and analyzed in the context of El Niño and La Niña. Precipitation data was collected from the National Climatic Data Center (NCDC) and streamflow data from the United States Geological Survey (USGS). The data was then used in an attempt to directly correlate a numerical value of precipitation and streamflow with the occurrences of PDO. In other words, it could be possible that a PDO occurrence, along with El Niño and La Niña, is a cause of anomaly in precipitation in western Kentucky, which would directly affect streamflow. The precipitation and streamflow data were extended for most of the 20th century. This study finds that during La Nina-cold events, above average precipitation and streamflow occur more frequently. On the other hand, during Neutral-cold events, below average precipitation and streamflow occur more frequently.

Keywords: Pacific Decadal Oscillation, Streamflow, Watershed, Precipitation

John C. Western, Syracuse University. Email: jcwester@maxwell.syr.edu; Insider/outsider, Alsace/Africa: Testimonies from two retired missionaries in Strasbourg

Among Strasburgers recently interviewed are two retired missionary priests. Raised locally, as young men they left for Africa, one to Madagascar in 1949, and one to Ivory Coast in 1975. Now returned, they are asked "How has Strasbourg changed?" The intended open question permits wide-ranging replies. They allege, for example, that globalization has diminished the city's cherished unique binational culture at the same time as engendering a striking diversity among its new inhabitants. The older priest disapprovingly sees such immigration as a transgression, and truly fears Islam; the younger is more sanguine. The older priest bemoans the loss of spirituality in Alsatian life, and also indicates little real affection for Strasbourg — his heart seems to be in Madagascar. Whereas the younger priest adores the city, and talks of his Strasbourg parish work upon his return from Africa. He was given a gritty suburban public-housing neighborhood, and from his experience there addresses some of the issues that gave rise to the French urban unrest of fall 2005.

Keywords: Africa, Christian missions, France, immigration, Islam

Meredith Westington, NOAA's Office of Coast Survey. Email: Meredith.Westington@noaa.gov; Status of the U.S. Maritime Zones—Territorial Sea, Contiguous Zone, and EEZ

With a greater shift toward conserving and managing our resources, more restrictions are placed on ocean activities. Predictability in locating the bounds of a particular regulatory area will help with compliance and improve enforcement. The United States, pursuant to international law, has established maritime zones in which various activities are controlled or restricted. The limits of these zones, among a host of other information, have for years been depicted on NOAA's

paper nautical charts. NOAA is responsible for depicting on its nautical charts the limits of the 12 nautical mile Territorial Sea, 24 nautical mile Contiguous Zone, and 200 nautical mile Exclusive Economic Zone (EEZ). Additionally, NOAA also charts a Three Nautical Mile Line and a Natural Resources Boundary at 9 nautical miles, which may serve as the inner limit of federal fisheries jurisdiction as well as the outer limit of the states' jurisdiction for certain laws. This paper details an ongoing project to create a digital national baseline and maritime zones in accordance with articles set forth in the United Nations Convention on the Law of the Sea and to provide digital versions of the maritime limits to the public.

Keywords: maritime zones, gis, nautical charts, territorial sea, contiguous zone, Exclusive Economic Zone

Annika Wetlesen, University of Oslo. Email: annika.wetlesen@sgeo.uio.no; Implementation of labour standards in developing countries: The case of the construction industry in Chennai, India

This paper seeks to develop a framework to explore the possibilities for and consequences of implementation of labour standards in developing countries, using the construction industry in Chennai as a case. The labour intensive nature of the construction industry in India makes it one of the largest sources of employment in the country, but the majority of the workers are hired on an informal basis and until recently, few of the state governments had implemented the national labour legislation applicable to the industry. The state of Tamil Nadu, however, implemented a legislative framework already in 1982 and a welfare board for construction workers was established in 1994. Construction workers' unions have played an active role in the implementation process. Chennai, the state capital, has been an important centre for this organising and as an expanding metropolitan city the construction sector here is extensive. In the present framework labour regime will be a key concept. Labour standards and labour legislation based on these standards are regulatory processes on the international and national level. How the legislation affects working conditions is, however, dependent on the interaction with locally based processes of labour regulation, both formal and informal. This interaction shapes complex labour regimes in local labour markets. Based on a review of empirical studies from India, this paper will discuss which actors and institutions that may be of relevance when studying labour regimes in the construction industry in Chennai. The role of informal workers' organisations in this regard will be emphasised.

Keywords: Development geography, labour regimes, labour standards, informal economy, India.

David C. Wheeler, PhD, Emory University. Email: wheeler.173@osu.edu; Diagnostic Tools and a Remedial Method for Collinearity in Geographically Weighted Regression

The belief in the field of geography that a relationship between an explanatory variable and a response variable in a linear regression model can vary within a study area has led to the development of regression models that allow for spatially varying coefficients. One such model that is gaining popularity is geographically weighted regression (GWR). In the application of GWR, marginal inference on the spatial pattern of regression coefficients is typically of primary interest. Empirical research and simulation studies have demonstrated that local correlation in explanatory variables can lead to estimated regression coefficients that are strongly correlated. Such dependence in the estimated regression coefficients interferes with the interpretation of the effects of the explanatory variables in the regression model. The presence of local collinearity in the absence of global collinearity necessitates the use of diagnostic tools in the local regression model building process to highlight areas in which the results are not reliable for statistical inference. This paper outlines numerous diagnostic tools for collinearity in the GWR framework and introduces a penalized form of GWR called geographically weighted ridge regression (GWRR) that adds a constraint on the magnitude of the estimated regression coefficients to limit the effects of explanatory variable correlation. The results of applying GWRR to actual and simulated datasets show that this method stabilizes regression coefficients in the presence of collinearity and consistently produces lower prediction error of the response variable than one would obtain with GWR.

Keywords: collinearity, geographically weighted regression, parameter correlation, ridge regression

James O. Wheeler, University of Georgia. Email: jowheel@uga.edu; Poverty in Georgia: Metropolitan, Micropolitan and Rural Regions

In terms of wealth, two separate Georgias exist, sometimes spatially distinct and sometimes in close proximity, one rich and one poor. This empirical study examines poverty in Georgia, a fast-growing state in the 2000s, growing at almost double the U.S. average. Of particular interest is the level of poverty and wealth among metropolitan, micropolitan, and rural areas of Georgia. Micropolitan areas were established by the U.S. Bureau of the Census in 2003 and are defined as a county or counties in which at least 50 percent of the population resides within urban areas of at least 10,000 and less than 50,000 people.

Adjacent counties may be included in micropolitan areas if the surrounding county reaches at least a 25 percent employment interchange with the core county. This new micropolitan classification provides a more refined geographical lens to examine nonmetropolitan areas. Micropolitan areas in Georgia comprise 10 percent of the state's 8.7 million, population compared with 80 percent of the population in metropolitan areas. Micropolitan areas in Georgia have a per capita income only slightly higher than rural counties and far lower than metropolitan areas. Whereas Georgia has several suburban counties with high per capita incomes, especially in northern Atlanta, more than 70 percent of the counties are below the poverty level, including 53 percent of the micropolitan counties, 90 percent of micropolitan counties, and 84 percent of rural counties. Wheeler County has the highest percentage households below the poverty level, 30 percent.

Keywords: Georgia, micropolitan areas, poverty

Ann Whelan, US EPA R5. Email: whelan.ann@epa.gov; Inland Sensitivity Atlases

The U.S. Environmental Protection Agency (U.S. EPA) Region 5 has developed a series of geographic information system (GIS) based map products designed to support oil and hazardous materials spill contingency planning and response. Published as individual volumes of a Region 5 atlas series, these map products are designed to work in tandem with the contingency plans, providing detailed information about potential spill sources and about human and environmental resources at risk. The Inland Sensitivity Atlases (ISA) were created through collection, compilation, and development of a wide variety of data types from a broad range of sources. Using agreed-upon database management and GIS techniques, the ISA group created the atlases from start to finish. The process involved data collection for the various themes (e.g., managed natural resource areas, water intakes, and oil storage facilities), using a wide range of data sources. Data collection efforts included direct surveys of the owners and operators of the facilities and lands in question. Survey recipients were asked to verify that attribute information for database entries was correct and that spatial information was accurate. Once the survey responses were incorporated, draft atlases were created which consisted of mapped features on a USGS quadrangle background, along with linked data tables providing attribute information about those features, e.g., feature name, facility operator, descriptive information, and contact information. When creating the final atlases, there was a QA/QC check, and then the maps and tables were converted into Portable Document File (PDF) format.

Keywords: GIS, map, environment, emergency response, disaster

James P Whelan, McNeese State University. Email: jwhelan@mail.mcneese.edu; The Sacred Landscape of San Francisco: a preliminary survey.

This paper will present a preliminary survey of the sacred/religious places and landscape of San Francisco, CA. Because it is a preliminary step, it concentrates on the most easily accessible sacred/religious places: churches, temples, etc. A select number of religious structures will be presented and briefly discussed. The proposed end result of the project will be an illustrated guide to the city's sacred places.

Keywords: landscape, sacred, religious, church, temple

Craig Whewy, University of Leicester. Email: cjw37@le.ac.uk; Martin Phillips, University of Leicester. Email: mpp2@le.ac.uk; Gentrification and Public Policy at the Outer-Edges of the Urban

Gentrification and its relationship to public policy has been investigated primarily in the content of urban space. In this paper we examine the gentrification and public policy with respect to rural market towns, places which have recently been portrayed as being at the outer edges of an unfurling 'global urban strategy' (Smith 2002) of gentrification but which are a hybrid space likely to be influenced by processes and policies aligned with rural gentrification. The paper draws attention to evidence of gentrification within rural market towns in England and Wales before considering changes in policy making with respect to these settlements. Attention is drawn to the way that government housing and rural-land-use policies have historically acted as an often-unintended stimulus to market town gentrification and how, in association with moves within urban regeneration policies, there have been movement from the 1990s towards an incorporation of gentrification as a strategy of neo-liberal governmental development. Particular attention is drawn to the Market Town Initiative and its links to neo-liberal urban regeneration policies. The paper concludes by noting that many market towns beyond this initiative are gentrifying and that many within it are not. It is suggested that there is a complex geography to the articulation of gentrification and public policy within, and probably beyond, the hybrid spatiality of rural market towns that warrants detailed investigation.

Keywords: gentrification, urban strategy, rural market towns, England and Wales, geographies of gentrification

Christopher Whitaker, Florida State University. Email: cww4815@garnet.fsu.edu; *Politicizing the Landscape of American Public Diplomacy*

The history of America's official public diplomacy programs has been typified by a political struggle between two ideological traditions seeking to dominate the field's bureaucratic space. Discursive representations about public diplomacy's institutional norms and appropriate relationship with government have generally enabled those with an internationalist philosophy to marginalize those that are more nationalist in perspective. This has been legitimized through an exclusionary narrative that represents the mere presence of nationalists in the field as a danger to public diplomacy's supposedly apolitical heritage. This presentation utilizes critical social theory and discourse analysis to demonstrate how the recent appointment of nationalists to high-level positions in America's institutions of public diplomacy has illuminated the previously unacknowledged politics of the field and of the internationalist group that has traditionally dominated its institutional spaces. It also exposes how power-laden processes operate to enshrine a particular political-culture's perspective in public diplomacy's official institutions, policies, and normative spaces. The outcome of these processes influences who dominates the official sites of public diplomacy production, who defines what the field is, who is included or excluded from the bureaucracy, and whose image of America is projected abroad. This hegemony reinforces existing power structures by entrenching a particular group's ideology regarding the field's relationship with government. It also legitimates whose policies are considered political or apolitical and who has the right to be included in the bureaucracy and to directly influence public diplomacy's official policies, norms and trajectory in the future.

Keywords: public diplomacy, nationalists, internationalists, political-culture

Denis White, US EPA. Email: white.denis@epa.gov; Daniel Campbell, US EPA. Email: campbell.dan@epa.gov; Laura Jackson, US EPA. Email: jackson.laura@epa.gov; *A Landscape Development Intensity Index Map of Maryland, USA*

We present a map of human development intensity for central and eastern Maryland using an index derived from energy systems principles. Brown and Vivas developed a measure of the intensity of human development based on the nonrenewable energy use per unit area as an index to explain the condition of human and ecological systems on the landscape. They called this measure the Landscape Development Intensity Index (LDI). This index uses Odum's concept of energy as the common currency for relating different kinds of energy use. In this study we used a top down method to estimate the average annual energy flow that is characteristic of each category of land use category. For each such land use category in Maryland, we have calculated the renewable and nonrenewable energy flow per hectare per year using the new method. From these data we can make a pixel level map for our study area in Maryland or a map at any level of aggregation of pixels, for example, political jurisdictions, census units, hydrological accounting units, or ecological regions. Such maps are the basis for spatially explicit energy analyses of environmental problems at any scale.

Keywords: land use, development intensity, energy index, energy

George W. White, Associate Professor, Frostburg State University. Email: gwhite@frostburg.edu; *Environmental Determinism and Boundary Delineation at the Paris Peace Conference*

Woodrow Wilson's concept of "self-determination" was applied when the new political boundaries were drawn at the Paris Peace Conference in 1919. It was most clearly manifested in the creation of new nation-states in East Central Europe. The new political boundaries for countries were determined by the "mapping" of the spatial distributions of nations. Common language was seen as the principle national identifier but this paper demonstrates that the idea of language was circumscribed within the broader concept of environmental determinism. A close examination of the ideas of geographers who prepared documents for and participated in the Paris Peace Conference reveals the environmental deterministic views of language.

Keywords: political geography, Europe, Boundaries, nation

Misty Layne White, University of North Alabama. Email: mistylayne@gmail.com; Greg G Gaston, Dr, University of North Alabama. Email: gggaston@una.edu; *Electrical Resistance Imaging to Map and Confirm Suspected Burial Sites in North Alabama*

Electrical Resistance Imaging to Map and Confirm Suspected Burial Sites in North Alabama A non-invasive system to help with evaluations of sites selected for development has been needed for a long time. Electrical Resistance (ER) imaging systems has been successfully used to identify and evaluate archeological sites in a number of areas around the world. ER imaging allows you to be able to "see" underneath the ground surface and look for such things as graves, tunnels and other previously undiscovered openings before digging or building. ER imaging works by sending pulses of electric current into the earth and recording

the amount of current that is received from nearby electrodes. Data gathered with the use of ER imaging is done in a quick and non-intrusive manner. We will be using the ER imaging equipment at several locations near Florence Alabama including, Sweetwater and Coffee Plantations. In Alabama many Native American, African-American and other rural sites can be difficult to identify and verify because of the lack of existing documentation and scattered locations of the sites. Historical African-American burial sites, for example, have been destroyed because they appear disorganized and un-kept. These places are significant to the history and culture and need not to be forgotten. With the use of Electrical Resistance Imaging we can search out and locate these forgotten resting places. With this technology in the planned research we will be able to document and recover history that is in danger of being permanently lost.

Keywords: Electrical Resistance Imaging

Scott White, Fort Lewis College. Email: white_s@fortlewis.edu; Heather J Hormell, Fort Lewis College. Email: hjhormell@fortlewis.edu; Colleen Filippone, National Park Service. Email: colleen_filippone@nps.gov; Larry Martin, National Park Service. Email: larry_martin@nps.gov; *Cultural Resources Preservation using Hydrologic Monitoring and GIS at Aztec Ruins National Monument, New Mexico*

Field studies were undertaken at Aztec Ruins National Monument in the town of Aztec, New Mexico starting in 2005 to assess the extent of shallow groundwater-related deterioration of several historic ruins. Aztec Ruins National Monument preserves the ruins of 900-year-old ancestral Pueblo great houses and kivas. These ruins have been exposed to many different types of precipitation events, including winter snowfalls, extended droughts, and monsoon rains in the summer months. Several piezometers were installed near the base of the walls of the main Aztec West great house ruin. Groundwater readings from these piezometers have been collected weekly since 2005. Preliminary analyses indicate that there is distinct seasonality to the groundwater level, and that the rise in late spring groundwater levels can be directly attributed to the onset of water flow in a large nearby irrigation ditch. GIS is being used in the construction of a comprehensive database of spatial data related to the Monument, including field results from the hydrology study, piezometer locations, great house and kiva locations, and visitor facilities (sidewalks, buildings, parking lots, and other visitor-related structures). When completed, this project will allow for the identification of water sources impacting the major ruins sites at the Monument leading to the recommendation of appropriate mitigation measures for protection of the ruins from continued deterioration. The GIS database will be used by National Park Service personnel as part of their ongoing effort to preserve the natural and cultural resources of Aztec Ruins National Monument.

Keywords: hydrology, GIS, cultural resources preservation, New Mexico

Ted White, University of Massachusetts Amherst. Email: ted@igc.org; *Growing an Economy of Trust: Honor-System Based Exchanges at Small Farm Stands in Western Massachusetts*

Imagine you have just walked up to a store, it is clearly open for business and there are products for sale but no one is there to take your money. Instead there is a small box, tin can, or bucket which says "put money here". There is no surveillance camera. You are being trusted to pay for what you take. All this is normal?if you are a customer at one of the hundreds of small honor-system based farm stands in the Pioneer Valley region of Western Massachusetts today. Honor-system based farm stands exist today as vibrant and enduring examples of local agriculture and are also unusual examples of largely non-capitalist community economies. The rustic humble stands tempt customers with fresh local produce at bargain prices, yet also create a dynamic of trust and community pride between buyers and sellers. In Massachusetts, farm stands exist as informal outposts for regional or sometimes merely neighborhood-scale commerce. Like rummage sales, they are largely unregulated by policy or legislation. Stands are located on roadsides or on front yards and thus invite the public to cross into private often vulnerable spaces. Though farm stands exist as highly flexible and viable markets for the direct sale of local agricultural products? profit is not the only motive for participation in this sector. This paper will attempt to describe the history and future of honor-system based farm stands looking at issues of trust, security, public/private spaces, small scale agriculture, local economies, and community identity and participation.

Keywords: Economic geography, cultural geography, local economies, community, farms, agriculture, trust, honor-system, Pioneer Valley, Western Massachusetts

Jessica C. Whitehead, Pennsylvania State University. Email: jwhitehead@psu.edu; *Incorporating Community Water Systems' Concerns into Climate Change Adaptive Capacity Analyses: A Process for Scenario Building*

In theory, it is simple to say that community drinking water systems should prepare for changes in climate. For community water officials interviewed in Centre County, Pennsylvania, concerns about daily operational matters and future regional issues like development and regulatory changes leave them with little time to consider climate change or their capacity to adapt to it. This paper describes a process created to facilitate the integration of community water system concerns with issues of hydroclimatic change and variation to examine future adaptive capacity. In semi-structured interviews, officials from nine community water systems identify the key drivers and attributes currently affecting their systems' operation. Officials weight these factors to create a working model of local community water systems' current capacities to adapt to changing patterns in floods and droughts. Academic researchers, water system officials, and other community members then meet to discuss local change and create comprehensive narrative storylines. These storylines allow researchers to build scenarios of community water systems' future capacities to adapt to climate change that incorporate these local concerns. Preliminary results suggest that these adaptive capacity scenario suites can support social learning, facilitating community development of comprehensive local water management policies.

Keywords: climate change, adaptive capacity, scenarios, community water systems

Edward Albert Whitesell, Ph.D., The Evergreen State College. Email: whiteset@evergreen.edu; *Protecting Washington's Marine Environments: Tribal Perspectives*

This paper presents the findings of a collaborative project with the Tulalip Tribes Department of Natural Resources examining how tribal communities in western Washington view marine protected areas (MPAs). Using qualitative data, collected through unstructured interviews and reviews of published and unpublished literature, the study aims to improve the process of designing and managing MPAs to better serve both ecological objectives and Native American interests, by improving understanding of the socio-cultural systems that such protected areas depend upon for their long-term success. Tribal perspectives reported in the paper include the over-arching and nonnegotiable significance of treaty rights and co-management authorities; the importance of early and consistent tribal involvement in planning and implementation; the necessity of funding to insure meaningful tribal participation, especially for small tribal governments; the need for power-sharing governance structures; a desire for clear scientific justification of proposed MPAs and clear articulation of their objectives; integration of traditional environmental knowledge and tribal goals as established by the tribes rather than as assumed by others; conceptualization of tribes as part of marine ecosystems; use of MPAs as part of a broader plan to recover and protect marine habitats rather than a more limited focus on harvest pressure; and supplementing MPAs with a major environmental education program for the general public to address widespread degradation of the marine environment in the region. These findings are analyzed within a theoretical framework informed by critical historical geography and political ecology.

Keywords: protected areas - marine, Native Americans, marine environments, conservation, political ecology, Washington State

Susan K. Whitford, CWB, San Diego State University. Email: whitford@rohan.sdsu.edu; *Coming Home to Roost: Seasonal resource use of forest bats in fire-scarred Coast redwoods.*

Along California's Central Coast, a maritime climate has led to chaparral, coastal prairie, and oak woodland habitat mosaics interspersed with Coast redwood riparian forest. During the 20th century, a 20,000-acre private property has undergone a gradual shift of resource use from Tanoak and Coast redwood forest harvesting through the 1920's to unmanaged grazing in the 1930's, and finally rural residential development and adoption of conservation easements in the late 1980's. The effects of land use, forest pathogens, habitat restoration and fire suppression efforts help maintain distinct mosaics of vegetation communities connected by creeks and roads as patterns on the landscape. An ongoing guano trap survey shows patterns of fire-scarred redwood use as roosts for 12 species of bats and foraging activity of pallid bats throughout the seasons. Traps in 42 large-diameter trees representing a range of land use have identified night roosting by four species of bats using Sonobat echolocation call recording systems and quantified roost use using volumes of fecal material. Key results include evidence of year-round foraging activity by pallid bats provided by culled insect parts. Patterns of roosts may be facilitated by spatial elements of the landscape such as linear corridors (creeks and roads) and oak woodland ecotones, and are inversely correlated to grasslands within the study area.

Keywords: GIS, bat, vegetation community, roost

Robert Whiting, PhD Candidate, University of Illinois, Urbana-Champaign. Email: whiting@uiuc.edu; *Urban Space and National Place: Defining a Nation by Placing (and Re-placing) a Statue.*

The main square of Zagreb, Croatia has been a political-instrumentalist space and national place for over 150 years. As much as any public space in Europe, it demonstrates the profound tendency of national projects to effectively produce semiotically-charged micro-spaces as part of complex multi-scalar strategies. In 1866 the square was transformed into a definitive national place with the instillation of a statue of Ban Josip Jelacic. The statue proved to be a resonant symbol of a sovereign, unified Croatia with Zagreb as its capital. In 1947 the new Communist administration removed the statue to re-code Zagreb's main square as a Yugoslav place. The failure of this effort was dramatically proven with the re-installing of Ban Jelacic's statue in 1990. This paper seeks to explain why the initial placement of Ban Jelacic's statue was successful in transforming the meaning of the square in the public imagination, but the removal of the statue was not. Key to this is the ambivalence of the Communist authorities in Yugoslavia towards both Zagreb as a city and the city's main square as a place. Yugoslav authorities attempted to utilize Zagreb's location and industrial infrastructure to rapidly urbanize and industrialize Croatia, while at the same time diminishing the city's position from the "Croatian Metropolis" to a regional city in a Yugoslav urban network. Similarly, the authorities in Zagreb sought to minimize the square's historic significance, while, still utilizing its tremendous potential as a symbolic space to transmit meaning by holding numerous political and cultural events there.

Keywords: National Identity, Urban Space, Croatia, Former Yugoslavia

Cathy L. Whitlock, Montana State University. Email: whitlock@montana.edu; Patrick Bartlein, University of Oregon. Email: bartlein@uoregon.edu; Jennifer Marlon, University of Oregon. Email: jmarlon@uoregon.edu; Patricio I Moreno, University of Chile. Email: pimoreno@uchile.cl; *Comparison of Holocene Fire-Climate Linkages in the Mid-latitudes of Western North and South America*

High-resolution fire history data from temperate forests of western North and South America permit examination of regional and hemispheric linkages between Holocene climate, fire, and ecosystem response. Differences in the seasonality of precipitation influence fire regimes at present, and the paleorecord suggests that the intensity of these precipitation regimes was affected by large-scale changes in the climate system in the past. At present, summer-dry areas are dominated by subtropical high pressure systems, and subsidence in these areas suppresses summer precipitation. Summer-wet areas are influenced by monsoonal circulation, which increases convective activity and fire activity east of the Rockies and Andes. In the western US, paleoenvironmental data suggest that summer-dry areas became drier in the early Holocene with the expansion of the subtropical high-pressure system. Summer-wet areas, in contrast, register wetter-than-present conditions, presumably because summer insolation strengthened summer monsoonal circulation. South American records show: (1) an abrupt increase in fire activity at the Pleistocene/Holocene transition at high-latitudes; (2) widespread fire activity and drought in the early Holocene despite the summer-insolation minimum; (3) north-south differences in fire activity in the mid-Holocene suggesting the onset of the current dipole climate, and (4) locally variable fire signals and a shift to smaller surface fires in the late Holocene consistent with cooler conditions and greater interannual variability. Widespread fire activity in southern South America in the early Holocene is consistent with warmer SSTs, a weakened pole-to-equator temperature gradient, and a southward shift of westerly storm tracks as a result of the strong obliquity forcing.

Keywords: paleoecology, biogeography, fire history, climate history

W. Scott Whitlock, University of Arizona. Email: wswhitlo@email.arizona.edu; *Bear Bottoms and Hairy Chests: Nudity, the Woods, and a Creation of a Gay Male Subculture*

This paper considers the role of nudity and nature in the so-called Bear Movement, a gay male subculture that takes as part of its goals the reinsertion of masculinity and body acceptance into popular conceptions of what it means to be "gay" and "male." Although the Bear Movement is mainly an urban movement, many people within it seem to associate urbanity with a "twinkish" or stereotypically feminine "gayness" and use overtly masculinist images of the male body, ruggedness, camping, and nature to somehow mitigate their spatial and identitarian place within the larger gay community. One of the ways they do this is through Bear Runs, events that often take place in remote areas and are most often clothing optional and sexually free. Bears run the gamut from somewhat slim to downright large, and one of the most striking things about a Bear Run is to see all of these body types, naked. This paper not only concerns itself with the role of nudity within the Bear Movement but also seeks to explore the radical potential of that nudity. What importance do Bears within the movement place on nudity? Is it radical to be gay, fat, and naked in public? What declaration does nudity provide for these often "non-traditional" gay male bodies? How is nudity

tied into nature? How are they related? This paper will address these questions through interviews with Bears, images from the Bear Runs, and an examination of personal experience.

Keywords: gay men, homosexuality, masculinity, nudity, subcultures,

Brandon C. Whitney, Yale University. Email: brandon.whitney@yale.edu; *The Political Ecology of Indigenous Discourse in the Ecuadorian Amazon*

Recent Ecuadorian state policies concerning indigenous land titling have opened the door for Amazonian nationalities to assert new levels of authority over their territory. Many of these groups turn to partnerships with NGOs to help advance legal, political and cultural claims. Especially in the face of looming oil-related conflicts in "undisturbed" forests, the indigenous discourse deployed within these partnerships takes on a powerful life of its own. My research examines a transnational, US-Ecuadorian NGO working with several indigenous groups in the south-central Amazon of Ecuador on organizational strengthening, political advocacy and territorial management. What started as a process envisioned as the "accompaniment" of a single indigenous Nation by a group of metropolitan donors and advocates in the US and a professional team of Ecuadorians based in that nation's capital has grown into a complex set of partnerships between a US-based funding and advocacy alliance, an Ecuadorian non-profit and seven Amazonian indigenous Nationalities. Through a variety of methods?primarily multi-sited institutional ethnography, participant observation and detailed interviews?my research seeks to understand the nature of these NGO-indigenous partnerships across spatial scales and, particularly, the role of discursive rhetoric about indigenous peoples and conservation in such transnational relationships. Though often overlooked, it is my contention that discourse about indigenous peoples is itself a powerful force in the world of environmental conservation and development?particularly in the realm of indigenous/non-indigenous partnerships. I explore how such discourse is connected to new understandings of power, identity, agency, representation and interdependence in the Ecuadorian indigenous context.

Keywords: political ecology, discourses, indigenous, non-governmental organizations, conservation, development, Ecuador, Amazon

Risa C. Whitson, Ohio University. Email: whitson@ohiou.edu; *Recycling Dreams: The politics of trash and informal garbage collection in Buenos Aires, Argentina*

In 2005 the city of Buenos Aires passed the "Law of Integrated Management of Urban Solid Waste," also known as the "Zero Trash" law, radically reforming their system of solid waste management. One important aspect of this reform - which aims to reduce by three-quarters the amount of waste being sent to landfills by 2017 ? includes the institutionalization recycling through the informal work of cartoneros ? or trash pickers. While the occupation of scavenging has always existed in Argentina, it has historically been associated with illegal, marginalized populations and activities, thus making its formalization and incorporation into this recycling program significant. In this paper, I address the social, political, and economic implications of this landmark legislation by examining the motives behind its passage as well as the responses of different groups within the city to its passage. I argue that the Zero Trash law, while clearly a victory for environmental activist groups, cannot be understood outside of the context of neoliberalization, as the third sector ? cooperatives and organizations formed by the cartoneros themselves ? becomes a critical component in a system of public service provision. While at face value more inclusive of marginalized populations than previous neoliberal policies of state retrenchment, this law does not indicate a fundamental change in attitude toward either unwanted refuse or unwanted people, and as a result has the potential to be not only beneficial but also harmful to marginalized populations and environmental concerns in the city.

Keywords: Argentina, trash, recycling, informal work

Anne W. Wibiralske, Ph.D., Hobart and William Smith Colleges. Email: wibiralske@hws.edu; James D. Hall, GIS Analyst, New Fields. Email: jhall@newfields.com; Karen Edelstein, GIS Specialist and Stewardship Coordinator, Finger Lakes Land Trust. Email: edelstein@hws.edu; *Mapping Old Stands in the Finger Lakes National Forest, NY: A Community-based, Multi-party Collaboration*

Concern over how to preserve tracts of old forest in the Finger Lakes National Forest (FLNF) has been a key issue in the recent revisions to the forest's management plan. The FLNF's more than 16,000 acres in Schuyler and Seneca Counties, NY contain a rich diversity of grassland and forest ecosystems and a rich diversity of stakeholders, including grazing associations, recreational hunters, loggers, hikers, nature enthusiasts, educators, and others. A number of stakeholders have advocated strongly for the preservation of the FLNF's oldest stands, but a current map of old stands on FLNF and adjacent lands did not exist. This presented an ideal focus for a collaborative community-based learning

project. We developed a mapping project for a college environmental studies senior seminar in collaboration with the US Forest Service and community stakeholders to identify patches of old forest. Based on a set of scanned and georeferenced historic aerial photographs dating from 1944 and using GIS software, seminar students delineated areas of forested land in the FLNF and surrounding land for 1944, 1954, 1964, 1985 and 2002. Analyzing these data layers, we created a map of areas continually forested since the mid-1940s based on aerial photograph interpretation. The resulting map of areas continuously forested since the mid-1940s was shared with regional land conservation organizations and the FLNF staff, contributing to forest management decision-making processes. This project has built a strong foundation for continued collaboration among planners, managers, students, and stakeholders who have not previously worked together.

Keywords: Community-based learning, Old-growth, Forest Management

Melissa Wicks, East Carolina University. Email: mlw0822@ecu.edu; *Latino High School Student Aspirations and Achievement: A Case Study from Rural North Carolina*

The state of North Carolina has experienced a significant increase in its Latino population over the past decade. This new immigrant population has included substantial numbers of school-aged children, which has posed both challenges and opportunities for educators and school systems in the state. This demographic change is particularly dramatic in North Carolina's rural high schools, some of which now serve a student population that is nearly 25 percent Latino. Researchers have identified some disturbing trends among rural Latino students, including low levels of achievement and high drop-out rates, and it is therefore important to better understand the factors influencing educational attainment and aspirations among Latino high school students. In this paper, I present results of a qualitative study of educational attitudes and achievement in one rural North Carolina school district. Through interviews with educators, family members, and the students themselves, I will highlight some of the material, cultural and legal barriers faced by Latino high school students, and suggest possible interventions and policy changes that may help to improve Latino student achievement and long-term success.

Keywords: education, Latino, rural, high school, North Carolina

Randy W Widdis, University of Regina. Email: randy.widdis@uregina.ca; *The Configuration and Reconfiguration of the Canadian-American Borderlands*

Transnationality, and the kinds of relationships it embodies, varies over time and space, a fact that is obvious when considering the history of Canadian-American relations. After September 11, 2001, the boundary between Canada and the United States became more complex. The more permeable border that had resulted from the implementation of free trade agreements stood paradoxically opposed to calls for a more secure boundary. Yet while the transformations taking place currently are noteworthy for their speed, scale and impact, the border shared by both countries has always been subject to change and has evolved over the years. The objective of my current book project is to enhance our historical understanding of Canadian-American relations - a task made more relevant as a result of 9/11 - by focusing upon the regional dimensions of interaction across the international borderlands shared by the two countries. The focus is on connection and disconnection, integration and differentiation, convergence and divergence across a geopolitical boundary that at one level appears relatively simple and at another is incredibly complex. This paper reviews briefly the conceptual frame underlying the project and illustrates the changing historical nature of these relations with some GIS-produced maps that are the product of data collected from a number of primary sources (e.g. Soundex Index to Canadian Border Entries, Canadian Border Crossing Records, Dun & Bradstreet records, U.S. and Canadian Customhouse and Port records) that provide valuable insight into the movements of people, goods and capital across the international border and within borderland regions.

Keywords: borders, borderlands, historical evolution, migration, trade, investment

Patricia Widener, Florida Atlantic University. Email: pwidener@fau.edu; *Faultlines of Environmental Mediation: A Case of Oil Impacts in Ecuador*

This paper examines the convergence of oil multinationals, international institutions, private lenders and international organizations in "governing" Ecuador's environmental resources during the construction of an oil pipeline. International groups mobilized to pressure international entities for higher environmental standards and environmental funds. Yet faultlines in the environmental campaigns remind us of the tenuous nature of international agreements on affected environments and local communities. In this case, two multinationals of the privately-owned pipeline exited the country post-construction. A Canadian firm sold its operations to a Chinese consortium and an American firm's facilities were seized by the state oil company. Such exchanges beg the questions: How

sustainable are agreements between oil entities and international organizations without the commitment of the state and domestic organizations? What is the role of northern advocacy groups when Asian extractors replace northern ones? Second, this case reveals how persistent divisions between environmental groups and affected communities reinforce the isolation and limitation of environmental agendas that are exclusive of oil-saturated communities.

Keywords: petroleum, environment, Latin America

Nichole Wiedemann, Associate Professor, University of Texas at Austin. Email: wiedemann@mail.utexas.edu; Jason Sowell, University of Texas at Austin School of Architecture. Email: jsowell@mail.utexas.edu; *NATURE + ARTIFICE: Investigating New Orleans Through Analytic Mappings and Performative Diagrams*

New Orleans is inextricably linked to place; strategically positioned near the mouth of the Mississippi River as a center for economic and material exchange, the city's urban form developed as an accretion of infrastructural systems and fluvial processes. The engineered responses to this dynamic environment inscribed a hydrologic network onto a shifting terrain as a means of transforming wet land into productive ground. The design research investigated the tenuous interface between nature and artifice through analytical mappings and performative diagrams. The work privileges infrastructure, rather than architecture, in rebuilding New Orleans. The analysis reveals the region's hydrologic and climatic conditions that act as integrated components of a larger ecological and cultural network. Building on typologies of wall, conduit, basin and controls, the resulting scenarios augment existing infrastructure through sectional change. As opposed to a traditional plan based approach, the sectional strategy facilitates opportunities to increase the city's water storage capacity, reclaim river access and elevate land as well as engage in social programs and increased occupational density. The proposed interventions are represented at the scale of operative diagrams responding to the particularities of each site tying infrastructural networks into the city's collective memory. The paper focuses on the representational means, which ask and answer the complexities of rebuilding New Orleans. The maps, as analytic and synthetic devices, are structured by the practices of the place rather than purely spatial proximities. The resulting maps and diagrams are inherently operational rather than static, rendering the inextricable link between nature and culture visible.

Keywords: map, culture, geography, design, New Orleans, water

Rebecca Wienbar, Syracuse University. Email: rlwienba@maxwell.syr.edu; *Bodies and the State: Access to reproductive choice in South Dakota*

On March 6, 2006, Governor Mike Rounds signed the South Dakota 'Women's Health and Human Life Protection Act'. This act makes it illegal for a doctor to perform an abortion in the state of South Dakota, with no exceptions for victims of rape or incest, or to protect a woman's health. Even before this bill was introduced, South Dakota relied on out-of-state doctors, who regularly fly to Sioux Falls to perform abortions at the state's one abortion clinic. This paper examines the intersections of power, access, bodies, and the law in the case of abortion in South Dakota, where a woman's ability to move both within and outside of particular spaces can determine the control that the law has over her body. While a woman's location plays a key role in her ability to access reproductive choice, it can also contribute to the difficulties she may encounter in doing so. Although individual bodies experience the state in different ways, the mobility of both women and doctors is a strategy through which pro-choice bodies can challenge the state, and through which they can manage and/or escape reproductive control and regulation of women's bodies.

Keywords: abortion, access, biopower, body, mobility, women, gender, health, law, political, regulation, state, social justice, reproduction, abandonment, exclusion

Thomas A. Wikle, Oklahoma State. Email: t.wikle@kstate.edu; *The Lighted Airway and Postal Aviation in the U.S., 1924-1933*

During the 1920s and 1930s a system of high intensity navigation lights and emergency landing fields was constructed along the recently established transcontinental airmail route from New York City to San Francisco. By increasing the speed of delivery U.S. Post Office Department officials hoped that night flying would establish aircraft as economically viable alternatives to trains for transporting mail over long distances. As of 1933 the system had grown to encompass 18,000 miles of airways throughout the U.S., illuminated by more than 1,700 beacons. Hundreds of emergency landing fields and municipal airports were constructed along airway routes in support of day/night airmail operations. This paper explores development of lighted airways, their influence on mail delivery times, and their contributions to communication and transportation in the U.S.

Keywords: aviation, historical geography

Andrew Wilcox, U.S. Geological Survey, Geomorphology and Sediment Transport Laboratory, Golden, CO. Email: awilcox@usgs.gov; *Effects of a controlled flood release on native versus non-native riparian vegetation and geomorphic processes in a desert river*

Reoperations and adaptive management of Alamo Dam on the Bill Williams River in western Arizona are emphasizing environmental flow releases to protect a cottonwood-willow riparian woodland system, including controlled flood releases in 2005 and 2006. The 2005 flood release resulted in the establishment of many riparian seedling patches co-dominated by non-native tamarisk and native willow. This work investigates the differential response of these seedlings to a controlled flood release in 2006 and how such changes are mediated by reach- and basin-scale geomorphic processes. At the site closest to dam, the flood caused scour of seedlings and their substrates from mid-channel bars and lateral shifting of bars. In a reach further downstream, tamarisk seedlings were buried as a result of aggradation, and suspended sediment concentrations were approximately twice as large as in the upstream reach. In both reaches, tamarisk suffered greater reductions in density than willow, likely as a result of the substantially greater first-year height and diameter growth of willow relative to tamarisk. Field results are being complemented by flow and sediment transport modeling using the Multidimensional Surface Water Modeling System to assess spatial patterns of velocity and shear stress in an effort to help quantify flow-sediment-vegetation relationships. This work illustrates that floods can differentially affect willow and tamarisk and that such effects are mediated by geomorphic processes on both a reach scale, where local bed gradients and geomorphic characteristics influence shear stress dynamics, and on a basin scale, where sediment supply dynamics can influence morphologic and vegetation responses.

Keywords: tamarisk, environmental flows, adaptive management, shear stress, fluvial geomorphology

Sharon E. Wilcox, University of Texas - Austin. Email: SEWilcox@mail.utexas.edu; *Locating the Grizzly Bear in the Nature-Culture Borderlands: Reconsidering Anthropomorphic Strategies*

In 2005, the documentary/biographical film "Grizzly Man" premiered at the Sundance Film Festival, where audiences greeted it with enormous enthusiasm. Exploring the life and violent death of controversial wildlife activist Timothy Treadwell, the film subsequently reached widespread audiences throughout America. Attaining a level of recognition not normally granted to documentary film, its popularity is indicative of an ongoing fascination with grizzlies in the American imagination. "Grizzly Man" quickly emerged as one of the most prevalent representations of bears, with the film's narratives and images contributing to the social production of the grizzly. Locating the grizzly at the physical and symbolic intersections of nature and culture, this study is concerned with how such representations socially construct the grizzly's animality. This can directly affect human attitudes, actions, and policies in physical spaces shared with these bears. These representations have far reaching implications, not only for this species, but for larger attitudes toward wildlife, nature, and the environment. Through a reconsideration of the place of grizzly bears in American society, this paper examines the need for a reassessment of anthropomorphic representations of wildlife in both popular culture and conservation initiatives. Ultimately, such reassessment could potentially redefine the contours of the nature-culture borderlands, and this wildlife species' positions within these spaces.

Keywords: Representation, Animals, Grizzly Bears

Dean G. Wilder, University of Wisconsin. Email: wilder.dean@uwilax.edu; *Prehistoric Clay Sources: A Forensic Exercise in Geoarchaeology*

The prehistoric Oneota culture of the Upper Mississippi River Valley relied on pottery for storage, cooking and ceremonial purposes. Oneota pottery shards recovered from archaeological sites in the La Crosse, Wisconsin area are composed of clay presumed to be from a local source. Un-tempered clay balls have also been found at archaeological sites in the La Crosse area. The un-tempered clay samples from archaeological sites provide the opportunity to compare clay collected by Oneota people to local clay sources. The focus of this research is a "forensic" exercise in which prehistoric clay samples are compared to samples recently collected from La Crosse area ridge-top and terrace clay sources. Comparisons are made on the basis of color, particle size, magnetic susceptibility and x-ray diffraction. Magnetic susceptibility and x-ray diffraction measurements are used to "fingerprint" the clay samples from archaeological sites and match them with the samples collected in the field.

Keywords: geoarchaeology, magnetic susceptibility

Margaret Wilder, University of Arizona. Email: mwilder@email.arizona.edu; Privatization and Deprivation: The Construction of Water "Rights" in Rural Mexico

Drawing on concepts of water and citizenship (Castro 2006) and hydrosocial flows of power (Swyngedouw 2004), this paper interrogates the ways in which the notion of water rights in Mexico is doubly constructed. Central to this discourse is a set of international water principles that promotes a recognition of water as an economic good and prescribes new rights arrangements that are claimed to promote efficiency, equity and sustainability. These—apparently conflicting?rationales are all embodied within Mexico's 1992 and 2004 national water policy reforms, and lead to both confused intentions and outcomes. This paper explores the construction of water rights and the concept of water privatization within the particular context of a marginalized sector of Mexican citizens whose rights to water are challenged by the water modernization strategy, the small communal farming (ejido) sector. I argue that the spread of private control of ejido land and water resources has been accelerated and extensive in northern Mexico, and is detrimental to the livelihood prospects of an economically vulnerable sector. Purely formal and legalistic understandings of privatization?and those focused only on land, not water?are largely missing the point of how Mexico's ejido sector is being reshaped by "hidden" processes of privatization that increasingly deprive ejido families of access to their traditional water resources. The practices of privatization raise questions about the role of the state in pursuing socially acceptable outcomes for marginalized citizens, bringing into relief what really constitute these citizens' "water rights."

Keywords: water, privatization, ejidos, Mexico

Cody J. Wiley, UNM. Email: horde.of.one@gmail.com; Artificial Neural Networks and Prediction of Rangeland Greenness

New tools are becoming available which can increase the sophistication and efficiency of our natural resources management practices. This poster investigates Artificial Neural Networks (ANN) to model a grasslands environment. The network will use areal precipitation from Doppler weather radar, other relevant climatic and environmental variables, seasonality, and the Normalized Difference Vegetation Index in an ANN model of rangeland greening and senescence. The trained network will be validated against independent data. The degree of agreement between the predicted grassland status and real data will indicate the usefulness of this paradigm in rangeland management.

Keywords: Artificial Neural Networks, NEXRAD, NDVI, rangelands, grasslands, precipitation, New Mexico

James Wiley, Hofstra University. Email: ecojew@hofstra.edu; Small Economies, the World Trade Organization, and the Doha Round

As the globalization process broadens and deepens, small economies, especially small-island developing states face new challenges as they seek to improve their development level. The 1995 creation of the World Trade Organization changed the institutional framework within which small economies negotiate their futures. Many developing countries find the organization unresponsive to their needs; their collective dissatisfaction led to the opening of the Doha Round of negotiations in 2001. Subsumed within the Round is a small economies initiative, an effort to explore alternatives beneficial to those states for which the new rules of trade are often harmful. The Doha Round has stalled completely, following disastrous meetings in Cancún, and elsewhere. The refusal of developed countries to negotiate agricultural subsidies caused major developing states to break off talks. Small states were caught in the middle as progress on the small economies initiative was undermined by disagreements on broader issues. This paper examines the small economies initiative and the Doha Round to determine what hope it offers to small states. The author reviews the challenges facing those countries and suggests what is needed to help their situation. The paper is based upon research in Geneva and London, and in several affected small island states. It concludes with an evaluation of whether the Doha Round and small economies initiative will prove beneficial to small states.

Keywords: economic geography, trade, Doha Round.

Justin Wilford, University of California Los Angeles. Email: jwilford@ucla.edu; Out of Rubble: Hurricane Katrina and the Materiality of the House

Studies of the cultural dimensions of natural disasters have largely opposed the social world to the physical world. In such studies, the social world of humans constructs meaning against the implacable force of nature. This paper, following the theoretical lead of 'new materialists' such as Bruno Latour and Daniel Miller, argues that the physical world plays an integral role in the construction of meaning out of natural disasters. By focusing on the various cultural narratives surrounding Hurricane Katrina as well as the particular material genre of the house, the paper analyzes the ways the human and physical worlds participate in the production of meaning. The specific materiality of the house in New Orleans is explored through three key stages of the Katrina disaster: the initial landfall

and flooding, the first week of ostensible chaos, and the return of residents to their houses.

Keywords: Natural Disasters, Hurricane Katrina, Materiality, Houses, Nature, Meaning, Theory/Social

Olga Wilhelmi, National Center for Atmospheric Research. Email: olgaw@ucar.edu; Christopher Koh Uejio, Center for Sustainability and the Global Environment, University of Wisconsin-Madison. Email: uejio@wisc.edu; Jason Samenow, U.S. EPA Office of Atmospheric Programs. Email: samenow.jason@epa.gov; Exploring Spatial Patterns of Societal Vulnerability to Extreme Heat

Currently cities and climate are coevolving in a manner that could place more vulnerable populations at risk from exposure to excessive heat. The magnitude of recent heat waves and their impacts in many urban areas in the U.S. and Europe indicate an urgent need for increased awareness to the heat wave phenomena and understanding the underlying vulnerabilities. As a complimentary effort to the development of the EPA/NOAA/CDC/FEMA Excessive Heat Events Guidebook, within the realm of the Weather and Society: Integrated Studies program, this study focused on a spatial analysis of vulnerability and risk to excessive heat in two urban areas in the U.S.: Phoenix and Philadelphia. Two cities were analyzed in terms of their climatology, environmental and societal characteristics, previous cases of excessive heat impacts, and existing strategies for heat-wave mitigation. Geographic Information Systems (GIS) and spatial statistics were used to identify spatial patterns of biophysical and social factors contributing to the heat-related morbidity and mortality. Combination of social and physical factors allowed for identification of "hot spots" or areas of potential risk from excessive heat that were strongly related with recorded heat-wave mortality. Considering the potential interactions of multiple risk factors produces a more complex understanding of vulnerable populations that may inform mitigation strategies. This kind of spatial analysis, when enhanced with mesoscale forecast (model) data, could be used operationally to inform targeted impacts intervention.

Keywords: Heat Waves, Public Health, GIS, vulnerability

Forrest D. Wilkerson, Minnesota State University. Email: forrest.wilkerson@mnsu.edu; Ginger L. Schmid, Minnesota State University. Email: ginger.schmid@mnsu.edu; Fifteen years of periglacial research in the White Mountains, California.

Since 1991 detailed studies have been conducted on a variety of periglacial landforms in the White Mountains of California. The landforms range from large-scale sorted patterned ground and boulder streams to small-scale sorted patterns or frost boils. Activity rates have varied widely between the types of landforms studied, primarily along an elevational gradient from 3225m to over 4300m. Methods employed have ranged from high-resolution surveying techniques to low-resolution dowels and surface markers. Activity among the large-scale landforms has not been detected in any landforms below 4100m. However, landforms above 4100m are very active with horizontal movements in many cases exceeding 10.0cm per year. Smaller-scale landforms show progressively higher rates of activity with increased elevation. At the lowest elevations, only horizontal surface movement has been detected and is thought to be primarily the result of needle ice movement. Above 3800m frost penetration is deeper and distinct horizontal and vertical components were noted. Wooden dowels placed in landforms above 3800m routinely have heave rates averaging greater than 15cm per year and surface plots average noticeable movement within two thirds of the markers. Above 4100m all landforms are highly active and include a solifluction component that is audible on calm days in late summer. The most recent investigations concern geomorphic activity rates, primarily periglacial activity, surrounding GLORIA sites in the White Mountains of California.

Keywords: periglacial activity, geomorphology, California

David E. Wilkins, Boise State University. Email: dwilkins@boisestate.edu; Richard L. Ford, Weber State University. Email: rford@weber.edu; Kathleen Nicoll, University of Utah. Email: kathleen.nicoll@gmail.com; Multiproxy Evidence for Late Holocene Climate Change, Coral Pink Sand Dunes, Utah

Dune fields can be highly sensitive to climatic change, as variability in effective moisture influences sediment supply and transport. The Coral Pink Sand Dunes, an active dune field in southern Utah, is the site of ongoing investigations into geomorphic system response to climate change in the Colorado Plateau. Stratigraphic exposures of crossbedded aeolian sand capped by a soil have been dated through optically-stimulated luminescence methods using single-aliquot regeneration (SAR) protocols. Those results identify three distinct episodes of aeolian deposition occurring 4.1 +/- 0.19 kyr, 2.8 +/- 0.22 kyr, and ca. 710 -510 kyr. The soil was radiocarbon dated (using the bulk organic matter) to 470 +/- 50 BP, and radiocarbon ages on plant matter in the surface matrix of

the soil and from ponderosa pine snags in the dune field indicating more recent plant communities. Additional evidence of climatic variability is seen in a disjunct living pine stand (*P. ponderosa*) located within the dune field; dendrochronologic analysis of the trees places the oldest to the time when the 470 BP soil was formed. Evidence of aeolian activity is indicative of periods of drier climate resulting in dune surface activity, while the soils and pine stands indicate periods of increased moisture and resulting surface stability. The timing of these alternating episodes is broadly correlative to indications of drought and moisture in dune fields elsewhere in the Colorado Plateau, Rocky Mountains, Great Plains.

Keywords: aeolian geomorphology, climate change, luminescence dating, dendrochronology

Eleanor Wilkinson, University of Leeds. Email: igs5ekw@leeds.ac.uk; 'Bound and gagged': censorship, citizenship, and cyberspace

This paper considers issues of sexual citizenship for the SM community in light of the UK Home Office's proposal to prosecute the viewers of 'extreme pornography'. The paper will address how issues of sexual citizenship must not solely be built upon the right to occupy actual physical places but also the right to inhabit the virtual- cyberspace. The limited spaces in which certain SM acts are permitted will be explored. I shall map how the internet plays a key role in the changing sexual geographies of public and private. Through the public space of the internet SM subculture can easily be accessed by anyone. Government intervention is therefore seen to be needed to defend the 'moral good' of society. I shall argue that protecting people from 'corruption' through the censorship of SM pornography stands at odds with the rhetoric of SM as a valid sexual identity. This paper shall question if SM provides a challenge to existing theories of privatised and generally de-sexualized forms of citizenship. Are SM practitioners just 'too' sexual to ever be granted full sexual citizenship?

Keywords: citizenship, cyberspace, pornography, sadomasochism

Renee Will, PhD, . Email: reneemwill@gmail.com; Variations in US State-level Manufacturing Export Responsiveness 1993-1999

Using US State-level data for nineteen manufacturing industries at the two-digit SIC level for the period 1993 to 1999, this paper set out to accomplish three main goals. First, to establish whether empirical evidence supports the proposition that industrial concentration of manufacturing firms spurs export growth. The second objective is to explore whether industrial concentration and/or export activity translate into higher State-level manufacturing employment and economic performance levels. A final goal is to observe any industrial variations concerning the economic behavior of these relationships. In an effort to address these issues, this paper investigates the economic relationships between industrial concentration, export activity, and employment performance using OLS regression models for nineteen manufacturing industries across the 48 continental US states. ANOVA models are also utilized to observe any regional or industrial variability across these economic variables.

Keywords: Exports, Development, Trade

Kanapaux William, University of Florida. Email: kanapaux@ufl.edu; Economic and Ecological Factors Influencing Tourism Operations in Southern Africa's KAZA Region

This presentation describes ongoing research in southern Africa's Kavango-Zambezi (KAZA) region with a focus on tourism operations in northern Botswana and Namibia's Caprivi Strip. The region contains an abundance of wildlife and includes several major water catchments, most notably the Okavango Delta and Zambezi River. Tribal organizations on communal lands have increasingly turned to tourism operations as a source of revenue through contracts with private operators. Questions remain, however, about the effectiveness of these operations and their level of sustainability. This research seeks to determine the economic viability of these tourism lodges by estimating the potential economic demand for them and the ways in which ecological conditions influence their potential value. This research is part of a larger interdisciplinary effort to study ecological, economic and governance factors influencing community-based natural resource management in the KAZA region. This particular component of the project will apply the travel cost method, which assesses potential demand for a particular location based on established tourist preferences, and will collect financial data on revenue flows for individual operations. The research will also seek to determine which ecological factors, such as wildlife density and water conditions, have the strongest influence on tourist demand and whether factors such as ecological sustainability and support of businesses that benefit tribal communities affect tourists' decisions.

Keywords: Africa - southern, tourism, community-based natural resource management

Carol L. Williams, Research Associate, Iowa State University. Email: willico@iastate.edu; Chrisztina Eleki, Iowa State University. Email: keleki@agron.iastate.edu; Richard Cruse, Iowa State University. Email: rmc@iastate.edu; The Role of Economic and Spatial Scale in Assessing Sustainable Biofuel Feedstock Production: opportunities and barriers.

Currently, there is major concern about the ability of agricultural systems to supply human demands for products and multiple services in a sustainable manner. Biofuel production is increasing with demand, but little attention has been given to the sustainability implications of agro-economic transformation from geologically-based to bio-based. A series of scholarly, interdisciplinary, small-group discussions were arranged to collaboratively define a sustainable biofuel industry, and identify barriers to and existing opportunities for adoption of sustainable practices. An early observation was the importance of economic and spatial scale in the type, degree and extent of barriers and opportunities. Subsequently, a conceptual framework was developed to locate sustainable feedstock production, as a component of a sustainable biofuel industry, in problem space. This framework, which focuses on ligno-cellulosic feedstock production, placed large-scale centralized biofuel production, and small-scale distributed biofuel production along axes representing gradients of perceived barriers and opportunities for sustainable production. Single crop and multiple crop feedstock production were also considered. Results indicate that barriers and opportunities differ according to economic and spatial scales of biofuel production, and that ecological, economic and social outcomes will likely differ according to economic and spatial scale of biofuel production. Recommendations are made for future hypothesis-driven research.

Keywords: biofuel production, sustainability, collaborative process

Darrel L. Williams, NASA Goddard Space Flight Center. Email: doclandsat@comcast.net; Samuel N. Goward, University of Maryland, Department of Geography. Email: sgoward@umd.edu; Terry Arvidson, Lockheed Martin, Landsat 7 Senior Systems Engineer. Email: Terry Arvidson ; The U.S. Landsat Data Archive

The long-term, 34+ year record of global Landsat remote sensing data is a critical resource to study the Earth System and the impacts of both natural and human activities on this system. Thus, the Landsat program has become a central pillar of the national and international remote sensing capabilities. The archive of historical Landsat data is a national treasure of immeasurable value, and the responsibility for the creation and maintenance of that archive resides at the U.S. Geological Survey's National Center for Earth Resources Observation and Science (USGS/EROS). The advisory committee for the National Satellite Land Remote Sensing Data Archive (NSLRSDA) requested a detailed analysis of Landsat observation coverage within the U.S. archive, as well as coverage acquired and held by International Cooperator (IC) stations. Our analyses, to date, of the metadata for the U.S. archive has revealed gaps of varying magnitude in U.S. holdings of Landsat global coverage data that appear to reflect both technical and/or administrative variations in mission operations. In many cases it may be possible to partially fill these gaps in our U.S. holdings through observations that were acquired and are now being held at International Cooperator stations.

Keywords: Landsat, archive, global change research

Harry Williams, University of North Texas. Email: williams@unt.edu; William Flanagan, University of North Texas. Email: wflanagan@unt.edu; Stratigraphy, sedimentology and microfossil content of Hurricane Rita storm surge deposits in southwest Louisiana.

Hurricane Rita generated a 4 to 5-meter high storm surge along the southwest Louisiana coast. The storm surge and accompanying waves transported sand and mud into woodland and freshwater marsh environments, located immediately landward of sandy beaches. The resulting storm surge deposits are up to 0.5 m thick and extend at least 500 m inland. Analysis of the stratigraphy, sedimentology and microfossil content of the deposits suggests two distinct phases of deposition: a thin blanket of finer sand and mud, characterized by planar beds, locally reworked into ripples, abruptly overlies the woodland and marsh soils. Calcareous tests of foraminiferal species characteristic of shallow, high-salinity marine environments are common in this layer. These findings suggest deposition from suspension in an early stage of storm surge inundation. The finer sand is overlain by 0.3-0.4 m of coarser sand characterized by prominent foreset beds. The surface of this layer is undulating in woodland areas, due to localized scouring around trees and other obstructions. Foraminiferal tests are rare in this deposit. The coarser sand layer has an abrupt termination about 150 m inland, visible on the ground and in air photographs. These findings suggest the sand is a traction load deposit, formed at a later stage of storm surge inundation. The results of this study have implications for paleotempestology research and efforts aimed at differentiating between geological records of tsunamis and hurricanes.

Keywords: Hurricanes, storm surge, sedimentation, paleotempestology, Foraminifera, Louisiana, tsunamis

Jared L. Williams, Northwest Missouri State University. Email: S271542@nwmissouri.edu; *Logistical Support for Humanitarian and Relief Efforts: A Geo-Simulation Training Exercise*

Many different humanitarian agencies, government entities, and international support organizations exist to provide assistance during humanitarian crises. One of their primary objectives is to facilitate the distribution of resources based on need, availability, and potential access to the geographic location. Training to provide relief in these complex emergencies is very difficult and costly. Thus the use of virtual simulation environments provides for a cost effective training method. This research project attempted to create a simulation that could be used as a logistical training tool for the handling of humanitarian crisis and relief efforts. Tac Ops 4 was the primary platform that was used in the development of this simulation. Since Tac Ops 4 can be configured to use remotely sensed data as the map, the program is customizable for any geographic region, location, or crisis. This provides first responders, aid workers and other personnel with a tool that can be used in emergency preparedness exercises and operations.

Keywords: Humanitarian Aid, Simulations, Military Geography

John W. Williams, University Of Wisconsin - Madison. Email: jww@geography.wisc.edu; Stephen T Jackson, University of Wyoming. Email: jackson@uwyo.edu; John E Kutzbach, University of Wisconsin - Madison. Email: jek@facstaff.wisc.edu; *How Will Species Respond to Future Novel Climate Regimes? Lessons from the Late Quaternary.*

Three lines of evidence - niche theory, late-Quaternary fossil data, and GCM simulations of late-Quaternary and end-21st-century climates ? together suggest that novel plant communities are likely to arise in response to novel 21st-century climate change. Niche theory predicts that, if species have unique climatic tolerances and optima, then novel species associations should arise in response to climate conditions not found at present. This hypothesis is supported by late-Quaternary pollen data, which show 1) large and individualistic shifts in plant distributions in response to climate change, and 2) the widespread occurrence of 'no-analog' fossil pollen assemblages in late-glacial and early-Holocene sediments. These no-analog pollen assemblages are commonly interpreted to indicate the past existence of plant communities compositionally unlike any modern plant communities. In North America, the spatial and temporal distribution of the no-analog fossil pollen assemblages apparently correspond to insolation and climatic regimes also apparently without a counterpart in present North American climates. Analyses of 20th- and 21st-century climate simulations produced for the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC AR4) indicate that some end-21st-century climate will lack good analogs in end-20th-century climates, particularly in humid tropical regions. These areas therefore may be at higher risk of developing novel plant associations and other ecological surprises. Additionally, some end-20th-century climates are projected to disappear during the 21st-century, increasing the risk of extinction for species endemic to those climates. Areas with disappearing 20th-century climates are concentrated in tropical montane regions and the poleward portions of continents.

Keywords: vegetation, novel climates, disappearing climates, Quaternary, pollen, global change

Karen Williams, Montana State University. Email: kmwilliams@montana.edu; *Geomorphic effectiveness and organization described using ALSM-derived, spatial distributions of unit stream power*

Unit stream power, the rate of potential energy expenditure per unit area, has been used as a proxy for fluvial process, but the ability to establish causality between fluvial form (channel morphology) and fluvial processes (stream power) has been constrained by the coarseness of available topographic information and the resolution of the channel networks examined thus far. The distribution of energy through the channel network creates a distribution of channel morphologic types by taking disorganized hillslope inputs of wood and sediment and creating channel structure, organization, and regularly spaced bedforms. Spatial distributions of unit stream power at 0.5 and 1.0 meter resolution were calculated on first- and second order reaches of Stringer Creek located in the U.S. Forest Service Tenderfoot Creek Experimental Forest, Little Belt Mountains, Montana. ALSM (airborne laser swath mapping), i.e.; LiDAR, data was used to create high resolution digital elevation models (DEMs) of Stringer Creek. DEMs, gage data, and field measurement of channel cross-sections and thalweg elevation were used to calculate stream power and examine periodic behavior in the frequency domain. Geomorphic effectiveness can be defined by the ability of the channel to create regularity. Reaches dominated by mass wasting events, or tightly coupled to the hillslope, exhibit weaker periodic behavior than more fully alluvial reaches. The relative importance of alluvial, colluvial and in-situ lithologic controls constrains the degree of organization. Resistant lithologic units exhibit lower frequency periodicity compared to less competent lithology.

Keywords: stream power, geomorphology, organization

Kay R Williams, Shippensburg University. Email: krwill@ship.edu; *Teaching Conservation to Non-majors*

It has become increasingly evident that Americans need to be much more aware of the true state of the environment and the roles humans play within it. Without exposure to knowledge about Earth, we cannot be stewards of it. The majority of college students today are growing up in a time of media frenzy, giving them the perception that it is necessary for information to be delivered to them in a variety of formats. Teaching conservation can incorporate an assortment of experiences that can be effective in enlightening especially non-geography students to their interconnections with nature and how they can become more involved in its preservation. This poster illustrates a variety of techniques that have been utilized over the years to increase student participation in their learning experience and interest in the environment. These attempts have been well received, and according to evaluations of various kinds, seem to be effective in achieving these goals.

Keywords: environment, geographic education, natural resources

Nikki A. Williams, Texas A&M University, College Station. Email: nikki.anne.williams@gmail.com; *The Utility of a Life Path Perspective in Health Geography*

This paper presents a review of time-geography theory, its application to spatial health research, and proposed new work in the field. Hagerstrand's time-geography, first posited in the 1960s, views the location of life events as only a partial 'snapshot' picture: the time component is of equal importance for understanding the processes involved. Individual life paths, Hagerstrand's choreography, are necessary for documenting the chronology of events, not just the summation of aggregate activity periods as is performed in time budgeting research. An individual's choreography of movement through life provides a more refined level of resolution for examining the etiology of ill or compromised health status. Recent GPS human tracking research supports this assertion (Elgethun et al. 2006). The sequence and frequency of health stressors is just as important as their overall duration. No direct applications of time-geography to health issues exist in the literature, though researchers are using related concepts to explore health issues. This paper delineates the advantages of capturing a real-life 'Hagerstrandian' choreography of events to better understand and potentially prevent particular adverse health outcomes. Proposed research utilizing Hagerstrand's idea of choreography in conjunction with modern location-based wristwatch GPS, diary accounts, and biomonitoring (heart rate monitor) to assess individuals locational/stressor relationship will be outlined.

Keywords: health geography, time-geography, choreography, time budgeting

Robert Williams, University of North Carolina-Greensboro. Email: r_willi3@uncg.edu; Michael E Lewis, University of North Carolina-Greensboro. Email: melewis@uncg.edu; *Photographs of the Great Surveys of the American West*

Twenty-five expeditions into the American West were mounted by four competing surveys sponsored by the United States Congress from 1867-1879. Their stated mission was to map and document the geographical and geologic resources of the region, with an eye towards settlement and resource exploitation. Survey leaders utilized photography to produce relatively instantaneous images that were reproduced and distributed across the nation to satisfy the American appetite for information about the West. Similar in popularity to survey maps and artistic renderings, photographs became a means of creating mental images and regional myths. We examine thematic elements of the collected photographs housed in government archives and qualitatively assess their lasting influence. The majority are an obscure inventory of the natural resources, transportation routes, and settlement patterns of the times. A few images form an historical record of native peoples. Powell, in particular, sought to assemble a photographic record of the native people and cultures of the Colorado Plateau. However, it is romanticized images of geologic features that carried through by supporting public sentiment for preserving selected western landscapes. Yellowstone National Park, in particular, owes its early preservation to the photographs of Jackson as well as the paintings of Moran. Historical photographic images now commonly form the basis for measuring human alterations of the western landscapes they helped to change.

Keywords: historical photography, American west, national parks

Sarah Williams, MCP, Columbia University. Email: sew@alum.mit.edu; *Mapping Data Traces and New York Cities 311 Data:*

Interaction with digital information has become part of daily life. We leave traces of data about ourselves everywhere we go. When we swipe our subway card - information is left about our travel patterns. When we use our cell phones - information is kept about where we used the phone, for how long, and at what time of day. When we connect to internet hubs, the volume of our use as well as what sites we visited is recorded. Mapping these data traces allows us to visualize the dynamic ways that people interact with urban environments. New Yorker's

leave clues about their community every time they call New York City's 311 phone hotline. New Yorkers dial 311 for non emergency city services this include everything from complaining about noise to requesting the repair of pot holes, and noting a rat sighting. When a call is made to 311 the location of the call are recorded in order for a service request to be made. Mapping and interpreting the location of these phone calls tells us a lot about the character of different types of neighborhoods. For example, mapping noise complaints allows us to visualize the activity levels of different neighborhoods at different times of day. This paper will discuss mapping data traces, specifically focusing on my most recent project mapping noise complaints made to 311. I will discuss other project including mapping cell phone use in Milan, Italy.

Keywords: gis, cartography, urban environment, technology, data, Location Based Services, urban design, real time mapping

Thomas B. Williams, Western Illinois University. Email: tb-williams@wiu.edu; *Wind Energy Development in Illinois*

Williams, Thomas B., Department of Geography, Western Illinois University, Macomb, IL 61455, TB-Williams@wiu.edu. Wind energy development in Illinois. With worldwide oil prices reaching record levels and gasoline exceeding \$3.00 a gallon through the summer of 2006, alternative energy sources have become increasingly attractive. Clean, renewable wind energy continues to grow in importance as cumulative wind power capacity passed the 10-gigawatt (10,000-MW) milestone in the United States (American Wind Energy Association, 2006). Last year Texas supplanted historic leader California as the nation's top state in capacity to generate wind power. While Illinois ranks 16th in wind energy potential, several wind farms have been recently developed. The Mendota Hills project, located in Lee County in northern Illinois, has 63 800-KW wind turbines which became operational in late 2003. The smaller Crescent Ridge farm, opened in 2005 just to the south in Bureau County, features 33 larger 1650-KW generators. The newest project currently under construction will bring 120 1650-KW turbines onto the power grid, and is capable of producing more wind energy than all other completed projects combined. This site is located in McLean County near Bloomington-Normal in central Illinois. All of the wind projects are located on favorable sites in the northern half of Illinois where stronger prevailing winds are thought to exist. The purpose of this study is twofold: 1) to document the current status of wind energy development in Illinois; and 2) to examine observed wind data collected from selected meteorological towers located in distinctly different areas of the state.

Keywords: wind energy, Illinois

Carl Wilmsen, Univ of California- Berkeley. Email: cwilmsen@nature.berkeley.edu; *Community Forestry and Social Justice*

Community forestry in the U.S. is characterized by efforts to achieve greater participation in forest management policy and decision making. The assumption is that participation by local residents will lead to more economically and ecologically sustainable and more socially just management policies and practices. But what conditions give rise to meaningful participation? The case of the Vallecitos Federal Sustained Yield Unit in northern New Mexico suggests that racializing discourse, shifts in management priorities, and ineffective engagement with the global economy maintain the social positioning of subordinate social groups and undercut their ability to participate effectively. Although the structuring of management in the past provided strategic advantages for large lumbering firms, shifts in Forest Service management objectives, as well as the approach of environmental groups to sustainability, provide no such strategic advantage in negotiating the terms of forest management to Hispano community residents. Their experiential knowledge of the environment is not recognized as legitimate for informing management in any meaningful way, and the unit's management is still rooted in an environmental/racial discourse that devalues the Hispano way of life and relationship to nature. The case of the VFSYU suggests, therefore, that current practice in integrating economics, ecological science, and social equity in natural resource management may be constituted of processes and discourses that reproduce the racial order. Without explicit attention to social positioning and creating opportunities for, and conditions conducive to, the advancement of socially marginalized groups, the integration of equity with ecological and economic concerns will remain an elusive goal.

Keywords: community forestry, social justice, race

Gordon Wilmsmeier, Osnabrück University. Email: wilmsmeier@aol.com; Theo Notteboom, ITMMA - University of Antwerp. Email: theo.notteboom@ua.ac.be; *Determinants of Container Liner Shipping Network Configuration: A two Region Comparison*

The worldwide network of container transport services is becoming increasingly diffuse. The different strategies of shipping lines, the balance of power between shipping lines and shippers and constraints related to inland transportation have a potential impact on the development of maritime shipping networks. Moreover, strategic alliances between the port and the shipping

industry, which have both been driven by strong concentration processes and vertical integration have a profound impact on the maritime network structure and in so far also on the grade of embeddedness of a region in the global maritime transport network. The paper seeks to understand the evolution of maritime networks in and between two differently developed regions, South America and Europe. Based on a classification of network types, the paper analyzes the network structures and the behaviour of shipping lines in different economic contexts and port systems. Profiles for each region are developed, defining the influencing factors on the supply and demand side for maritime transport network development. This analysis is based on the historical and current developments in the two regions under study, illustrating the relative position within the global maritime network and the potential implications of being peripheral or central in this network. We try to answer in how far the configuration of the hinterlands determines calling pattern and if strategic alliances and vertical integration reduce footloose behaviour of shipping lines. Further we discuss the influence of shipping lines on port development or vice versa in how far port accessibility and performance influence maritime network developments.

Keywords: maritime transport network, calling pattern, shipping line strategies, network development

Peter Wilshusen, Ph.D., Bucknell University. Email: pwilshus@bucknell.edu; *Shades of Social Capital: Elite Persistence and Community Based Forestry Enterprises in Quintana Roo, Mexico*

Dominant views of social capital use the term to represent an accumulation of collective cooperative capacity. This article adopts a relational and contextual view of social capital rooted in Pierre Bourdieu's writings to explore the reciprocal relationships between formal and informal social capital with respect to community-based forest management in Quintana Roo, Mexico. It first reframes dominant views of social capital to bridge key conceptual gaps pertaining to contextuality, social interaction, and formal and informal layers of human action. It then examines the formal and informal exchanges among actors linked to a timber marketing fund. The case reveals how weak norms of enforceable trust within a community forestry association and a timber marketing fund (formal social capital) enabled unregulated lending networks (informal social capital). Unregulated lending, in turn, has contributed to the financial and institutional instability of community-based conservation and development in central and southern Quintana Roo.

Keywords: social capital, power, community, conservation, Mexico

Cyril O. N. Wilson, University of Illinois at Chicago. Email: cwilso20@uic.edu; *Housing Quality, Socio-economic Status and Local Environmental Condition: The Case of Freetown, Sierra Leone*

Research on urban housing quality has been significantly skewed to architectural, technical, qualitative and local environmental conditions. Extensive investigations have been conducted on the effectiveness of housing policy, the interface between socio-economic status of urban household and occupant's health, and the demand and supply of housing. In this paper, I attempt to integrate housing quality, household socio-economic status and the local environmental conditions to unravel the degree of association these variables exhibit in urban space. The study was conducted in three differentiated levels of settlements in Freetown, the capital city of Sierra Leone. Data was mainly obtained by household survey, focused group discussion and personal observation. An upscale, medium level and relatively low strata settlement characterized the study localities. The conceptual framework was guided by the following question: Is the relationship between housing quality, household socio-economic status and the local environment uniform in these settlements, or are there spatial variations? Partial correlation analysis reveals that income is the main determinant of housing quality in high class settlement, while level of education is the dominant factor in middle and low class settlements. Multiple linear regression demonstrates that the association between housing quality and socioeconomic status of households is stronger in the middle and upscale settlement in relation to the low class community. The study shows insignificant relationship between local environmental condition and housing quality in high and middle class settlements.

Keywords: Housing quality, socio-economic status, Local environment, Freetown.

Dana Helene Wilson, McGill University. Email: dana.wilson@mail.mcgill.ca; *Youth perceptions and experiences with local VLT gambling opportunities in Montreal*

The gambling industry has expanded in recent years resulting in more gambling opportunities than ever before. Gambling has increased as have the public health and social costs incurred by individuals and communities. Video lottery terminal (VLT) gambling has become very popular in Quebec and elsewhere in Canada, and VLTs are now routine features of the local neighbourhoods that youth frequent. This paper presents results from focus group

discussions with youth conducted in three secondary schools in Montreal, Quebec in the spring of 2006 and follows a large scale survey and geographic analysis of VLT locations across Montreal (see Wilson et al., 2006; Gilliland et al., 2005). Youth perceptions of and experiences with local gambling opportunities are described, including factors influencing decisions to engage in or avoid VLT- and other gambling activities. Youth descriptions of local gambling behaviours in home and school environments are also summarized, including those activities most common and accepted in their experiences with peers, teachers, and family. Discussions revealed gambling opportunities to be abundant, accessible and convenient to youth. Further, youth recommended ways to alter gambling-supportive norms, through a multifaceted approach including education and awareness programs, greater enforcement for minors, and the provision of more recreational opportunities that cater to youth. Youth stressed the need for spaces of their own, independent of home and school environments, where quality time could be spent with friends. Discussions demonstrated that while gambling is not always a priority, it is often the most convenient, accessible activity available to youth.

Keywords: Youth Gambling, Montreal, Health Behaviours, Social Norms, Neighbourhood Opportunities

David Wilson, University Of Illinois. Email: dwilson2@uiuc.edu; Dean R. Beck, University of Illinois. Email: deanbeck@uiuc.edu; Chicago's Neoliberal-Parasitic Economy: Space Building And Institutional Reproduction

A distinctive local economy, what Howard Karger (2005) identifies as the parasitic-neoliberal economy, today increasingly blankets low-income racialized communities across America. This institutional network - day labor sites, temp. labor agencies, payday lenders, check cashers, pawnshops - deepens the poverty and marginality of residents here. This study examines this nominally explored economy on Chicago's Southwest Side where it flourishes amid the eclipse of the area's "working-class economy." We interrogate this economy to determine its ascendancy and vibrancy as a space-building institutional formation that extends its brand of economic and social relations (what we term hyper-neoliberal social management) into this area of Chicago. Our goal is to provide depth and specificity to Brenner and Theodore's (2002) general notion that space building is currently one "privileged instrument" that anchors and nurtures such neoliberal economies. We chronicle that this economy, its daily rhythms, operates within an unfolding uneven development across Chicago that manufactures a self-bolstering space. We document this space, following Lefebvre, as being both an "absolute space" and a "conceived space" that is a poignantly hermeneutic terrain. Whereas this kind of local space is widely thought of as a brute, economic-functional terrain, we reveal it as a complex, lived-through turf whose symbolic features are at the heart of its causal prowess

Keywords: parasitic economy, neoliberalism

Iris Wilson, Department of Geography, Kansas State University. Email: iewilson@ksu.edu; Development of LIDAR-based Topography Information for Gulf Islands National Seashore

Gulf Island National Seashore is the largest National Seashore in the United States. Encompassing beaches and barrier islands from Mississippi to Florida, the 54,879.46 hectare National Seashore was authorized in January 1971. This area is subject to dynamic geomorphic processes that continually reshape the landscape. A westward longshore current supplies the quartz sand that makes for white beaches and also tends to elongate the barrier islands in an east-west direction. Shocks to this geomorphic system are provided by erosion and redeposition events associated with hurricanes. In order to provide accurate, user friendly data to track the continuously changing landscape of these barrier islands, the USGS, National Park Service, and Kansas State University have pooled resources to map the area using 'bare earth' LIDAR data. LIDAR data were collected using the NASA EAARL sensor in the days following the passage of Hurricane Katrina in late September 2005. This poster will document the procedures used to process the LIDAR data and create a useful product for park managers, researchers, and visitors.

Keywords: LIDAR, Topography, Gulf Island National Seashore

James W. Wilson, Ph.D., Old Dominion University. Email: hgis@earthlink.net; Validating woodlands information on historic maps for local and regional analysis.

Historic maps can provide important information for the analysis of human alterations of landscapes over decades and centuries. The usefulness of information extracted from historic maps depends however on the spatial and thematic accuracy of their contents and the accuracy of methods used to extract features from the maps. A case study of the North River watershed in the Shenandoah Valley of Virginia (USA) is examined where the thematic and positional accuracy of woodlands information on historic maps is assessed for four time periods (1864, 1906, c. 1945, and c. 1964). Agricultural census data, aerial photography, additional maps, forest inventory data, and landscape images were used to

evaluate the thematic and spatial accuracy of the map contents. The extracted woodlands data were then analyzed with additional data sets for the second-half of the twentieth century to analyze deforestation and reforestation spatial and temporal patterns. The resulting analysis was compared to existing reconstructions and interpretations of the region based on coarser-grained data and showed a marked difference in the timing and location of woodland changes from previous research. Therefore, validated information extracted from local historic maps can be used to provide detailed reconstructions of localized areas and to calibrate larger regional reconstructions based on coarse-grained data.

Keywords: land change science, historical GIS,

Japhy Wilson, University of Manchester. Email: japhywilson@yahoo.com; Neoliberalization and the Production of Flexible Space: The Case of Plan Puebla Panama

In the aftermath of the first wave of structural adjustments of the Global South, states and multilateral institutions are now implementing a 'second generation' of neoliberal reforms. An emergent critical literature has concentrated on the institutional restructuring and social engineering implicit in this process, but has neglected its spatial dimension. A historical-geographical materialist analysis of World Bank and regional development bank documents reveals an emphasis within the second generation agenda upon the production of flexible spaces, which are thoroughly integrated into global circuits of capital, and which offer transnational investors the optimal conditions for flexible accumulation. The Plan Puebla Panama constitutes a significant example of the production of flexible space. Introduced in 2001 by Mexico and the Interamerican Development Bank, the PPP is a regional development programme encompassing Central America and Southern Mexico, and including major infrastructural developments, maquiladora zones, agribusiness plantations, bioprospecting reserves, and tourism networks. The PPP is being implemented in conjunction with the Central American Free Trade Agreement (an extension of NAFTA), and is a step towards the realisation of the Free Trade Area of the Americas. However, its progress is being obstructed by indigenous social movements contesting the social, cultural and environmental destruction that the PPP implies. Their resistance demonstrates the contradictory and conflictual nature of the sociospatial relations underlying the production of flexible space, and calls into question the very possibility of the successful creation of such spaces, given capital's inescapable reliance upon concrete and inflexible places of nature and human sociality.

Keywords: Second Generation Neoliberalism, Flexible Space, Plan Puebla Panama

Jeffrey S. Wilson, Indiana University - Purdue University Indianapolis. Email: jeswilso@iupui.edu; Greg H. Lindsey, Indiana University - Purdue University Indianapolis. Email: glindsey@iupui.edu; Biophysical Viewscapes: Integrating Environmental Remote Sensing and Visibility Analysis in Geographic Information Systems

Geographers have long been interested in perception of landscape from both qualitative and quantitative perspectives. In this presentation we explore new methods for integration of biophysical remote sensing and visibility analysis to characterize structural and physical landscape properties from the perspective of the human ground observer. The concept of biophysical viewscapes is developed and evaluated in the context of urban greenway trail use in Indianapolis, Indiana. High resolution surface models derived from airborne LIDAR measurements are used to develop viewsheds along thirty trail segments, each approximately one mile in length. Viewscape variables including greenness, openness, visual magnitude, and land use diversity are summarized along each segment. Infrared trail traffic monitors provide over 20,000 monitoring days that serve as the dependent variable in multivariate regression models. Biophysical viewscape properties, in concert with socioeconomic and temporal variables, emerge as significant predictors of trail traffic, explaining more than 80% of spatial variation in trail use. Potential theoretical basis for the relevance of landscape visual properties are presented and emerging geospatial technologies that can contribute to further development of the biophysical viewscape concept are considered.

Keywords: Biophysical Viewscapes, Visualization, Remote Sensing, GIS

Matthew W. Wilson, University of Washington. Email: mwarrenw@u.washington.edu; Learning to laugh at ourselves: Approaching GIS critique from the 'inside'

Those engaged in the fields of critical and participatory GIS conceivably assume different roles throughout the duration of their research projects. Given the various technical and organizational requirements of these projects, researchers may develop software systems, design cartographic materials, meet with and facilitate organizations, as well as perform technical support and maintenance. Additionally, given the various modes of engagement that accompany these roles, including interrogation, consultation, facilitation, and

representation, these diverse responsibilities are conceivably situated within specific epistemologies. How might these perspectives intersect in a research design? In my work, I encounter this question through preliminary research on the implications of geographic information technologies in participatory settings, the development and implementation of which I am also invested. My position of being simultaneously 'inside' system development and interested in critique (which sometimes seems as being 'outside') proves an opportunity to contribute to other methodological approaches in critical, participatory research. This paper briefly reviews the problematics of inside/outside methodologies, including ethnography, participant observation, interviews, and cognitive/behavioral data collection. I then describe another approach, centered on different moments of laughter. These moments that can occur during system development and implementation, I argue, are actually productive openings for critique. To elaborate upon this method, described as 'learning to laugh at ourselves', I discuss Foucault's exploration of the laughter that results from discursive meltdowns - in this case, when the meaning and legitimation prescribed to aspects of system development and implementation no longer comfortably exist within broader critical and theoretical foundations of the system's inception.

Keywords: critique, discourse, participatory GIS, critical GIS

Robert Wilson, Syracuse University. Email: rmwilson@maxwell.syr.edu; *Animals as Technology in Subterranean Environments: Uniting Evolutionary History and Animal Geographies*

Evolutionary history is a growing sub-field of environmental history that investigates the molding of organisms in modern times for industrial purposes. Scholars in this area have argued that domesticated animals such as dogs, horses, and cats should be seen as types of technology, that is, as machines created by people to serve human ends. To date, scholars in evolutionary history have not engaged with research by animal geographers on human-animal relations. This study unites work in these fields through an examination of the breeding, housing, and use of mules in hardrock mines in the western United States during the late nineteenth and early twentieth century. Copper, gold, and silver mines in this period became highly industrialized environments. Despite the complexity of these industrial systems, the use of work animals such as mules persisted in hardrock mines until the 1920s. Unlike other types of mules or horses, mine mules had to be bred for and maintained in underground settings. These subterranean environments posed particular challenges to those wanting to harness animal power underground in mining operations. This paper will look at the interplay between the human sculpting of these animals through domestication and the success in adapting these creatures to industrial work in underground settings. Rather than viewing mine animals as separate from the mechanical settings that surrounded them, this presentation will argue that these animals are better understood as technological units within the complex industrial systems of hardrock mines.

Keywords: animal geographies, mining, evolution, western United States

Sigismund Ayodele Wilson, Michigan State University. Email: wilsonsi@msu.edu; *The New Global Diamond Order and Post Civil-War Sierra Leone: Is the Kimberly Process the panacea?*

Diamonds may be regarded as a mixed blessing for Sierra Leone. In fact, some scholars regard the Sierra Leone diamonds as resource curse. The country has been exporting considerable amount of valuable gemstones since independence, yet official sales plummeted in the 1970s and 1980s due to smuggling. Substantial reduction in diamond revenues, in addition to widespread government corruption, exacerbated poverty and discontent, culminating in the civil war (1991-2002). The ideology of the rebel Revolutionary United Front (RUF), if there was one, was diamond control. The RUF fought for and secured the most diamondiferous area, Kono District. From this secured location, it traded diamonds for arms to sustain its assault on the state. The main objective of this paper is to examine how diamonds are located in ongoing dynamics between the post-civil war state and the 'new' global diamond architecture. The paper reviews (i) as backdrop, the links between the RUF, the state and regional and global diamond agents in particular De Beers; (ii) the new globalization values implied in the concept of 'ethical diamonds'; and (iii) the new globalization dispensation condensed in the notion of the Kimberly Process. The paper uses these narratives to assess the comparative stability of the state under the old and new global diamond world orders.

Keywords: post civil war Sierra Leone; new global diamond world order; De Beers; Kimberly Process

Steven Gregory Wilson, U.S. Bureau of the Census. Email: steven.g.wilson@census.gov; Anika E Juhn, U.S. Bureau of the Census. Email: anika.juhn@census.gov; *Population Dynamics in the Great Plains, 1950-2006*

Trends over the last five decades have seen substantial percentages of population decline in the majority of counties located in the Great Plains region of the United States. Recent population estimates suggest that while the major population centers in the region have stable or growing populations, most other areas in the region?especially predominantly rural counties?are experiencing population decline. In this poster we examine the population dynamics in the Great Plains region in further detail. We begin by examining historical patterns of population, focusing on census-to-census change in the period 1950 to 2000. We then incorporate recent population estimates for the period 2000 to 2006 to look at the demographic components of change: natural increase, domestic migration, and immigration. A series of county-level maps reveals the spatial patterns of the components' relative contributions to population change. Finally, we turn attention to two of the consequences of these demographic trends: an aging population and the consolidation of school districts with declining enrollments. Data are from United States decennial censuses of population and the Census Bureau's Population Estimates Program.

Keywords: Great Plains, Demographic components of change, Age structure

Zachary D. Wilson, United States Geological Survey. Email: zdwilson@usgs.gov; Robin H. Gary, United States Geological Survey. Email: rhgary@usgs.gov; *Transforming NHD to Global Map Hydro?Data Model Generalization From 1:100,000-Scale to 1:1,000,000-Scale*

The Global Mapping project is an international effort to develop and integrate 1:1,000,000-scale (1:1M) geospatial data that will facilitate environmental research at spatial scales ranging from continental to global. Hydrologic drainage datasets that include streams, waterbodies, and canals, facilitate environmental research by establishing hydrologic connectivity between regions. The accuracy, detail, and connectivity available in the 1:100,000-scale (1:100K) National Hydrography Dataset (NHD) provides an appropriate and reliable base for the creation of a 1:1M drainage dataset. This poster explores the various methods used in the production of the 1:1M drainage dataset. Methods tested include network hierarchy analysis based on stream name, classification of 1:1M scanned map data and calculation of zonal statistics within buffered streams, generating hydrologic derivatives for 30 and 90-meter resolution digital elevation models, thinning of the network based on the NHD Plus Thinner Code, and downstream trace and attribution based on ancillary data. Distinct inadequacies in each approach suggest that a methodology combining aspects of several methods is most effective. The final methodology uses ancillary data to attribute headwater reaches and a downstream trace algorithm to attribute streams. The downstream trace algorithm makes decisions using the geometric network and attributes stored in the 100K NHD. This method is currently (2006) being used for production of the 1:1M Global Map Hydro datasets.

Keywords: GIS, NHD, Global Map, automation, generalization, scale, hydrography, drainage network

Robert D. Wilton, McMaster University. Email: wiltonr@mcmaster.ca; Geoffrey DeVerteuil, University of Manitoba. Email: deverteu@cc.umanitoba.ca; *The Politics of Place in Addiction Treatment*

In this paper we examine the location and character of treatment programs for people with drug and alcohol addictions. Using qualitative data collected at treatment programs in three Canadian cities, we draw attention to the complex and inherently political character of treatment programs as social spaces. Our analysis is organized around two related themes. The first concerns the often marginal locations of treatment programs and the extent to which these marginal environments shape the process of addiction treatment in both positive and negative ways. A second theme is concerned with the politics of the program space itself - the way in which the physical and socio-cultural organization of the treatment environment contributes to a reassertion of control over the individual client's behaviour. We argue that the internal and external program environments interrelate in important ways. The external environment ? for example, the character of the neighbourhood ? may shape program regulations with regard to the monitoring of clients' movements to and from the site. At the same time, the organizational ethos of the program ? the daily routines and power relations cultivated in and through the site ? aim to alter the ways in which individual clients relate to the external environment upon their departure.

Keywords: addiction, therapeutic landscapes, power, place

Dick G. Winchell, FAICP, Eastern Washington University. Email: dwinchell@ewu.edu; Smart Growth for Sustainable Tribal Planning: Schitsu'umsh, The Coeur d'Alene Tribe, Idaho

Smart Growth offers core principles to address the problems of America's cities which come from the negative impacts of designing for cars to produce sprawl, congestion, auto-dependence, and non-sustainable urban futures. Smart Growth seeks to re-establish positive relationships with the natural environment; sustainable energy use and reuse; compact, pedestrian oriented development, and a mix of land uses and housing costs within dense urban centers. These principles do not directly apply to the generally rural development patterns on most American Indian lands, but have been recommended by the Environmental Protection Agency as a new framework to guide development for rural areas and for American Indian reservations. For reservation applications, however, "smart growth" assessment of land use patterns and densities must be tempered with the analysis of traditional settlement patterns and tribal architecture, as well as the generally disjointed historic development of isolated buildings, individual or small clusters of residential areas, and total reliance upon automobiles on most reservations. This paper presents a case study of the application of Smart Growth principles for new tribal development adjoining the City of Plummer, Idaho, by the Coeur d'Alene Tribe. The Schitsu'umsh Coeur d'Alene Tribe Smart Growth Project demonstrates the value of Smart Growth for planning to promote sustainable tribal development. These principles must be tempered by the context of tribal architecture, settlement patterns, and with the intent of correcting uncoordinated land development on reservations within a context of tribal values and sovereignty if it is to become an effective guide for future development.

Keywords: Indigenous peoples, sustainable development, tribal planning

Julie A. Winkler, Michigan State University. Email: winkler@msu.edu; Jeanne M. Bisanz, Michigan State University. Email: bisanz@msu.edu; Designing a Climate Scenario Tool for Use by Stakeholders

Stakeholders often require climate scenarios at fine spatial scales to explore possible impacts of climate variability and change on their economic activities and to help with decision making. As part of a larger project, we have designed a web-based climate scenario tool that provides temperature and precipitation scenarios for multiple locations in Michigan and surrounding areas in a format accessible to stakeholders. The tool includes extensive learning modules that attempt to familiarize stakeholders with the scenario development, the appropriate use of the scenarios, and the uncertainty surrounding the scenarios. The philosophy and considerations when designing the tool and the learning modules will be discussed and the major features of the tool will be demonstrated.

Keywords: climate change

Antoinette M.G.A. Winkler Prins, Michigan State University. Email: antoinet@msu.edu; Amazonian Dark Earth creation in homegardens: A preliminary assessment of the (pre) historical record.

In recent years there has been increasing attention given to Amazonian Dark Earths (ADE), dark, organic-rich soils found in patches throughout the Amazon Basin. Research has demonstrated that these soils are anthropogenic, formed by people in the past, through their everyday praxis. What is not well understood yet is how deliberate the actions were that contributed to the formation of these soils. Key to ADE formation is the existence of aromatic carbon, the result of a process called 'slash and char.' On-going research in present-day homegardens in Santarém, Pará, Brazil, indicates that a process similar to slash and char, terra quemada, may be a process that leads to the formation of ADE over time. Using text analysis, this paper will investigate classic writings about the Amazon, both ethnographic and historical, to consider descriptive references made about homegardens and soils management strategies such as terra quemada to consider antecedent knowledge systems that sustained knowledge and methods from pre-historical times to the present.

Keywords: Amazonian Dark Earths, Terra Preta, homegardens, historical ecology, soils

Tony Winson, Ph.D, Dept. of Sociology and Anthropology, University of Guelph. Email: twinson@uoguelph.ca; Food Environments, Market Power and the Spatial Colonization of 'Pseudo Foods': Critical Concepts for Understanding the Degradation of Diet and Imperilled Health

The rapidly expanding influence of multinational conglomerate food and beverage firms in shaping diet in developed and developing countries alike has sparked sustained controversy around such key issues as genetically modified foods, food safety, and more recently the issue of the growing incidence of overweight and obesity in society. This paper takes the obesity issue as a point of departure for examining how food can be a valuable lens to bring into focus how the all pervasive influence of corporate capitalism affects life sustaining spheres of human activity such as food production, processing and distribution. It proposes new concepts to understand the nutritional content of food environments in developed countries today and the contemporary transformation of

food environments in the developing world. It concludes by demonstrating how these concepts can be utilized to explore the degradation of the diet in such institutional spheres as supermarkets and schools.

Keywords: food environments, market power, pseudo foods, supermarkets, schools

Jeannine Wintzer, . Email: wintzer@giub.unibe.ch; Jeannine Wintzer, . Email: wintzer@giub.unibe.ch; Residential Segregation of post socialist cities in GDR

Residential Segregation in post-socialist cities The pattern of segregation in socialist cities was caused by national assignment agencies. These agencies were responsible for the regulation and control of housing space between 1967 and 1985. It was the aim to guarantee manpower for the local industries and to control family planning; after all the political system had to be stabilized. However, social segregation did not stop after 1989. New forms of social-spatial segregation arose. Economic prosperity not automatically leads to rising income for everyone, new policies not automatically means better distribution. New social gaps between those employed and those unemployed, rich or poor, educated or less educated occurred. In my presentation I will focus on single mothers living in post-socialist cities and thereby on residential segregation due to income and social status. This group of city dwellers is among others most effected by poverty and constitute the new core of the poor in East Germany. The data of the socio-economic panel (SOEP) shows that there was a significant change on the job market after the collapse of communism in 1989. Above all other people women were affected the most by dismissals and longterm unemployment. The collapse of the well-developed childcare system caused job-finding problems, especially for single women with children. I argue, normative ascriptions became visible after 1989 and are remaining one of the defining factors for gender-specific disadvantages in social institutions until today (e.g. in the job market) and cause poverty and inequality.

Keywords: segregation, single mothers

Erika K. Wise, University of Arizona. Email: ekwise@email.arizona.edu; Hydroclimatic Variability across the U.S. Continental Divide: Integration of Dendroclimatology and Spatial Analysis to Assess Watershed-scale Dynamics

A multitude of activities and livelihoods depend on rivers systems that originate in the mountains of western Wyoming. This area experiences a high degree of hydroclimatic variability due to physiographic, meteorological, and teleconnection influences. The purpose of this study is to improve understanding of the spatial and temporal patterns of hydroclimatic variability in this region, as well as the underlying atmospheric processes controlling those patterns. Analysis of historical climatological and hydrological data were undertaken to provide better understanding of current hydroclimatic connections at the watershed scale. Precipitation and streamflow were modeled using regionalization and synoptic climatology techniques to examine the region's spatial patterns of variability. Tree-ring samples were collected from *Pinus flexilis* and *Pseudotsuga menziesii* trees at nearby sites on opposite sides of the continental divide, allowing for a study of the physical processes that impact two particular water basins on time scales longer than those available from the instrumental record. Tree-ring cores were dated to the calendar year through crossdating, and ring widths were measured. Correlation and response function models were used to establish relationships between climatic variables and tree growth, and a statistical model was created to calibrate and validate the reconstruction. Objectives of this project include helping place recent climatic events in the context of natural climatic variability and allowing better forecasting for water managers attempting to plan for and mitigate future flood and drought impacts.

Keywords: hydroclimatology, dendrochronology, dendroclimatology, climate, tree rings, Rocky Mountains, teleconnections

Suzi Wiseman, Texas State University - San Marcos. Email: swiseman@txstate.edu; An Evaluation of the Spatial Relationship between Stray Pets, Community Ethnicity and Other Socio-Economic Factors

Studies report that free roaming cats and dogs significantly impact wildlife, ranching operations and communities - socially, financially and environmentally. Ferals, strays and outdoors pets are not evenly distributed. This paper explores the degree to which this may be a reflection of social, ethnic, and/or other cultural and economic factors that may tend to generate, tolerate, or exacerbate the situation. Geographic patterns were identified in the distribution of stray cats and dogs collected in Waco in Central Texas. Analysis of the source neighborhoods and of the demographics of those hotspots using GIS and census data permitted correlation of ethnic as well as other socio-demographic factors which may be associated with animals straying.

Keywords: Stray domestic animals, animal control, nature-society relations, cultural ecology, zoogeography

David J. Wishart, University of Nebraska. Email: dwishart1@unl.edu; *The Conjunction of History and Historical Geography*

This paper begins with Louis Mink's revelation that "the past is literally nowhere . . . there's no there for it to be" and moves from there to a conclusion that history and historical geography are joined at the root by the ontological challenge of having no access to their subject matter. It is suggested that any epistemological differences that have been used to distinguish the two subjects, such as period/region and time/space, are insignificant by comparison, and they have largely disappeared in any case. Along the way there is discussion of non-western conceptions of the past, the imputed survival of the past in the present, the possibility of direct experience of the past, problems with idealism as an historical methodology, and the role of historical narrative as a substitute for a past that cannot be regained.

Keywords: Past, History, Historical Geography, Narrative

Ben Wisner, Independent Scholar. Email: bwisner@igc.org; *Danger Money: Working the Political Ecology of Risk*

Drawing from Paul Robbin's notion of political ecology as critical "hatchet" that seeks to understand deeply hidden processes and as "seed" that helps to catalyze practical action, one can review 40 year's work by geographers, anthropologists, and others on natural hazards and other risks. In my own case, I began in the late 1960s to deconstruct the idea of "drought," "hunger" and "famine" in East Africa. Others working in the 1970s in Central America, Southern and West Africa, and parts of Asia did parallel hacking away at comfortable myths of "development" and the idea that such "disasters" were deviations from a Rostowian stage-like progress in economic development. My more recent work, over the past 10-15 years, has been more along the lines of helping NGOs and agency staff discover "seeds" of popular coping and adaptive livelihood management that help to empower neighborhoods and rural localities to assess their own vulnerabilities in the face of hazards and resources to deal better with them. In the course of such work local power relations as well as the complexities of relations between often marginalized groups of people and the nation state play an important role. The future of work in the political ecology of risk lies in a creative balance of top down and bottom up activities of this kind, guided by clear but not cynical understanding of power.

Keywords: Natural hazards, Risk, Political Ecology, Development Studies

Jonathan Witcoski, University of Tennessee. Email: jwitcosk@utk.edu; *An Analysis of the Spatial Distribution of Chiefdom Settlements: Modeling the Mississippian Culture in the Tennessee and Little Tennessee River Valleys*

Did chiefs during the Mississippian period (900 - 1500 A.D.) situate themselves so as to maximize control of area populations and resources within their chiefdoms? Were trade networks during more volatile time periods better connected than they were during lessened less volatile times when ruling elites undoubtedly probably had greater control over scarce resources? When a differentiated elite class of individuals controls a subservient population and the resources of an area, it is assumed that they would do so in a predictable fashion so as to maximize their control within their limited power base. Central place theory, and its underlying organizing principles, show that, settlement spacing is predictable in such hierarchically based societies. This paper will try to answer these basic questions regarding the political organization of chiefdom society using archaeological data during the Mississippian period in the Upper Tennessee and Little Tennessee River Valleys. The study will develop a location-allocation model that will simulate the decision-making processes responsible for the spatial arrangement of administrative centers. A transportation network among contemporaneous Mississippian period sites geocoded into a GIS will be developed by using the more likely of the two theoretical transportation strategies—riverine and terrestrial. The research should shed light on the controversial issue of the level of complexity of chiefdoms during the Mississippian period.

Keywords: GIS, Archaeology, location-allocation model, Central place theory, Mississippian Culture

Suzanne Davies Withers, University of Washington. Email: swithers@u.washington.edu; William AV Clark, University of California, Los Angeles. Email: wclark@geog.ucla.edu; Tricia Ruiz, University of Washington. Email: tr Ruiz@u.washington.edu; *Demographic Variations in Housing Cost Adjustments in US Migration*

The rapid increase in the cost of housing has recently been identified as a motivation for significant migration flows down the urban hierarchy. However, little empirical work has established the relationship between differential costs of living and migration flows, across demographic groups. In this paper we measure the difference in the cost of living between origin and destination for all migration flows across the United States at the county level from 1995-2000. Particular focus is given to the top 0.1% of population flows (magnitude) to examine the cost-of-living outcomes for these exchanges. We then assess the impact of housing cost differentials on interstate migration specifically. Lastly,

using the 2000 PUMS we assess the cost-of-living adjustments experienced by migrant households. The paper provides convincing evidence that cost of living adjustments are a critical component of understanding recent long distance flows, particularly for at certain stages in the life course.

Keywords: housing costs, migration, life course, demographics

Frank Witlox, Ghent University. Email: frank.witlox@ugent.be; Ben Derudder, Ghent University. Email: ben.derudder@ugent.be; James Faulconbridge, Lancaster University. Email: j.faulconbridge@lancaster.ac.uk; Jon Beaverstock, Loughborough University. Email: J.V.Beaverstock@lboro.ac.uk; *Airline business travel flows in the global space economy: quantitative and qualitative approaches to analysis*

In a context of contemporary globalization important economic and social relations are increasingly stretching worldwide, thereby transcending national boundaries. One of the contingent processes of this 'global shift' is that these ever-larger flows of people, goods, information, knowledge, money, and cultural practices are no longer harnessed by countries but organized through a network of cities. One such important flow is airline business travel, as it appears to be the fundamental production process in constructing and reproducing the Network Society. The lack of suitable data is however responsible for the apparent academic neglect in understanding the role of airline business travel in the global space economy. In this paper we draw on data from the Association of European Airlines (AEA, 2001-2005) which allows us to map and explore the movements of nearly 100 million first and business travelers in the European city network. The results suggest the existence of various configurations of urban systems and allow for the comparison of intercity connections. We then couple this to interview data to understand the meaning and significance of the patterns detected for professional service industries and the functioning of the global space economy. We use this to propose a more holistic analytical framework for thinking through the role of business travel in global economic activities.

Keywords: mobility, business travel, airline data, AEA

Aaron T. Wolf, Oregon State University. Email: wolfa@geo.orst.edu; *Spiritual Transformation and Lessons for Water Negotiations, or, Conflict, Cooperation, and Kabbalah*

Successful multi-party negotiations require profound transformations in the way participants conceptualize the issues at hand. Those involved can often point to the precise moment when thinking altered dramatically - the "aha!" moment? where emphasis shifted from individuals thinking only in terms of their own agenda to also understanding the needs of the other. Traditional conflict resolution models define these moments in rational terms. Even overlooking the tautological nature of this argument, "rationality" simply often does not hold sway if the conflict involves even a modicum of real emotion. To really understand the process of transformation, and the settings most conducive to inducing these shifts, then, one may do well to look outside of the field of conflict resolution as defined in modern, academic terms. The world of spiritual transformation rises as potentially the most appropriate. Every spiritual tradition in the world, after all, is devoted to precisely this process of transformation: to aid individuals in moving from a focus on their own immediate wants and desires, to addressing more their obligations to society, humanity, and to the divine. Our case study center on the process of transformation in negotiations over international rivers? specifically on the points at which parties move from thinking of themselves as representing countries, to perceiving more broadly the needs of all stakeholders within a basin. This is a critical juncture in these negotiations, where movement from "rights-based" to "needs-based" to "interest-based" negotiations suddenly becomes possible. This negotiation transformation may, however, have a corollary in spiritual transformation.

Keywords: hydropolitics, water negotiations, spirituality, conflict resolution

Eric Bradway Wolf, MS, University of Colorado at Boulder. Email: ebwolf@colorado.edu; Barbara Buttenfield, PhD, University of Colorado at Boulder. Email: babs@colorado.edu; *A Hierarchical Vector Data Model for Distributed Geospatial Processing*

We present a hierarchical data structure to store and manage vector data at multiple resolutions based on a single fine-resolution version. Vector data is typically maintained in separate data files at fixed resolutions (e.g., 1:5,000, 1:24,000, 1:100,000, etc). To analyze a geographic process at the appropriate scale, an entirely new data set may need to be compiled, at significant cost in time and resources. The proposed data structure can support web services involving measurement, modeling and analysis across a range of resolutions. This data structure is constructed using binary decomposition. Convex hulls are developed around each node in the tree to preserve topology. Features are re-constructed at user-specified ground resolution, level of accuracy, or volume of data (number of coordinate pairs) by extracting a cross-section of the tree. Work in progress includes topological checking within feature layers (e.g., networks of

stream tributaries) and between feature layers (e.g., roads and streams). Metadata describing feature geometry is stored at each node and summarized for each row of the tree, and allows for pattern analysis of feature geometry and comparison against other data sets without needing direct access to the finest granularity coordinates. The intent of this data structure is to sustain a highly efficient web-portal infrastructure for storage, transmission and analysis of very large geospatial data sets independent of application.

Keywords: geospatial databases, multiple representations, distributed processing, GIS

Susan Wolfenbarger, The Ohio State University. Email: wolfenbarger.3@osu.edu; Remote Sensing and Human Rights: A Comparison of Darfur and Karen State, Burma

Commercially available, high-resolution remote sensing products are allowing many changes in the field of human rights documentation. This technology allows monitoring of locations which are particularly difficult to reach due to dangerous situations on the ground. This poster will present difficulties in the use of high resolution imagery in detecting and analyzing human rights violations in Darfur State, Sudan and Karen State, Burma.

Keywords: Remote Sensing, Human Rights

Christopher J. Woltemade, Shippensburg University. Email: cjwolt@ship.edu; Jinnieth J. Woodward, SUNY - College of Environmental Science and Forestry. Email: JinnieWoodward@aol.com; Hydrology And Nitrate Removal In A Restored Spring-Fed Wetland, Pennsylvania

In 2001 the 1.04-ha Hornbaker wetland in south-central Pennsylvania was restored by blocking an artificial drainage ditch to increase water storage and hydraulic retention time (HRT). A primary goal was to diminish downstream delivery of nitrate that enters the wetland from a limestone spring, its main source of inflow. Wetland inflow and outflow were monitored weekly for two years (2004 - 2006) to assess nitrate flux, water temperature, pH, and specific conductivity. In Year 2 spring discharge was measured weekly to allow calculation of nitrate loads and the hydraulic retention time. Surface runoff was confirmed to be a small fraction of wetland inflow via rainfall-runoff modeling with TR-55. The full data set ($n = 102$) was screened to remove 13 weeks in which spring discharge constituted less than 85% of total inflows due to high precipitation and runoff. Over two years ($n = 89$), mean nitrate-nitrogen concentrations were 7.89 mg/l in inflow and 3.68 mg/l in outflow, with a mean nitrate removal of 4.19 mg/l. During Year 2 ($n = 47$) the wetland removed an average of 2.32 kg N/day, 65% of the load. Univariate analysis shows that nitrate removal was significantly correlated with HRT, water temperature, and the concentration of nitrate in inflow. Nitrate removal was significantly greater during the growing season (5.36 mg/l, 64%) than during the non-growing season (3.23 mg/l, 43%). Multivariate regression analysis shows that about 27% of the variance in nitrate removal is accounted for by HRT and water temperature ($n = 47$).

Keywords: wetlands, restoration, nutrients, nitrogen, agriculture, Pennsylvania

Kelly Woltman, McMaster University. Email: woltmak@mcmaster.ca; Bruce Newbold, McMaster University. Email: newbold@mcmaster.ca; Variations in Health Care Use among Recent Immigrants in Montreal, Toronto and Vancouver

Montreal, Toronto and Vancouver represent the largest immigrant receiving centres in Canada. As Canada's largest and most diverse cities, there may be more variation in health and health behaviours in these urban environments, than across any other provincial boundaries or health region. Existing literature suggests that recent immigrants, defined as those residing in their host country for less than ten years, typically under-use the health care system. Recent research also suggests that they may be even less likely to participate in preventive health care screening, especially those that are not necessarily considered essential by the individual. Drawing upon a population health approach, this paper will investigate access and utilization of preventive health care among recent immigrant women, as compared to their long-term and Canadian-born counterparts. Specifically, this paper examines the individual and neighbourhood influences on the use of a primary care and preventive cervical cancer screening (Pap testing). The Canadian Community Health Survey (CCHS), cycle 2.1 (2000-2001) Masterfile dataset provides cross-sectional estimates of health determinants, health status and health system utilization across Canada at sub provincial scales of analysis. Along with demographic, social and economic profile information from the Canadian Census Public-use dataset (2001), this research will employ both descriptive and multivariate techniques to examine a growing concern within the public health sector of the potential inequities in health care use amongst immigrants.

Keywords: population and public health; immigrants; preventive cancer screening; women's health

David W Wong, George Mason University. Email: dwong2@gmu.edu; Measuring Spatial Separation - A Distance-Based Approach

Traditional segregation measures have been criticized of their aspatial nature as spatial relationship among population groups has not been taken into account. Spatial measures introduced in the past two decades overcome this shortcoming by incorporating spatial relationship in the forms of adjacency or neighborhood of a given size, while distance is either reduced into a binary (neighbors) variable or not dealt with directly. Some earlier spatial measures used distance explicitly to model spatial relationship, but some of them are computationally intensive and difficult to implement. Another problem with segregation measures is the baselines for comparison. Most measures use the ideal situation (no segregation) as the baseline, but some others use random distribution. These ideas are sometimes limited by the relative sizes of the population groups. Few measures adopt the worst situation as the baseline for comparison. This paper suggests a distance-based spatial measure of segregation. The measure is referenced to the ideal and worst situations empirically possible given the geography and the populations of the study area. The measure is conceptually simple and relatively easy to implement. Though the optimal concept is used, no real optimization routine is needed. The measure is useful to compare segregation level of different regions even with very different geographical settings.

Keywords: segregation measures, distance

Koon Kwai Kenneth Wong, Department of Geography, Hong Kong Baptist University. Email: kenwong@hkbu.edu.hk; The Transformation of Urban Public Spaces in Beijing

Since the 1990s, the cityscape of Beijing has changed radically. In the city center and neighboring districts, large tracts of old city areas are being pulled down to permit more intensive use of land. This paper discusses the new forms of public spaces that have emerged in this traditional Chinese capital city. This rapid transformation of urban public spaces in Beijing is an attempt by the Chinese government to develop the city into a "global metropolis," and gained impetus when Beijing succeeded in the bid to host the 2008 Olympic Games. The Beijing municipal government is keen on showing the world the "new faces" of this traditional capital city of China. Rhetorically, terms like "green," "modern," "high-tech," are now frequently used in the official propaganda apparatus. Undoubtedly, the cityscape of Beijing is changing and will be changing drastically and radically in the years ahead. This paper examines the different forms and styles of urban public spaces that exist in Beijing. Of particular interest to this study are spaces that have a mixture of Western and Chinese influences, and the problems that are associated with the amalgamation of Western ideologies and technologies with Chinese traditions and culture in public space planning and design.

Keywords: Cityscape, Beijing, urban public spaces, global metropolis

Madeleine Wong, Dr., University of Wisconsin-Madison. Email: mwong2@wisc.edu; Globalization, Health Crises and Recruitment: Postcolonial Ghanaian Nurse Immigration to the U.K.

In the age of globalization, the growing health crises engendered by neoliberal reforms have compelled industrialized countries to adopt overseas recruitment to address their nursing shortages. The past decade has witnessed significant 'nurse exodus' from many African countries. Though subsidizing the health care sectors of industrialized countries, this exodus has created severe staff attrition that handicaps the development of health services in African countries. Yet, despite efforts and guidelines issued to curtail the poaching of nurses from African countries, nurse migration continues to increase. This paper focuses on the experiences of Ghanaian nurses in the U.K., which accounts for three-quarters of Ghana's verification request. First, the paper maps out the movement of Ghanaian nurses through their transnational networks and private independent recruitment. Second, based on interviews, the paper analyzes their social and economic realities and challenges in the UK. The analysis demonstrates that Ghanaian nurses experience exclusions and discriminatory practices in the work place within the hierarchical nurse labor structure shaped by recruitment programs. Finally, the paper addresses the transnational strategies and negotiations nurses are pursuing in response to these experiences and recent changing labor policies and immigration rules restricting the exemptions for foreign nurses, and threatening their employment and immigration status.

Keywords: Key words: Nursing, Health, Migration, Ghana, U.K

Ngai Sze Wong, Geography and Resource Management Department, Chinese University of Hong Kong. Email: ngaisiwong@cuhk.edu.hk; Hui Lin, Institute of Space and Earth Information Science, Chinese University of Hong Kong, Hong Kong, China. Email: huilin@cuhk.edu.hk; Shui Shan Lee, Centre for Emerging Infectious Disease, Chinese University of Hong Kong, Hong Kong, China. Email: sslee@cuhk.edu.hk; *Assessment of the Coverage of Substitution Treatment as a Means of Harm Reduction Using GIS Approach*

Heroin addiction is a catalyst of the HIV epidemic through the sharing of contaminated syringe among injection drug users. To prevent and control HIV transmission, harm reduction is one of the effective intervention strategies. This study aims at assessing and planning the coverage of methadone clinics, a harm reduction measure that provides substitution treatment, in various spatial scales with the aid of GIS. Hong Kong is chosen as the study area and existing coverage of methadone clinics, which is the number of heroin users attending a methadone clinic over the total number of reported heroin users by district, is an indicator of the effectiveness in delivering services to drug users. Three modules are included, namely "Assessment", "Projection" and "Decision Making". In "Assessment", spatial distribution of treatment's coverage in heroin users will be evaluated by measuring buffers based on coverage approach and travel distance approach. Projection through 2011 is made by a simple linear regression model. In addition, the spatial "Projection" in finer spatial resolution is made by assigning the 18-district coverage data to around 400 constituency areas according to local population density. The results from "Assessment" and "Projection" are used to support the Decision Making component on different scenarios: 1. No resource limit 2. A targeted coverage of greater than 60%. The system supports the planning of harm reduction programmes for diminishing the risk of HIV infection among injection drug users. Efficiency and coverage of substitution treatment are the key attributes which can be monitored using a GIS approach.

Keywords: Harm reduction, HIV, GIS, Public Health

Theresa Wong, Ohio State University. Email: wong.300@osu.edu; *Anti-corporate globalization movements and the local politics of dissent: the spatiality of protesting the IMF/World Bank in Singapore*

The recent trend of International Monetary Fund (IMF)/World Bank (WB) and World Trade Organization (WTO) meetings being held in places known to suppress dissenting voices has been viewed as a worrying move to prevent anti-corporate globalization and civil society groups from engaging with such meetings. The move of WTO ministerials and IMF/WB Annual Meetings to places like Doha (WTO 2001), Dubai (IMF/WB 2003) and Singapore (WTO 1995 and IMF/WB 2006) necessitates an additional level of engagement by anti-corporate globalization activists, as they converge on these spaces, with that of the local politics of protest. These new hurdles that must be negotiated by activists were apparent in the IMF/WB meetings in Singapore in September 2006, where there was a last-minute decision by the Singapore government to ban activists accredited by the World Bank from entering the country for the meetings, for fear of 'local' security concerns. This paper examines representations of anti-corporate globalization activists in the Singapore media in the context of a general depoliticization of the meetings. It shows how these representations of both the IMF/WB and anti-corporate globalization movements inform our understandings of the spatiality of civil society activities conducted over the week of the meetings. The paper argues for a closer study of how local politics of dissent engage with practices of anti-corporate globalization groups as they converge on such meeting sites.

Keywords: globalization, resistance, media, Singapore

David Woo, California State University East Bay. Email: david.woo@csueastbay.edu; *Immigration and Concentration: Changing Asian Settlements in the San Francisco Bay Area*

In the past decade, Asian population in the San Francisco Bay Area has increased by nearly 400,000, reaching 1.43 million in 2004. With an annual growth rate of 4.3%, Bay Area Asians are growing three-time faster than the rest of the population in the region. Today, one-fifth of Bay Area's residents are Asian. The purpose of this study is to monitor the population momentum of Asians and map their changing settlement patterns in the San Francisco Bay Area. Change detection analysis is carried out using census data together with immigration statistics since over eighty percent of Asian population growth in the Bay Area comes from immigration. The study focuses on the six largest Asian ethnic groups (Chinese, Filipinos, Indians, Vietnamese, Koreans, and Japanese). It explores the major socio-economic factors that transform the ethnic makeup of Asian neighborhoods. The findings show that the epicenter of Asian population settlement has shifted from the San Francisco to the South and East Bay. San Jose has surpassed San Francisco to carry the largest Asian population among Bay Area cities. In the East Bay, Fremont has replaced Oakland to become the new hub of Asian settlement. Such demographic shifts sprout the emergence of new Asian socio-economic centers in the suburbia over the ruins of the classical

Chinatown settlement model.

Keywords: Asian, settlement patterns, immigrants, Bay Area, population, ethnic enclaves

Myungje Woo, Ohio State University. Email: woo.55@osu.edu; Jean-Michel Guldman, Ohio State University. Email: guldman.1@osu.edu; *Analysis of Urban Spatial Structure under the Urban Containment Land Use Policies*

Numerous communities have adopted some form of Urban Containment Policies in their Land Use Policies, which include Urban Growth Boundaries, Urban Service Areas, and Greenbelts, designed to deal with urban sprawl. Also these policies are increasingly chosen as the growth control tool by local governments. However, there is controversy over the negative and positive impacts of Urban Containment Policies. For example, the Urban Containment Policies are known to contribute to the preservation of farmland and the desired density of population and development. Critics of these policies have asserted that they have the negative effects such as increases of housing values and increases of traffic and congestion. Previous studies have focused on the impacts of Urban Containment Policies on housing values and infrastructure costs. However, little is known about the impacts of Urban Containment Policies on changes in urban spatial structure from the nation-wide case studies. This study tries to find out whether Urban Containment Policies are desirable in shaping an urban spatial structure that is beneficial to both the environment and the public. Specifically, Geographically-Weighted Regression is used to examine the spatial variability of population and employment densities for those metropolitan areas that have Urban Containment Policies versus those that do not. The answers to these questions should help assess whether the enforcement of Urban Containment Policies is having desirable results for the future of a metropolitan area, or just generating negative externalities, such as congestion and rising housing prices.

Keywords: urban spatial structure, urban containment policy

Andrew Wood, University of Kentucky. Email: andrew.wood@uky.edu; Gavin Bridge, University of Manchester. Email: gavin.bridge@manchester.ac.uk; Michael J. Bradshaw, University of Leicester. Email: mjb41@le.ac.uk; *When all the easy oil is gone: geographies of knowledge in the upstream oil sector*

Economic geography's understanding of 'knowledge economies' draws primarily on paradigmatic sectors of the 'new economy,' such as financial services, software and biotechnology. Accordingly, work in the field overlooks the way knowledge economies might extend to mature industries more frequently associated with the 'old economy.' Such an a priori discounting of the role of knowledge in mature industries is not warranted: technical and market profiles of these sectors indicate how a round of technological, organizational and geographical restructuring is creating demands for new types of knowledge, and driving significant shifts in the way production is organized. In this paper we present findings from work on the upstream oil and gas sector, the portion of the oil industry dedicated to exploring for and producing oil from conventional hydrocarbon resources. We draw on documentary analysis and interviews with oil producers to develop two claims about geographies of knowledge in this mature industry. First, we argue that an increasing proportion of E&P activity is targeted towards non-traditional, frontier environments. Second, we argue that competitive success in frontier-type environments depends on being able to bring together several distinctive types of knowledge: along with the capacities and expertise required to operate in technically challenging conditions, firms increasingly need to navigate a range of political, social and environmental conditions. We present the case of western oil firms on Sakhalin in the Russian Far East, which vividly illustrates how 'knowledge economies' in the upstream oil and gas sector are being re-worked by the challenges of a non-traditional environment.

Keywords: knowledge, oil, russia

Angie Evans Wood, Ph.D., Blinn College. Email: awood@blinn.edu; *Much Ado About Nothing: A Geographical Analysis of Industrial Clusters*

After it had more or less disappeared in the mid-twentieth century (Cooke, 2002), cluster theory has reemerged as one of the dominant paradigms in the advanced economies of the world. There are many reasons for this, but one of the most important factors in the resurgence of industrial cluster theory has been the explosive growth of globalization in economic and business activity. This author looks at the truth behind industry clusters. Are they a true phenomenon, or just a fortunate product of location? Who benefits from this so-called cluster and why would anyone want to become a part of it? Are industrial clusters fact or farse? This paper draws from available research literature, research fieldwork (with focus on the Texas wine industry and Cuban tourism), and practitioner documentation.

Keywords: clusters; industry; location; wine; tourism

Eileen Wood, University of Minnesota. Email: wood0556@umn.edu; Policing transnational families: Norwegian immigration legislation's management of 'acceptable' kinship structures

This paper focuses on the ways in which the Norwegian state has used immigration regulations to manage and police the kinship structures of 'immigrants.' I examine two areas of immigration law that have been of particular importance in enabling and restraining the transnational lives of non-European immigrants and their descendants in Norway. First, family reunification legislation has most obviously been used to regulate who counts as a 'close family member,' which sorts of visits are considered appropriate, and what kinds of marriage practices are acceptable. Secondly, tourist visas are central in allowing transnational families to maintain their ties, yet Norwegian visa practices are particularly restrictive. Visa granting practices place strict limits on which family ties can form the basis for a tourist visa, as well as the 'acceptable' family structure, class, and age of the visitor. Both the family reunification legislation and the visa granting practices have specific gendered goals, and are based on specific gendered assumptions, which tend to reflect broad notions of non-Western women as victims and of non-Western men as patriarchal villains.

Keywords: Immigration, gender, Norway

Lawrence E. Wood, Ohio University. Email: WoodL@ohio.edu; Taking Account of Context: The Political Articulation of Appalachian Regional Commission Policy

In 1965 the U.S. federal government created the Appalachian Regional Commission (ARC). The ARC was to oversee a regional development program in Appalachia. The ARC's creation marked the first time that the U.S. government had passed legislation designed to address socioeconomic development in a multi-state, lagging region. Prior to 1965 there had never been anything like the ARC in the U.S., and there has not been anything like it since. Understanding the political and social contexts of the U.S. in the 1960s is important to appreciating how the ARC came to be. It is important to understanding ARC policies as well. This paper indicates that ARC policies, which were almost entirely contrived prior to the establishment of the ARC itself, were articulated through entrenched political, economic, and ideological norms. In short, to understand ARC policies one must consider the broader milieu in which such policies were conceived. Influencing ARC policies included issues such as protecting the interests of politicians representing non-Appalachian constituents; the belief that government intervention should primarily come in the form of bricks and mortar style investments and should not directly interfere with private sector matters; and the expectation, based upon the neoclassical economic paradigm, that infrastructure investments could successfully stimulate the movement of both capital and labor in ways that would promote spatial equilibrium. Understanding the political and ideological limitations associated with creating ARC policies may inform expectations regarding regional development policies more generally, including in various contexts.

Keywords: regional development; policy; Appalachia; ARC

Nathan Wood, PhD, United States Geological Survey. Email: nwood@usgs.gov; Tim G Frazier, The Pennsylvania State University. Email: tgf110@psu.edu; Alyssia Church, The Pennsylvania State University. Email: auc131@psu.edu; Brent Yarnal, PhD, The Pennsylvania State University. Email: alibar@eesi.psu.edu; GIS-based assessment of community exposure and sensitivity to tsunami hazards along the Hawaiian coast

As the 2004 Indian Ocean disaster demonstrated, tsunamis are significant threats to many coastal communities. The U.S. coastline is not immune to tsunamis and considerable energy has focused on determining the likelihood of future events and on developing tsunami-detection warning systems. To understand the risks that tsunamis pose to coastal communities, hazard information must be coupled with information on how communities occupy and use the land within tsunami-prone areas. The Tsunami Risk Assessment Project (TRAP) is looking at the variations in land use, demographics, and economic assets in land prone to tsunami hazards in the State of Hawaii. This collaborative project includes representatives from the U.S. Geological Survey, the Pennsylvania State University, the State of Hawaii Civil Defense, the State of Hawaii Department of Business, Economic Development and Tourism, and the Pacific Disaster Center. Current research focuses on the use of geographic information system (GIS) to integrate and analyze hazard, landcover, population, economic, and critical facility data. Results suggest the presence of significant tourist and employee populations in hazard-prone land in many communities. In addition, results indicate that many businesses in high tsunami-hazard zones are the primary employers and economic drivers in coastal communities, suggesting that a major tsunami could drastically affect the regional economy. TRAP results help support disaster preparedness planning efforts of the State of Hawaii Civil Defense and economic planning efforts of the State of Hawaii Department of Business, Economic Development and Tourism, as well as serving as baseline information

for response and recovery operations.

Keywords: vulnerability, tsunamis, Hawaii, GIS, hazards

Nathan J. Wood, United States Geological Survey. Email: nwood@usgs.gov; Application of midresolution landcover information to estimate community vulnerability: A case study of tsunami hazards on the Oregon coast

Natural-science studies suggest that a Cascadia subduction-zone earthquake has the potential to generate tsunami waves which would impact more than 1,000 km of coastline on the west coast of the United States and Canada. Although the predictable extent of tsunami inundation is similar for low-lying land throughout the region, human occupation and use of the hazard-prone land varies, thereby creating variations in community vulnerability to regional hazards. To better understand such variations, landcover information derived from midresolution remotely sensed imagery (e.g., 30-m-resolution Landsat Thematic Mapper imagery) was coupled with tsunami-hazard information to describe hazard-prone land in 26 communities along the Oregon coast. Correlation coefficients (r) summarizing the correlative strength between landcover cells classified as developed and various community assets, including residential populations, business locations, and parcel values, are statistically significant ($p < 0.05$), indicating a high correlation between the datasets. The distribution of landcover cells classified as developed indicates that community exposure and sensitivity to tsunami hazards vary considerably within the study area. In the absence of socioeconomic data or local knowledge of how communities have developed, the integration of hazards information and landcover information derived from midresolution remotely sensed imagery may be a useful first step in estimating community vulnerability for regional hazards and in identifying areas for site-specific risk assessments.

Keywords: landcover, Landsat TM, tsunamis, vulnerability, hazard

Nichola Wood, University of Leeds. Email: n.x.wood@leeds.ac.uk; Passionate Practices: The Role and Significance of Emotion in Geographies of Nation and National Identity

Many works acknowledge the role that emotions play in the power of ideas of nation and national identity, however, little work has been carried out on why or how these concepts gain their emotional power. Whilst many areas of social enquiry have 'traditionally' neglected the emotional aspect of social relations, what is peculiar is the fact that despite the 'emotional turn' in geography and the social sciences more generally, contemporary studies of nation and national identity still do not focus on the role and significance of emotion. Part of the explanation for this neglect may lie in the fact that despite some notable exceptions (including Edensor 2002; Gagen 2004), scholars have tended to largely focus their attention on the tangible 'artefacts' of nationhood (e.g. textual reproductions, symbolic representations and sites of nationalist commemoration). Drawing on work that is grounded in non-representational styles of research, I argue that in order to fully understand the 'nature' and power of nations and national identity, there needs to be a more meaningful engagement with the social practices and processes through which nations are (re)produced, emotional attachments are forged and national identities are performed.

Keywords: nation, national identity, emotional geographies, non-representational styles of research

Patricia K. Wood, York University. Email: pwood@yorku.ca; Neither Here nor There: Exploring Native Youths' Geographies through Mental Maps and Photography

Several youth from the Tsuu T'ina Nation, a First Nation near Calgary, Alberta, worked with the author to explore their personal geographies on the reserve and in the neighbouring city, where some of them attend school. Producing mental maps and working with photography, the Tsuu T'ina youth revealed cartographies and geographies that were neither traditional nor "modern," but an integration of both, and a complicated sense of belonging to both places. The details of the students' maps indicated that they were unfamiliar with "official" maps of either the reserve or the city, and that the Nation continues to privilege oral and experiential knowledge of their land over modern print cartography. Their photographic choices demonstrated the nature and depth of their attachment to both city and reserve, and highlighted aspects of the relationship between the two.

Keywords: mental mapping, Indigenous peoples, youth

Peter A. Wood, Emeritus Professor, University College London. Email: p.wood@geog.ucl.ac.uk; Dariusz Wójcik, Lecturer, University College London. Email: d.wojcik@ucl.ac.uk; *Urban knowledge-intensive services and regional innovation policies*

The policy models being employed to promote economic innovativeness and international competitiveness in British cities echo national policies by being science, manufacturing and technology-based. And yet the most powerful driver of regional and urban inequality in the UK for the past 15 years has been the economic success of the London region. Innovativeness in London does not arise primarily from technological initiatives, but from the labour intensive, knowledge-based processes characteristic of the city's national and global service functions. This paper explores the nature of competitive innovativeness in such functions, illustrated with examples from recent developments in the financial and business services.

Keywords: Services, innovation, urban policy, London

Connie A. Woodhouse, NOAA/ National Climatic Data Center. Email: connie.woodhouse@noaa.gov; *Dendrochronology in Water Resource Management*

In the western US, recent drought conditions coinciding with increased demands for water due to population growth, tribal claims, and environmental needs, have resulted in a growing awareness of the limitations of water supplies. Anticipated regional impacts of climate change in the future are an additional concern. Many water managers are now considering climate variability and change as they develop or refine water resource management strategies and drought plans. Although instrumental records have typically been the basis for planning, some water managers are now using extended records of hydroclimatic variability from tree-ring data to assess the suitability of the instrumental data for long-term planning. A network of moisture-sensitive tree-ring chronologies in Colorado and neighboring regions has provided the foundation for a set of annual streamflow reconstructions for gages key to a number of water management agencies. Generating reconstructions for gages of interest has been a first step, but the real challenge has been working with water managers to determine how best to incorporate this information into decision making. In partnership with our collaborators, we have investigated the application of these data to address a range of management issues. This work continues to evolve and expand to other parts of the western US. Although the climate of the past will not be replicated in the future, dendrochronological records provide a broader range of natural hydrologic variability than the instrumental records. This natural variability is likely to persist into the future, underlying human-induced climate changes, making these data relevant to planning.

Keywords: dendrochronology, water resources, climate, Colorado

Philip Woodhouse, University of Manchester, UK. Email: phil.woodhouse@manchester.ac.uk; *Water Rights in South Africa: Insights from Legislative Reform*

Inequality of access to water resources marks South Africa's history even more profoundly than inequality of access to land. Redistribution of rights to water to redress the results of past discrimination is an explicit purpose of the National Water Act of 1998 (NWA). In other respects the NWA is consistent with 'best practice' embodied in the 1992 Dublin principles. Under the NWA, water management is devolved to 17 Catchment Management Agencies (CMA), each with a governing board that is representative of the water users within the catchment. This paper traces the development and current status of the Inkomati CMA, the first to be approved (in 2004) by the South African government. In the Inkomati catchment water use is dominated by established commercial agriculture and forestry, by important environmental interests, including the Kruger National Park, and by the demands for improved access to water from a black population of around 1.5 million living in ex-bantustan areas. The paper reflects on the experience of the Inkomati CMA and considers the insights it provides, both on universal 'best practice' principles and also on the role of water management as an arena of political struggle, compromise and experimentation in South Africa.

Keywords: Water, Environmental Governance, South Africa

Michael Woods, University of Wales Aberystwyth. Email: m.woods@aber.ac.uk; Jon Anderson, Cardiff University. Email: andersonj@cardiff.ac.uk; Steven Guilbert, University of Wales Aberystwyth. Email: stg@aber.ac.uk; Suzie Watkin, University of Wales Aberystwyth. Email: srw@aber.ac.uk; *Rural Protest and National Identity: Negotiating dual identities in the politics of the Welsh countryside*

In many countries, rural cultures, landscapes and societies play an important symbolic in national identity. Threats to traditional forms of rural life are consequently frequently represented as threats to core aspects of the national character, and associations of rurality and national identity are mobilised as part of the discursive framing of rural protests. However, whilst previous studies have

focused on allusions to nationalism and national identity in media reports and promotional material for rural protests and political movements, less attention has been paid to significance of national identity as a motivating factor for participants in rural protests. Drawing on research in Wales, this paper examines how individuals negotiate rural identities and national identities in their political activity. Through case studies of protests around agriculture, housing and hunting, the paper reveals disjunctures and tensions within both discourses of national identity and discourses of rural identity. As such it critiques some of the conventional associations between national identity and rural identity, and provides an insight into the contribution of rural identity and rural activism to reproducing individual senses of national identity.

Keywords: Rural, National identity, protest, Wales

William I. Woods, University of Kansas. Email: wwoods@ku.edu; Newton Paulo de Souza Falcão, Instituto Nacional de Pesquisas da Amazônia. Email: nfalcao@inpa.gov.br; Eduardo Góes Neves, Universidade de São Paulo. Email: edgneves@usp.br; Lilian Rebellato, Universidade de São Paulo. Email: lilianrebellato@hotmail.com; Christoph Steiner, Universität Bayreuth. Email: Christoph.Steiner@uni-bayreuth.de; Wenceslau G. Teixeira, Embrapa Amazônia Ocidental. Email: lau@cpaa.embrapa.br; *Terra Preta Soils: Diachronic Considerations of Amazonian Land-Use*

Coupled archaeological, geographic, and agronomic research has recently focused on the terra preta phenomenon in lowland Amazonia. This paper will summarize the results of these efforts to date and their significance to past, present, and future food production in the region. Topics to be included are differential pre-European land-use strategies, current semi-intensive cultivation of these fertile soils, and the recreation of the relevant soil conditions for future small holder applications.

Keywords: Amazonia. soils, land-use

Keith Woodward, University of Exeter. Email: keithw@email.arizona.edu; *The stalemate of dialectics :: Badiou contra Deleuze contra ?i?ek contra?*

For some time in many areas of human geography - and in social theory in general - 'dialectics' has become an increasingly forbidden concept. Yet, after two decades of a massive, deconstructive push to isolate and root out alternatives to its frequently claustrophobic structurings, a number of recent theoretical articulations - such as ?i?ek's new dialectical materialism and Badiou's "expressive dialectics" ? have begun to turn their attention back to the various productivities of a new dialectics. At the center of the current conceptual rejuvenation is the crucial notion of singularity, which new dialecticians suggest offers the possibility of marrying dialectics and difference through a politics that emerges with novel 'moments'. This paper interrogates the politicization of novelty in the new dialectics by reading with and against the singularity that corresponds to the Marxism of Deleuze.

Keywords: Dialectics, Politics, Activism, Badiou, ?i?ek, Deleuze

Chih Yuan Woon, National University of Singapore. Email: g0500912@nus.edu.sg; *Caring for tsunami victims by Singaporeans: Generosity, (im)partiality and the moral implications of distance*

The horrific Indian Ocean tsunami of 26th December 2004 was followed by a tidal wave of (dramatic and disturbing) media coverage focusing on the spectacular scale of destruction. Going beyond these immediate reactions to unpick the myriad geographies of the event, context and aftermath, my research agenda in the wake of the tsunami hovers on a(n) (impoverished) social analysis interweaving themes at the interface of ethics, generosity and care. Specifically, I am interested in the multiple ways in which Singaporeans 'care' for people affected by the tsunami. In human geographical terms, affective consequences extend extra-locally through familial, ethnic and media networks, many of which have also been mobilized in efforts to provide assistance from afar. This coincides with recent geographical assertions about the ethical possibilities of caring for distant strangers. Utilising philosophical ideas of Emmanuel Levinas and Jacques Derrida on ethics, generosity and hospitality critically, this interdisciplinary research refuses the framing of distance as an impediment to responsible action and promises a warm, passionate project purporting for a more caring world.

Keywords: Indian Ocean Tsunami; Generosity; Caring practices; Singapore

Holly Worthen, University of North Carolina at Chapel Hill. Email: hworthen@yahoo.com; Brenda Baletti, University of North Carolina at Chapel Hill. Email: bbaletti@email.unc.edu; Adrian Wilson, University of North Carolina at Chapel Hill. Email: adrianw@email.unc.edu; Critical Development Theory and the Politics of Scale

Taking as a point of departure recent geographic debates surrounding the politics of scale in human geography, this paper explores the theorization of scale in critical development theory and practice. Despite a history of complex debates about scale among critical geographers - who have attempted to theorize scale as relational, and as socially constructed and reproduced - we contend that many critical development scholars continue to perpetuate a hierarchical, disempowering notion of scale - for example, by emphasizing the global-local dichotomy, or by idealizing the local. We argue that, while critical development theory has made significant progress toward problematizing mainstream understandings of development, many critical development theorists have failed to recognize the ways in which a hierarchical concept of scale has been naturalized within development discourse, and the ways in which 'scalar thought' interacts with and reinforces hierarchical relationships in development theory and practice. While some geographers have recently called for a complete methodological rejection of scale, we argue that a theoretical engagement with scalar discourses is important for critical development theory, in order to adequately theorize the complex interplay between the discursive construction of scale and the material practices of development. However, we believe that frameworks for utilizing scale in critiques of development must be expanded, thus allowing us to understand the complexity and contextuality of scalar relationships. We examine recent innovations in development theory - especially research conducted within the modernity/coloniality framework - to examine how this could be done.

Keywords: scale, development, post-development

Felicity Wray, University of Newcastle Upon Tyne. Email: Felicity.Wray@ncl.ac.uk; Exploring the Spatiality of Financial Knowledge: An Empirical Investigation.

The aim of this paper is to explore how the uneven circulation of financial knowledges amongst networks of venture capitalists can have profound material consequences for entrepreneurs successfully securing finance. While much theory and empirical attention in economic geography has been applied to understanding the movement and appropriation of mainly technical knowledge within industrial districts, clusters or even between spatially dispersed organisations, understandings concerned with the spatiality, and circulation of financial knowledges across and within monetary networks remains undeveloped. It is precisely this empirical hole that this paper intends to fill. By using concepts from relational economic geography, this paper will argue that a relational lens is a useful means to uncover the mechanisms by which financial knowledge is circulated across the space economy resulting in an uneven landscape of financial knowledges amongst venture capital agents. The empirical vehicle for this paper is a comparison of a sample of entrepreneurs seeking finance in the North East and East Midlands plus the community of venture capitalists and finance agents also operating in said regions. The structure of this paper will firstly highlight the asymmetrical and uneven attachments each community of venture capitalists has to the more 'dominant' circuits of capital, knowledge and people. Secondly, it will uncover and compare the actual mechanisms by which financial narratives are moved and circulated across space, if at all. Finally, using empirical data, this paper will demonstrate how the uneven spatiality of financial knowledge embodied by venture capitalists can affect entrepreneurs ability to secure finance.

Keywords: financial knowledges, networks, venture capitalists

Pamela Wridt, University of Colorado. Email: wridt@colorado.edu; Denver's Child/Youth Friendly Cities Initiative: Framing arguments for youth participation in social justice movements

This paper examines a recent initiative to make Denver a child/youth friendly city based on the principles of the United Nation Convention on the Rights of the Child. The CYFC initiative represents a collaboration of public and private stakeholders, including academicians, educators, social workers, private foundations, community organizers, government officials, children, youth and their families. Notably absent from this list of stakeholders are business owners. This paper will present various socio-cultural and political framings used to harness the support of stakeholders and why these positions do not align with the interests of business owners, who require an economic argument for the active involvement of children and youth in city decision making processes. Further, this paper will critically examine representations of children and youth in Denver's media and projects young people involved with the CYFC initiative have created to interrogate these social constructions.

Keywords: Children/youth, planning, social justice, participation, urban

Dawn J. Wright, Oregon State University. Email: dawn@dusk.geo.orst.edu; Valerie Cummins, Coastal & Marine Resources Centre, University College Cork, Ireland. Email: v.cummins@ucc.ie; Liz O'Dea, Coastal & Marine Resources Centre, University College Cork, Ireland. Email: lodea@ucc.ie; Tanya Haddad, Oregon Ocean Coastal Management Program. Email: tanya.haddad@state.or.us; Tony Lavoi, NOAA Coastal Services Center. Email: tony.lavoi@noaa.gov; Trans-Atlantic Partnerships in Coastal/Ocean Informatics and an International Coastal Atlas Network

While significant capacity in the last decade has been built in the field of coastal mapping via web-based atlases, as well as coastal/ocean informatics, little has been done to take stock of the implications of these efforts or to identify best practices in terms of taking lessons learned into consideration (including the effective translation of science to coastal decision-making). This presentation will review a results in progress from two recent NSF-funded workshops: the first, held in Cork, Ireland in the summer of 2006, under the theme of "potentials and limitations of coastal web atlases," and the second, to be held in Oregon under the theme of "building a common approach to managing and disseminating coastal data, maps and information." Both workshops are bringing together key experts from Europe, both coasts of the United States, and Canada in order to examine state-of-the-art developments in web-based coastal mapping and informatics (including the development of controlled vocabularies and ontologies for building a geospatial semantic web among partner atlases), along with future needs in mapping and informatics for the coastal practitioner community. These workshops are intended to advance research in the field by providing recommendations for best practices in coastal web mapping and to develop a cadre of scientists who will play a leadership role in forging international collaborations of value to the participating nations.

Keywords: semantic interoperability, web GIS, cyberinfrastructure

Melissa W. Wright, Penn State University. Email: mww11@psu.edu; Urban Geography Plenary Lecture

When Movements Falter: Public Women, Justice, and the Geographic Conundrum of Ciudad Juarez Democratization movements and social protests against neoliberal restructuring are a prominent characteristic of contemporary modernity. In Mexico, the transition to democracy has been accompanied by massive demonstrations against the privatization of public entities, stringent government cutbacks, and growing disparities between the elite and the poor. Anger over neoliberal policies has prompted the creation of civic organizations that, in turn, have taken the lead in forcing the acceptance of democratic reforms and establishment of electoral institutions accountable to the public. Women have emerged as leaders within these civic organizations and have achieved greater presence across the country's political spectrum. Within this context, Ciudad Juarez has gained notoriety as a city with powerful feminist organizations and public figures who have succeed in forcing the issues of domestic violence, violence against women, sexual assault and rape into the political debates at the state and federal levels. Despite obvious gains, however, the social movement generated by these women and their organizations has been troubled by internal debates over who truly represents and has the moral authority to guide the movement. These tensions cause difficulties not only for the local organizations but also for international groups seeking to support the movement. In this paper, I use feminist and Marxist theory to examine how these problems are rooted in the gendering of citizenship and economy within the intertwined processes of neoliberal restructuring and democratic reform within and beyond Mexico.

Keywords: gender, social justice, mexico, political economy

Paul Wright, University of Wales, Aberystwyth. Email: temp-pww98@hotmail.com; Voysey's generous ideas in architectural things

Charles F. A. Voysey believed that buildings radiated influence to the people inhabiting them and the broader areas around them. Between 1881 and 1913 he designed houses that "palpitated" with an agency that he'd crafted; one that he hoped would produce a specific effect, and one that he based on a broader philosophy about the character of places, the efficiency of nature, and the important role of architecture in harmonising them. In this paper I seek to examine what has become - if anything? of his didactic efforts, and to discuss what this might tell us about the possibility of buildings being able to reflect, and then effect upon, wider geographies of place.

Keywords: Voysey-Charles, architecture, cultural geography, buildings, houses, agency

Sarah Wright, PhD, University of Newcastle, Australia. Email: sarah.wright@newcastle.edu.au; *Extra-territoriality and the politics of intellectual property*

Struggles over intellectual property rights (IPR) on plants, so-called "patents on life", have galvanised social movements the world over and are a key point of contention within the politics of neoliberalism. While much research has been done on the broader politics and economics associated with these struggles, there has been limited detailed empirical work that ties macro-level concerns to lived experience or that reveals the nuances involved. In this paper, I explore the process through which a new law allowing for intellectual property on plants in the Philippines (2002) was drafted with an aim of elucidating the politics of knowledge and territoriality associated with IPR. Intellectual property is a government sanctioned ownership of ideas and thus, in some ways, it increases the power of the Filipino state to control the transfer and use of its genetic resources. Yet the differential influence of states in supranational organisations, the use of unilateral measures and bilateral agreements, and the influence of corporations, US based aid programs and consultants in developing the Filipino law, as well as the widespread and effective involvement of NGOs and social movements, points to a much more complex story. While processes of coercion and exclusion heavily inform the ways multilateral trade agreements play out in a country like the Philippines, it is important to emphasise that farmers, indigenous people, NGOs, social movements, policy makers and politicians not only react to external forces but are actively engaged in bringing knowledge(s) and property relations into being.

Keywords: intellectual property, knowledges, territoriality, globalization

Jenny Wrye, . Email: jjwrye@gmail.com; *Investigating Earthquake and Tsunami Preparedness Organizations in Humboldt County, CA.*

Humboldt County, California is located along a tectonic subduction zone, making it especially vulnerable to large earthquakes and tsunamis. This rural, coastal county is distant from regional urban centers, a situation that underscores the importance of planning for an aftermath of extended isolation in the wake of disaster. Several local organizations are working to plan for these potential disasters and mitigate their aftermaths, including the Humboldt Earthquake Education Center, NOAA's Tsunami Ready Program, Redwood Coast Working Tsunami Group, Humboldt County's Hazard Mitigation Steering Committee, American Red Cross, Americorps Youth Serve and Volunteer Center of the Redwoods. Numerous interviews and participant observation at several emergency preparedness events indicate that a large number of planning and preparedness activities are currently underway in the region. I contend that Humboldt County is a model of tsunami preparedness for similar communities in California. Although Humboldt County is ahead of the game in planning and preparedness for earthquakes and tsunamis, many organizations seek to develop and implement further education outreach campaigns in the community.

Keywords: earthquakes, tsunamis, California-Humboldt County, disaster preparedness, hazards geography

Bing Sheng Wu, Texas A&M University. Email: wbs@geog.tamu.edu; Daniel Z. Sui, Texas A&M University. Email: sui@geog.tamu.edu; *Exploring economic activities and population dynamics in Asian urban transition: a case of Taipei metropolis*

Economic activities, primarily secondary sector, and population dynamics are thought to be two important factors leading to Asian urban transition, which is different from Western paradigm. Much literature discusses the influences of these two driving forces on Asian urbanization qualitatively, yet little quantitative work has been done. This empirical study applies statistical approaches to explore the interaction of economic activities as well as population dynamics in Taipei metropolitan region and examine how urban transition is affected by these factors. The results show not only quantitatively how secondary sector plays an important role resulting in population dynamics and resulting in urbanization processes in Taipei metropolis, but also reveal how suburbanization, the phenomenon of Western urbanization process, emerges in Asian urbanization with the increase of tertiary sector.

Keywords: Asian urbanization, Taipei, population dynamics, economic activities

Fulong Wu, Cardiff University. Email: WuF@cardiff.ac.uk; *Property Rights, Citizenship and the Making of the Urban Poor*

Market-oriented reform has remoulded the Chinese citizenship. 'Clarifying property rights', accompanied by enterprise reform, housing reform and the reform of education and healthcare, has led to the re-configuration of the system of entitlements. This paper examines the change in labour market, housing tenure, education and healthcare to provide a microscopic account for the making of the 'new' urban poor at the household level. The paper starts from distinguishing the concepts of citizenship and property rights and moves on to reveal how 'ambiguous' all-inclusive strong entitlements are commodified into

property rights and, for the residual population, are minimised into the minimum living standard support (dibao). The paper also examines complex interaction among low-income groups (laid-off workers, migrants, and marginal urban residents) in poverty neighborhoods and their survival strategies.

Keywords: social geography, China, urban poverty

Jindong Wu, Ph.D., Department of Forest Resources, University of Minnesota - Twin Cities. Email: jindong@umn.edu; Marvin E. Bauer, Ph.D., Department of Forest Resources, University of Minnesota - Twin Cities. Email: ; Joseph P. McFadden, Ph.D., Department of Ecology, Evolution, and Behavior, University of Minnesota - Twin Cities. Email: ; Emily B. Peters, Department of Ecology, Evolution, and Behavior, University of Minnesota - Twin Cities. Email: ; Ahmed A. Balogun, Ph.D., Department of Ecology, Evolution, and Behavior, University of Minnesota - Twin Cities. Email: ; *Estimating Above Ground Carbon Uptake By Turfgrass With Quickbird Imagery In An Urban-Suburban Landscape*

A wide array of field measurement, remote sensing, and modeling approaches to estimate carbon budget are available for natural and agricultural ecosystems, but relatively few have been developed or tested for urban landscapes. Vegetation is a basic component of urban-suburban environments, and turfgrass is a major vegetation type with significant coverage in U.S. cities. However, the estimation of carbon storage for urban vegetation becomes more difficult because of increased human activities and spatial heterogeneity. Traditional urban land use schemes do not adequately resolve landscapes to include vegetation types. With high-resolution QuickBird satellite images and a step-wise classification scheme, a detailed land cover map, which includes turfgrasses and trees, was generated for the footprint area of a flux tower in Roseville, Minnesota. Shadows in the images were removed by taking advantage of the high radiometric resolution of the QuickBird images. A set of biophysical variables and multispectral reflectance were measured in the field experiments to investigate the dynamics of turf ecosystems. A production efficiency model (PEM) was parameterized to estimate above ground net primary production (ANPP) and carbon storage, which was integrated over the whole growing season to give the annual average. The PEM was validated with field measurements and used to scale turfgrass carbon storage to the entire footprint area based on QuickBird imagery. The results indicated that turfgrass carbon uptake varied with management and that high input turfgrass had a large capacity to assimilate carbon dioxide due to high light use efficiency and fast turnover with high ANPP/biomass ratio.

Keywords: Carbon cycle, Land cover classification, Lawn, Net primary production, Remote sensing, Urbanization

Lei Wu, . Email: wulei@cuhk.edu.hk; Anrong Dang, . Email: danrong@tsinghua.edu.cn; Hui Lin, . Email: huilin@cuhk.edu.hk; *A Case Study on WebGIS for Public Participation in Urban Planning*

This article focused on the topic of applying WebGIS to public participation in urban planning. A stage-based participation model applying WebGIS in urban planning was proposed since traditional participation methods (such as exhibitions and public conferences) usually are low efficient, lack of interactivity, and of a great consumption of time and money. In this model, corresponding to different stages of planning process, different participation missions were designed. Except visualization and inquiry planning information, the author made an effort to support participant inputting from the client side and analyzing the data collected on-line for a dynamic and interactive participating process. A prototype system was designed and developed to this model and took the Tsinghua University campus plan as a case. The prototype system was implemented on the campus network and opened to the students and staffs for about a month. With the prototype system, participants are able to browse and inquiry information, to generate thematic map of interested area, to make location-based comments, to cast a vote, to make experimental changes to current map, and even to analyze the participating results spatially by themselves. Through analyzing the data collected in the case, it was concluded that with the application model of WebGIS, the public participants would not only understand the plan more vividly, but also communicate more efficiently with the planners and the government, meanwhile understand themselves mutually, and thus participate through the entire planning process at a higher level. Furthermore the remaining issues were stated as the future study.

Keywords: WebGIS, Public Participation, Urban Planning, Stage-based Model, Prototype System

Li Wu, George Mason University. Email: lily_liwu@yahoo.com; *Deriving Modeling from Regional Land Use Change Analysis*

All kinds of modeling technologies also have been developed in the recent years to seek out the essential principals and rules of land use change. One of the weak parts in land use modeling development nowadays is lack of the thorough study to the analytical solutions, which means model properties are not completely understood. This paper will try to derive a regional land use change model from the original land use analysis outcomes and from the RS / GIS based real world data. Suzhou land cover is fragmented or connected in some way, and expanded and shrank over the years, which displayed spatial complexity. Suzhou case study is to explain whether the trends of land use pattern change can be explained by the agents derived from land use pattern analysis.

Keywords: regional land use model, LUCC

Shengjun WU, . Email: swu1@memphis.edu; Hsiang-te Kung, . Email: hkung@memphis.edu; Xiang Li, . Email: xli1@memphis.edu; *Regionalization Of Flooding Risk In Tennessee*

With the advance of hazards research and the development of economy, hazard analyses from risk view point have become a new research area, which will help decision makers to choose optimal policies to manage disaster and to create disaster reduced strategy. Flooding is one of the most severe natural hazards in the state of Tennessee. The state has climatic extremes, often results in damaging floods. From 1991 to 2003, flooding resulted in 20 Federal Disaster Declarations across the state, with Public Assistance/Mitigation expenditures in excess of \$294 million. Floods had badly threatened and deterred sustainable economic development of the state. In terms of natural hazard risk analysis, the regional difference of flooding is assessed. According to the status of flooding and physical features in Tennessee, a flooding risk index system will be developed by county level. The county is the political unit for regionalization in the state. The index system includes four parameters and they are: precipitation, historic frequency of flooding, topographical features, and river system. These parameters will be standardized, compiled, and analyzed systematically. Combining with the qualitative analysis, the dynamic clustering analysis method will be used to regionalize the flooding risk in the state. The results show that the flooding risk in four categories: severely heavy flooding, heavy flooding, moderate flooding, and minor flooding potentials. Through the spatial analysis and prioritize the flooding risk in the regional level by county, some mitigation strategies are proposed to improve the flooding management.

Keywords: Flooding, Risk Regionalization, Dynamic Clustering Analysis

Shuang-Ye Wu, University of Dayton. Email: shuang-ye.wu@notes.udayton.edu; Lance Greene, University of Dayton. Email: ; *Potential impacts of climate change on flooding in the Great Miami Watershed, Ohio*

After the devastating flood of 1913, the city of Dayton, Ohio, constructed one of the nation's most extensive flood control system on the Great Miami River and its major tributaries. It has effectively protected the city against many flooding events since its completion in 1950s. However, will the system provide sufficient protection with future climate change? This study aims to examine this question by using geo-statistical models to see how climate change will affect the frequency and magnitude of floods in the Great Miami River. In this study, we first downscaled IPCC climate models to estimate the potential change in precipitation in the watershed. The change of precipitation is then translated into variation of stream flow by applying a water-balance model for the whole watershed. Based on the stream flow change, future flood frequency and magnitudes are estimated, and compared to the capacity of the flood control system. Finally, we will also examine the spatial distribution of population to estimate the extent of vulnerability if the system fails.

Keywords: Climate change, flood, GIS

Shuo-sheng Wu, U.S. Geological Survey. Email: sw1020@txstate.edu; *An Exploratory Analysis of the Resolution Effects on AGNPS Runoff Prediction*

The purpose of this study is to investigate how the spatial pattern of runoff output from AGNPS watershed modeling changes with input data at different resolutions. Spatial statistics were used to examine whether there is an overall clustering pattern of runoff, where the clusters and hotspots are, how clustering levels and cluster/hotspot locations change with model resolutions, and how the geographic center and dispersion degree of the entire watershed runoff change with resolutions. Variograms were used to investigate the distance of spatial autocorrelation between runoff at different locations. The results showed that the runoff had an overall clustering pattern at all resolution models, and the clustering levels decreased with model resolutions. The distance of spatial autocorrelation increased with model resolutions. The overall clustering level reached maximum at the neighborhood distance of 1920m, while the high-runoff clustering level consistently decreased with the neighborhood distance. The results indicated that cluster locations did not change but cluster sizes decreased

with model resolutions. The 210m and 240m resolution models had cluster and hotspot sizes corresponding to visually observed runoff patch sizes and, therefore, were regarded as the most suitable model resolutions for detecting clusters and hotspots among eight tested resolutions. The analyses also revealed that the larger the neighborhood distance, the larger the derived clusters. A neighborhood distance of 960m is considered suitable to identify hotspots through visually comparing with high runoff patches. In addition, the analyses showed that the geographic centers of runoff did not change but the dispersion degree increased with resolutions.

Keywords: resolution effects, watershed modeling, spatial statistics, cluster analysis, AGNPS

Tony Wu, Lawrence Livermore National Lab. Email: wu26@llnl.gov; *A Multi-period Spatial Hydrogen Facility Deployment Model*

Hydrogen is considered as a possible fuel carrier for transportation vehicles nationally and in the State of California. To evaluate infrastructure transition to serve the potential hydrogen demand, we need to model the hydrogen facility deployment spatially at multi-periods. We developed an applied mathematics optimization model, in order to understand the possibilities for Hydrogen infrastructure deployment. Major components of the model include identifying regions of Hydrogen Demand and Hydrogen Supply. The model's objective function is to minimize total cost under scenarios set by sponsors the State of California and the Department of Energy.

Keywords: Hydrogen Facility Deployment, Math Model, Multi-period, Spatial

Weiping Wu, Virginia Commonwealth University. Email: www@vcu.edu; *Stepping Out of the Ivory Tower: Managing Industry Linkage in Chinese Universities*

With the rise of the knowledge economy, research-oriented universities are increasingly seen as vehicles for technology transfer and agents for local industrial dynamism. Placed in a comparative framework, this paper explores how select universities in China enhance research commercialization capacity. The primary goal is to understand different institutional mechanisms for promoting effective innovation diffusion and maximizing spillovers from academia. In particular, what university policies and institutions shape the nature and fruitfulness of innovation diffusion? What may be the limits to university engagement in business activities? Under China's reforms, university-industry linkages are built through two broad categories of mechanisms. The first is technology transfer through licensing and other arrangements such as consulting, joint or contract research, and technology services. The second mechanism, almost uniquely Chinese, is through university-affiliated enterprises. It appears that there are divergent institutional arrangements and methods in managing industry linkage as universities explore their new-found autonomy.

Keywords: innovation, university-industry linkage, higher education reform, urban economy, China

Wen-Yu Wu, The University of Sheffield, UK. Email: ggp03www@sheffield.ac.uk; *Moral geographies of gay men's internet intimacy in Taiwan*

From 1990s, intimacy and emotions have become issues of social science and geographical research also began to face this "private turn". At the same time, the popularity of the internet as personal communication made the personal relationships involved into complicated on-line and off-line worlds. Interestingly, gay men played the pioneered role to use this technology for their relationship seeking and building. Because of rapid developing industries of information technology in Taiwan, local gay men joined in on-line relationships soon and early, and moral orders of relationships in the internet were innovated in specific cultural context. This paper will discuss cheatings, which are very common moral conflicts in on-line world, by using in-depth interviews from Taiwanese gay men's experiences of internet relationships. It will show how morality of local internet intimacy is interwoven into Taiwanese historical and geographical complexity.

Keywords: moral geography, sexuality, internet, intimacy, Taiwan

Yi-Hwa Wu, Northwest Missouri State University. Email: ywu@nwmissouri.edu; Ming-Chih Hung, Northwest Missouri State University. Email: mhung@nwmissouri.edu; *Spatial interpolation of soil pH readings from farmland*

A systematic sampling strategy has been used to get pH samples from the R.T. Wright University Farm near the Northwest Missouri State University campus. There are three different sampling grids: 0.27 acre with 110 points, 2.43 acre with 12 points, and 7.5 acre with just 4 points. pH values are sampled and spatially interpolated to generate a surface of the pH value for the entire study area. The study area is not a flat farm. Instead, it is a hilly farm. The interpolated surfaces are quite different from each other depending on methods and

parameters chosen to perform the spatial interpolation and the grid size. Some of the interpolated surfaces will be compared and examined to see the effects of sampling grid size on the resultant surface. The 110 points with 0.27 acre sampling grid size method provides enough sample points for data splitting for evaluating the results. The 110 points are divided into two groups, the control point group for performing the spatial interpolation and the validation point group for evaluating the results. Not surprisingly, the resultant surfaces generated with the control points are different from each other even with different strategies for data splitting.

Keywords: spatial interpolation, systematic sampling, gis

Susan Wurtele, Associate Professor, Department of Geography, Trent University. Email: swurtele@trentu.ca; Jillian Ritchie, Health Promoter, Peterborough County-City Health Unit. Email: jritchier@pcchu.ca; *Transportation Infrastructure Improvements and Children's Mobility: promoting successful transition from bussing to walking and cycling*

This paper builds on the recent work of geographers studying links between children, environment, health and transportation. It presents the results of an ongoing project assessing student travel patterns and the impact of infrastructure improvements in the immediate vicinity of two elementary schools in a mid-sized Canadian city. Since 1999, a coalition of community organizations involved in public health and environmental education has promoted walking and cycling to school. In 2005, the coalition expanded to include representatives from municipal transportation planning and school board transportation services. From this partnership, Active and Safe Routes to School — Peterborough identified that the municipality could improve pedestrian safety, promote active transportation and reduce bussing costs for the local school board by giving priority to sidewalk construction in areas located within the school walking zone where students are bussed only because no sidewalk exists along an arterial road. This paper explores actions taken to address concerns that once the sidewalk is completed and bussing is discontinued children may end up being driven to school. A child-friendly walking map was developed and disseminated to help students make the transition from riding the school bus to walking or cycling to school. Also considered within this paper are reflections on the success of expanding the community coalition to include transportation planners and the impact of acting on an opportunity to intervene to promote a culture of activity around the issue of children's mobility.

Keywords: school transportation, children's mobility, urban planning

Kathryn Wuschke, Simon Fraser University. Email: kwuschke@sfu.ca; Nadine Schuurman, Simon Fraser University. Email: nadine@sfu.ca; *Sentinel Conditions: A Method of Predicting Criminal Activity Based on Socio-Economic Indicators*

Sentinel conditions are a proxy for primary measurement of spatial phenomena. They have been applied across a variety of disciplines to provide estimates where direct analysis of a feature is impractical or problematic. Commonly used within the fields of ecology and biology, sentinel species can assist in pinpointing environmental stressors, and can provide an indirect measurement of habitat degradation. Remote sensing and GAP analysis literature also describe the use of sentinel layers of data. Researchers have been able to efficiently develop a proxy estimation of species diversity by combining satellite imagery with additional data sources. This facilitates an alternative to labour-intensive field studies. By borrowing from these areas of literature, a similar framework is developed for use with crime data. Because crime occurrence data is confidential in nature and can therefore be difficult to obtain, the use of correlated sentinel conditions can provide estimates of relative crime levels without requiring actual address-level data. By pinpointing several socio-economic conditions that correlate with hotspots of residential burglary in a select municipality in B.C., a sentinel crime layer is created, which can be used as an approximation of such crime clusters within the area.

Keywords: gis, sentinel conditions, proxy mapping, spatial patterns, socio-economic status

John Wylie, Dr, University Of Exeter. Email: J.W.Wylie@exeter.ac.uk; *Ghost stories and the nature of place.*

In this paper I want to explore the argument that ghost stories, in particular those narrated through interiors and domestic settings, can tell us something about the nature of place. This argument draws inspiration from Jacques Derrida's noted account of spectrality, and also from contemporary writings on affect and materiality, in order to consider again intertwinings of place, presence and absence. Although much recent geographical work on place has sought to emphasise the relational constitution and performance of places, it is still the case that the term remains closely associated with notions of dwelling, belonging and reliability. In some humanistic and phenomenological readings, for instance, place connotes presence, stability and identity. We could even argue that in its everyday evocation place works so as to harbour and sustain a secure and

consistent sense of self-in-the-world. What I would like to do, by way of contrast, is consider the possibility that haunting, as a dis-placing, could be the paradoxical pre-requisite to our received notions of place and self. Perhaps place only takes place through a spectral event of displacing. Perhaps there is place only if there is dislocation. The paper will pursue this argument via a reading of Mark Danielewski's *House of Leaves*, a meta-text which affords an opportunity to examine how certain spectral spatialities - abysses, darkneses, thresholds - may form the constitutive outside of domestic and quotidian place.

Keywords: cultural geography, ghosts, place, presence, narrative

Elvin K. Wyly, University of British Columbia. Email: ewyly@geog.ubc.ca; James DeFilippis, Baruch College, CUNY. Email: James_DeFilippis@baruch.cuny.edu; *Mapping the Neoliberal-Neoconservative City: Landscapes of Assisted Housing in New York City*

Neoliberal and neoconservative urban policy involves calculated tactical shifts in the politics of visibility, particularly in the portrayal of public housing. The projects serve as iconic landscapes of dependency; the choices provided by housing choice vouchers are quietly narrowed by budget cuts, administrative decisions, and the invisible decisions of private landlords; and the national ideology of ownership entitlements helps to hide the largest public housing dependency syndrome of all — the \$100 billion plus annual tax concessions to homeowners and investors. In this paper, we undertake a simple analysis designed to alter the politics of visibility for housing subsidies at the urban scale. We analyze a comprehensive database of housing assistance for New York City, combining public domain information with specialized measures obtained through FOIA requests. In order to map and classify the fine-grained local geographies of federal housing subsidies, we use the familiar technique of multivariate cluster analysis applied to all census tracts in the City. The epistemology of this technique that renders it flawed for evaluating causality suddenly becomes a virtue when the goal is rich empirical description: the n-dimensional space of multivariate taxonomy is literally defined and created by the inherently political nature of variable choice. We seek to measure the full range of housing subsidies benefiting rich and poor, and to analyze the resulting cartography of housing assistance as poor- and working-class residents struggle for affordable homes in an increasingly polarized housing market of neoliberal and neoconservative policy.

Keywords: housing-affordable, urban policy, New York City

George Xian, SAIC, contract to the USGS Center for Earth Resources Observation and Science. Email: xian@usgs.gov; Mike Crane, USGS Center for Earth Resources Observation and Science. Email: mcrane@usgs.gov; Brian Granneman, SAIC, contractor to the USGS Center for Earth Resources Observation and Science. Email: grann@usgs.gov; *Urban Growth Assessment using information derived from Multiple Satellite-based*

Urban growth continues in most metropolitan areas within the United States. One major change associated with urban developments is an increase in impervious surface cover. Urban areas are described by a variety of major land use categories, such as transportation corridors, residential, commercial, industrial tracts, and these have been identified with specific ranges of percent impervious surface. Results indicate that urban development density is closely associated with, and can be quantified by, different thresholds of percent sub-pixel impervious surface. Impervious surface has been identified as a key environmental indicator because of its impact on surface water runoff and related drainage systems and because it is recognized as an indicator of the extent and expansion of urban development. To quickly and economically estimate impervious surfaces in many metropolitan areas, remote sensing-derived information is necessary. We used currently available remotely sensed data, including Landsat data, which have been widely used as a primary source for medium resolution land use and land cover characterization. Two other satellite-based remote sensing systems?ASTER and ALI, which have spectral characteristics similar to Landsat, have also been used to extract imperviousness for the Seattle, Las Vegas, and Tampa Bay metropolitan regions. Impervious surfaces mapped from ASTER data have a relatively higher accuracy than those from Landsat and ALI data. The mapped impervious surfaces provide useful information for local and regional planners to assess the impacts of urban growth on ecosystems, storm- water runoff, and urban structures, as well as social and economic changes.

Keywords: Satellite, Urban, Seattle, Las Vegas, Tampa Bay

Honglang Xiao, Dr., Chinese Academy of Sciences. Email: xhl@ns.lzb.ac.cn; *Integrated Water Resources Management at the Heihe River, Northwestern China.*

China is one of the 13 countries that have water scarcity problem according to the United Nation. In the inland river basin, which takes up 1/3 of the total area in China, with naturally limited water resources and combined with unreasonable utilization, water-induced problems have become critical issues that effect social economic development and ecological protection. Taking the Heihe

River Basin as an example, this article discusses water, soil, ecological and management problems at the basin scale. It highlights that water use efficiency at basin scale must be increased in order to mitigate basin water resources problems. Four components are discussed for improving water efficiency in irrigation district, which are transformation of irrigation water into soil water, biological utilization of soil water, crop water efficiency and enterprises setting as market demand. Cases such as improving water holding capacity in the upper reaches, constructing water-saving oasis and increasing water efficiency for environment are discussed. In addition, the article analyzes the stages, problems and approaches of social management of water resources, reinforces virtual water strategy at the basin scale and emphasizes that there are great potential to augment integrated benefit of water, ecology and economy.

Keywords: Water Problem, Water Environment, Water Efficiency, Approach, Solution, Heihe River Basin, Inland River Basin in Western China

Honglin Xiao, Elon University. Email: hxiao@elon.edu; High resolution record of climate and human activity from cave stalagmite, China

Detailed petrographic study of a stalagmite from southern China revealed at least 24 detrital layers in the top 4.3cm of the stalagmite. Calcite truncated at detrital layers is commonly capped by pointed euhedral crystal terminations and a sharp boundary between the underlying calcite and overlying detrital material. Above detrital layers, many small (roughly 0.06 mm x 0.20 mm) calcite crystals with diverse orientations typically give way upwards to the columnar calcite making up most of the upper section. Electronic scanning microscopy study indicated that those layers mainly contain Al and clay, indicating the detrital layers recorded flooding events in wetter conditions. The sharp variation on grey scale intensity, $\delta^{18}O$ and $\delta^{13}C$ at one layer dated at around 130 years ago was too great to be explained by the change in climate alone. Close thin section studies with additional field trips to Yangzipo Cave area revealed that the sharp change was at least partially influenced by a layer of wood detritus created by a historical event taken place around the cave at that time.

Keywords: high resolution, stalagmite, human activity

Ningchuan Xiao, The Ohio State University. Email: xiao.37@osu.edu; Darla Munroe, The Ohio State University. Email: ; K Calder, The Ohio State University. Email: ; Tao Shi, The Ohio State University. Email: ; E Quin, The Ohio State University. Email: ; D Li, The Ohio State University. Email: ; S Wolfenbarger, The Ohio State University. Email: ; Exploring the associations between biomass burning, land-cover/use change, and carbonaceous aerosols distribution in mainland Southeast Asia

Biomass burning is a major source of black carbon aerosols, which contribute to approximately 70 percent of total aerosols. These aerosols have negative human health impacts and affect the radiation budget and climate, directly and indirectly. Understanding the contribution of biomass burning to the concentration of aerosols is particularly important in Southeast Asia where the slash-and-burn agricultural tradition is still largely associated with the conversion from forest to agricultural land use. While it is clear that the effects of such land-use processes extend into the atmosphere, and that such localized events have regional and global implications for air pollution and climate, the actual dynamics of the local land use - regional aerosol composition relationships remain elusive. Our study draws on observed burning events, associated land-cover changes, and carbonaceous aerosol concentration measurements provided by MODIS and MISR data in mainland Southeast Asia from 2002 to 2005. Using field-based estimates of the amount of carbon released from burning by vegetation type, we will explore the space-time relationship between these local fire events and the regional distribution of carbonaceous aerosols.

Keywords: land-cover/use change, biomass burning, aerosols

Yichun Xie, Eastern Michigan University. Email: yxie@emich.edu; An integrated ANN method to estimate biomass of typical grassland in Xilinhe River Basin, Inner Mongolia, China

Two models, ANN (artificial neural network) and MLR (multiple linear regression), were developed to estimate typical grassland biomass in Xilin River Basin, Inner Mongolia, China. NDVI (Normalized Difference Vegetation Index) and topographic factors (elevation, aspect, and slope) were integrated with the spectral signatures from Landsat ETM+ as the candidate input variables for constructing both models. Seven parameters (NDVI, aspect, and the bands 1, 3, 4, 5 and 7) were selected by the ANN model (implemented in Statistica 6.0 neural network module), while six (elevation, NDVI, and the bands 1, 3, 5 and 7) were picked to fit the MLR function after the correlation analysis between these candidate input parameters and the biomass. Both models achieved acceptable results with the coefficient of determination (R^2) ranging from 0.597 to 0.872. ANN had a better performance ($R^2 = 0.792$ for the trained set and $R^2 = 0.872$ for the tested set) than MLR ($R^2 = 0.655$ for the trained and $R^2 = 0.597$ for the tested). The final biomass maps of the research area were produced based on ANN and MLR models, generating average biomass covers of about 121 and 147 g/m²,

respectively.

Keywords: grassland biomass; Inner Mongolia; Landsat ETM+; artificial neural network (ANN)

Zhixiao Xie, Florida Atlantic University. Email: xie@fau.edu; Charles Roberts, FAU. Email: croberts@fau.edu; Brian Johnson, FAU. Email: bjohns53@fau.edu; Detect invasive plants in Florida coastal areas using an image retrieval approach and remote sensed data

Extensive actions are undergoing to reduce the presence and impacts of invasive non-native plants, a statewide critical stress source of Florida's habitats. To periodically update performance measures of such actions, high resolution remote sensed data is essential. The voluminous data poses a great challenge in terms of cost and efforts, if image classification is used. Moreover, invasive plants may occupy only a small proportion and a full classification is not necessary. Conversely, image retrieval represents a promising and invaluable approach for such a target-search task. This paper presents a novel image retrieval approach to detect invasive plants, specifically Australian Pine, using DOQQ and LIDAR data, in coastal areas of Florida. Image retrieval (IR) is similar to document search on the Web, but intends to retrieve targeted objects from image databases. A robust IR system demands an effective and efficient retrieval framework, mainly comprising of image segmentation, content representation and similarity measurement. We employed an object-oriented approach to first segment images into image objects corresponding to land use/ land cover (LULC) types. The segmentation enables the use of object level information to characterize LULC types, which are superior than pixel based ones. We then integrated spectral, texture and object height information for representing the contents in the image objects. The most similar image objects were retrieved and retrieval performance assessed through visual interpretation and conventional remote sensing ground truthing.

Keywords: Remote sensing, object-based, image retrieval, Invasive Species

Bo Xu, University of Georgia. Email: xubo@uga.edu; Visualization and spatial-temporal prediction of hemorrhagic disease in white-tailed deer in the Southeastern United States

Studies have shown that the occurrence of hemorrhagic disease can be explained by climatic factors and remotely sensed data. This paper presents the application of climatic and remotely sensed data to the prediction of hemorrhagic disease in white-tailed deer in the Southeastern United States. Different geographic visualization techniques are used to display the occurrence of hemorrhagic disease, climatic data, and remotely sensed data. Spatial, temporal and spatial-temporal trends are visually discovered. Time-series statistics are then applied to the hemorrhagic disease data and its affecting factors to statistically predict the spatial-temporal distribution of hemorrhagic disease in the Southeastern United States. The Hemorrhagic disease occurrence data are originally collected on a county basis from 1980 to 2003 throughout the southeastern United States. The data are further processed into presence/absence binary categories. The climatic data include the mean, median, maximum, minimum, and range of annual temperature, rainfall, relative humidity, and those index from June to October annually when the breeding of vectors and Hemorrhagic disease in white-tailed deer prevail. The remotely-sensed data include the mean, median, maximum, minimum, and range of normalized difference vegetation index, surface temperature, Middle infrared radiance during the same period as the climatic data. The results show that the distribution of Hemorrhagic disease is both visually and statistically correlated with the distribution of the explaining factors. The combination of climatic data and remotely sensed data are more predictable than either of them respectively.

Keywords: Hemorrhagic disease, climatic data, remotely-sensed data, visualization, time-series Hemorrhagic disease, climatic data, remotely

Gang Xu, Department of Geography & Planning, Grand Valley State University. Email: xug@gvsu.edu; An Exploratory Study of the Internationalization of Chinese Enterprises

The internationalization of Chinese enterprises is a recent phenomenon. Based on a survey done in Sichuan province/China, this study examines the geographic patterns of international business, entry modes, and information search behavior of a set of homegrown Chinese enterprises. An analysis of the geographic markets of the surveyed firms show that Chinese enterprises tend to trade more frequently with geographically neighboring countries and those countries with large markets. Although most Chinese enterprises are still in the early stages of internationalization, they often use multiple entry modes to establish and expand their businesses in foreign markets. There is evidence that Chinese enterprises tend to trade according to the principle of comparative advantages. Statistical analyses of the information search behavior of the surveyed firms suggest that the amount of information search and the type of information source used are associated with 1) the perceived usefulness of an information source, 2) the degree of perceived uncertainty and competition in

the foreign markets as well as cultural distances between home and foreign markets, 3) organizational traits such as firm size and marketing capabilities, and 4) firm strategy. A statistical association is also found between a firm's information search activity and its export performance.

Keywords: Internationalization, Chinese firm, geographic markets, entry mode, information search

Jiang Xu, Research Assistant Professor, The Centre of Urban Planning & Environmental Management, The University of Hong Kong. Email: jiangxu@hkucc.hku.hk; Anthony Gar-On Yeh, Chair Professor, The Centre of Urban Planning and Environmental Management, The University of Hong Kong. Email: hdxugoy@hkucc.hku.hk; *The Politics of Inter-jurisdictional Cooperation in the Pearl River Delta: the Case of Guangzhou-Zhuhai Railway*

The Pearl River Delta (PRD) is consisted of nine municipalities in Guangdong Province in southern China. Like many other polycentric mega city-regions in the world, it is facing problems caused by localism and external competition. There is an urgent need to study how cooperation among cities can be successfully developed so that the region can establish a more cooperative environment. Following successive waves of making local competitive strategies in the PRD cities, concerns now revolve around whether the delta is susceptible to intensified inter-city competition, jurisdictional fragmentation, and thus gradually losing its competitiveness within national and global context. Regional cooperation is much affected by inter-jurisdiction administration and politics amongst the local government in the cities of the region. This study attempts to use a cooperation politics approach to examine how such politics deteriorates administrative fragmentation to affect region-wide infrastructure provision. The politics behind cooperation is explored with reference to the Guangzhou-Zhuhai Railway - an ongoing stop-and-go project. The possible reasons that prevent cities from cooperating in this project are examined. It is argued that, different from the Western experience, the thesis of state governing the market in China has complicated local politics of cooperation. The study will increase our knowledge on what lessons we can learn to turn cooperation rhetoric into practice in China.

Keywords: Inter-jurisdictional cooperation, competition, Pearl River Delta

Lei Xu, California State University Fullerton. Email: lxu@fullerton.edu; Kao-Lee Liaw, McMaster University. Email: ; *Initial Destination Choices of Skilled-worker Immigrants from South Asia to Canada: Assessment of the Relative Importance of Explanatory Factors*

Using a multinomial logit model, this paper explains the initial destination choices of skilled-worker immigrants from four South Asian countries (India, Pakistan, Bangladesh, and Sri Lanka) who landed in Canada in 1992-2001, based on the micro data of Citizenship and Immigration Canada. The most salient feature of these skilled-worker immigrants turned out to be their extremely strong tendency to select Ontario as their initial destination: over 80% of them ended up in Ontario. Our multivariate analysis revealed that the main reason for this extremely strong concentration in Ontario was that they were strongly subject to the attraction of their co-ethnic communities and the positive effect of high income level. The initial destination choices of the immigrants in question also responded to changes in the spatial pattern of employment growth. In addition, we have found that those with French language ability were much more prone to going to Quebec, and that those aged 60 and over were much more likely to choose British Columbia as their destination. The continuing intense concentration of newly arrived South Asian immigrants in Ontario through the 1990s is in stark contrast to the increased dispersal in the destination choices of the newly arrived immigrants (especially low-skilled Hispanic immigrants) in the United States from the late 1980s to the late 1990s. Further research is needed to assess whether the dispersal of immigrants can also occur in Canada in the near future.

Keywords: immigration, Canada, destination choices, South Asia, skilled immigrants

Zengwang Xu, Texas A&M University, Department of Geography. Email: xuzw@geog.tamu.edu; *Spatial dimensions of complex network modeling*

The emergence of the "new science of networks" is characterized by seeking the universal regularities or laws and underlying mechanisms governing them in the increasingly complex networks. The small-world network is one of the highlights and major contributions of the new science of networks. It has been discovered a ubiquitous feature of many real-world networks, and considered a potential model for many real-world complex systems. However, most small-world studies only take into account of topology of networks. In fact, real-world spatial networks are characterized by spatial structure as well as topological structure. This study, with a focus on spatial dimensions of complex networks, investigates the manifestations and applications of the small-world characteristics among networks in three different spaces in attempt to better understanding

the complex networks in geographical study, potentially contribute to GIScience with new models for representing, analyzing, and modeling complexity from a network-centric perspective. Initial results show that spatial clustering, distance effects, and relation between local and global are significant to the spatial dimensions of complex network modeling.

Keywords: Small-world network, Complex network, network modeling

Mariko Yabe, University of California, Los Angeles. Email: mariyabe@ucla.edu; *1945 Map of Tokyo: Representing and Un-representing the Place and the Space for the Last Six Decades*

This paper examines how a representation of a place, the map of Tokyo made in 1945 by the Japanese, has had different meanings and interpretations between 1945 and the present. I present several meanings of the 1945 maps by examining the mapmakers' voices, recorded in 1985 and 2005. I pay special attention to the mapmaker as author, since "history exists by virtue of its authors." I at the same time analyze the institutions, such as governments and map companies, to which the mapmakers belong. I then review the ways in which the map was used in Japanese public spaces over the last six decades. During February and March of 2006, I observed how the Tokyo air raids were presented in various social texts in Japanese, such as news media, published books, TV programs, and museum exhibitions, focusing on the 1945 Tokyo map and other visual texts. I show that the meaning of the map has been changing since 1945, as societal and political circumstances have changed and as public space has expanded.

Keywords: twentieth-century cartography, meanings of map, view from below, biography of Tokyo, urban history, public space, authorship, text in space & space in text, visual & social texts, discourse, communication, representation, identity, urban memory, cultural production, organization, environment & space perception, built & burnt environment, city destruction, place annihilation, home in ruins, risk society, fire, uricide, history of science & technology, culture of modernity, Japan and the U.S.

Haim Yacobi, Ben Gurion University, Israel. Email: yappan@zahav.net.il; yacobih@bgumail.ac.il; *Israel's Social Contract: What the War Revealed*

Most discussions in Israel around the 'Second Lebanon War' are focused on its military success/failure as well as on the critique concerning the decision making of the Israeli military and political leadership. However, one of the significant issues revealed by the war - silenced or ignored by both the media and the politicians — is the deepening polarization of the Israeli society along ethno-class and center-periphery spatial divisions. I would argue that this war has exposed the inherent contradiction of the Israeli society; on one hand it is affected in the last two decades by a rapid process of neo-liberal social and economic policies and the withdrawal of the state, deepening the social gap, while on the other hand the constants state of war demands solidarity which cannot exist in the current social situation.

Keywords: Israel, Lebanon, War, Neoliberalism, Social Contract

Vineet Yadav, Department of Geography, University of Iowa. Email: vineet-yadav@uiowa.edu; *Land Use and Soil Organic Carbon Transformations in Southern Illinois*

Soil organic matter is a biophysical parameter, which is also directly linked to above ground land use and land cover. Magnitude of soil organic matter changes over a parcel of land on the temporal scale of decades is an unambiguous portrayal of human intervened land cover/use modifications. Currently changes in land use and land cover and variation in soil organic matter is studied and modeled separately. However both are conjoined and should be seen as part of a cascading ecosystem framework. This is not only true for soil organic matter but also for other biophysical parameters which in this anthropocenic world are chiefly governed by human activities. In terms of soil organic matter the questions which we should ask is a) what were and will be the impact of land use change on soil organic matter and b) what measures can be invoked to reduce and make up for the loss of soil organic matter induced since human modification of the natural land use and land cover. To address these two questions we studied conjoined transformations of land use and soil organic carbon since the start of settled agriculture from 1850 in Union and Pulaski counties of Southern Illinois. To model soil organic carbon we used Century whereas land use changes in the area were derived by visually classifying old aerial photographs.

Keywords: land Use, Erosion, Soil Organic Carbon

Natalia Yakovleva, Cardiff University. Email: yakovlevan@cardiff.ac.uk; Samarthia Thankappan, Cardiff University. Email: ThankappanS@cf.ac.uk; Global food trade and environmental sustainability - roles of international organisations and corporate sector

Trade liberalization have set in place widespread consolidation in the global food system, led by mergers and acquisitions among transnational firms, now firmly established as major power brokers in every level of the modern food chain. This paper therefore focuses on the global expansion of corporations in the food system, exploring the ways and methods for penetrating international and national markets and seizing control over production and retail. Dominance of corporations in the global food system causes a number of concerns in relation to environmental sustainability of their operations, especially the impact of global food trade on the developing countries. Using a case study of fresh fruit and vegetables, which are widely traded products, the paper aims to demonstrate the roles of food corporations and international organisations in shaping the conditions of the modern trade and how they impact on social, environmental and economic dimensions of the global food system. Specifically, the paper critically assesses how international organisations address sustainability concerns within the global food system.

Keywords: globalisation, sustainability, food system

Ikuho Yamada, University of Utah. Email: ikuho.yamada@geog.utah.edu; Teen Pregnancies and Local Community Environments: A Case Study in Marion County, Indiana

In the United States, teen pregnancy is one of the most serious public health concerns in local communities and the teen pregnancy and teen birth rates in this country are the highest in the fully industrialized western world despite their considerable reductions between 1992 and 2000 (National Campaign to Prevent Teen Pregnancy 2004). Although potential risk of individual teenage girls' becoming pregnant strongly depends on their own behavioral and/or socio-economic characteristics, those of local communities are also considered to have an influence on the risk to some extent. This research therefore aims at identifying environmental risk factors for teen pregnancy while especially focusing on social characteristics of local communities rather than their physical characteristics. Significant local patterns in spatial distribution of teen pregnancies are first searched for and then spatial regression models are developed to explain the detected patterns in relation to community environmental factors. The study region is Marion County, Indiana, for which an extensive GIS-based community information system is available. The information system is named Social Assets and Vulnerabilities Indicators (SAVI) and includes a wide variety of information for the Indianapolis Metropolitan Statistical Area, including census, criminal justice, health, vital statistics, education, and welfare. The information is provided at a range of spatial scales, which allows investigation of appropriate scales to analyze and model the teen pregnancy distribution.

Keywords: teen pregnancy, community information system, spatial regression

Britt T. Yamamoto, University of Washington. Email: byama@u.washington.edu; In Daizu We Trust: Alternative Food Networks and The Soybean Field Trust Movement in Japan

This paper explores how transgenic, Roundup Ready? soybeans have reshaped the production, handling and consumption of soybeans in Japan, with a particular emphasis on the emergence of a decentralized, nationwide social movement called the Soybean Field Trust (SFT), and its umbrella citizen's movement, the No GMO! Campaign. I illustrate how the groups have used the GMO issue to initiate territorial strategies and produce knowledge about rural spaces, Japanese soybeans, and American agriculture that can be seen as an engaged progressive politics of consumption. Yet at the same time, research findings raise questions around defensive localism and the lasting potential of the SFT as a viable alternative to imported soybeans given the current structure of state policies.

Keywords: Alternative Food Networks, GMOs, Consumption, Social Movements, Food Policy, Japan

Akiko Yamane, Department of Geography, CSU Fresno. Email: ayamane@csufresno.edu; Constructing Sri Lanka as a vulnerable party to climate change

Growing concerns over global climate change in recent decades has resulted in a number of studies that attempt to assess its impacts for developing countries. These studies draw on the concepts of hazards and vulnerability used in the assessment reports published by the Intergovernmental Panel for Climate Change (IPCC). In most cases, the studies assume that vulnerability can be objectively measured. They identify a number of social, economic, and geographic indicators and factors that contribute to the vulnerability of particular social groups or regions within countries, and use these to assess the levels of adaptation the countries require. This paper examines how the IPCC's approach to vulnerability

assessment is translated in Sri Lanka. Sri Lankan scientists and policymakers claim that nearly 70 percent of their country will be severely affected by droughts and disasters caused by global climate change, thus requiring Sri Lanka to be recognised as a 'vulnerable party'. The paper explores this assessment of Sri Lanka's vulnerability by focusing on the process of translation. It examines why and how Sri Lankan policymakers and scientists use the IPCC's approach to vulnerability assessment to identify vulnerable regions and social groups, and how various statistics and accounts are used to re-present Sri Lanka as a 'vulnerable party' in the international arenas of climate change science and policy. A research design based on the Actor-Network approach is adopted to analyse the process of translating vulnerability to climate change in Sri Lanka.

Keywords: vulnerability, climate change, Sri Lanka, ANT

Takashi Yamazaki, Osaka City University. Email: yamataka@lit.osaka-cu.ac.jp; Experiences of militarism and the politics of urban redevelopment: three "base towns" in Okinawa, Japan

After the Battle of Okinawa in 1945, the U.S. military forces occupied Okinawa, continued to govern it until 1972, and remain there even today. The tragic Battle, the 27-year foreign governance, and the continuing heavy military presence over the islands have engraved various incidents concerning militarism on Okinawans' experiences and memories. U.S. military bases currently occupy 20% of the land of the main island, which has been only incrementally returned to Okinawa. Experiences of militarism have not only affected Okinawans' perception of the current U.S. military presence, but also influenced the concepts of urban planning in "base towns (kichi no machi)". Some base towns have implemented urban redevelopment plans for the returned land by re-conceptualizing and re-interpreting the experiences of militarism. This paper selected three base towns: Yomitan, Chatan, and Okinawa (formerly Koza). Using the data on urbanization, industrialization, base-related economy, demography, land use, local politics, and urban redevelopment, this paper examines how these towns re-conceptualize, re-interpret, and materialize the experiences of militarism in their urban redevelopment plans. Particular attention will be paid to various ways in which the experiences are utilized as resources to improve local socio-economic conditions.

Keywords: experience, militarism, U.S. bases, urban redevelopment, Okinawa

Jun Yan, Western Kentucky University. Email: junyan@wku.edu; Stuart Foster, Western Kentucky. Email: stuart.foster@wku.edu; On Data Organization and Similarity Measures in Mining Spatio-Temporal Data

The detection of spatio-temporal patterns in time-series data presents a unique challenge since the dimensionality in time is different from that caused by regular thematic attributes. For regular attributes with numeric values, Euclidian Distance is often used to measure the similarity or dissimilarity. However one of the implications by choosing Euclidian Distance is that each attribute in the data vector is independent from each other. However for many time-series data this assumption is basically false in that the data in later times are usually influenced by those of prior times due to the existence of temporal autocorrelation. So often than not special considerations must be given to both data organization and choices of similarity measures. This paper discusses this important issue in mining spatio-temporal data. Findings from two case studies are presented. The first cases study focuses on the changes of U.S. domestic airline markets while the second one examines the drought development process. In both case studies, Self-Organizing Maps (SOM), a special type of competitive artificial neural networks (ANN), is adopted as the data mining tool.

Keywords: Spatio-temporal Data Mining, Time-Series Data, Distance Measure, Self-Organizing Maps (SOM)

Benjamin Yanda, University of Wyoming. Email: benyanda@uwyo.edu; Competing Livelihood Strategies in the Rukwa Valley Landscape

Traditional agricultural residents in the Rukwa Valley of southwestern Tanzania are living side by side with agro-pastoral in-migrants from the North. This paper aims to characterize two cultural land-use systems and the resulting conflict over natural resources. The Wasukuma compete with more traditional residents over access to pasture, agricultural land and water resources. I examine culture persuasions and perceptions of land use and change, spatial organization of the village, access to resources, land tenure, and aspects of local government. Ethnographic methods were employed over 11 months in Tanzania to understand both villager and Wasukuma livelihoods. Distinct differences exist in this rural society that may serve to characterize broader trends in southern Tanzania. Subsistence agriculture, cash crop production, forest products, fishing and pastoral production are examined to tell the story of a changing physical and cultural landscape.

Keywords: Rukwa, Tanzania, livelihoods

Kahlil Yanes, University of Minnesota. Email: yanes007@umn.edu; *An Investigation into the Relationship of Impoverished Urban Women and Water in Lima's Shantytowns: Looking at the Cultural Dimensions of Water*

Many Studies focus on the role of women in water-gathering and their access to safe drinking water; however, these women's abilities to work with what is given them and their ability to re-think projects for subsistence- in an indirect way or in an active political way- is overlooked by local and federal governments as well as NGOs. The fact that these women have low educational attainment and lack of formal skills should not doom them to social programs that consider them hopeless and powerless. I will be looking at public water fountains in a shantytown of Lima, Peru for evidence of how women appropriate a publicly provided service to achieve diverse and imaginative livelihood strategies.

Keywords: Women, Water, Development, Peru

Chaowei Yang, NASA Geosciences Interoperability Office / George Mason University. Email: cyang3@gmu.edu; *Distributed Geospatial Information Processing*

Distributed Geospatial Information Processing refers to the processing of geospatial information on multiple computers distributed across computer network (s). This paper introduces 1) the architecture of DGIP from the early stage of client-server based distributed platform to the flexible service oriented architecture, which is capable of integrating legacy and future components of geospatial information processing through interoperable interfaces based on standards. 2) The performance is introduced as a major concern in design and developing DGIP when multiple computers and computer network (s) involved in building a well performed system. The performance is observed to be improved by traditional computer science algorithms and methodologies and goes beyond to include massive data sources, massive computers involved, and intensive computing needed in the processing, as well as massive simultaneous users involved. Grid-based Cyber infrastructure is introduced as a possible solution to the performance issue. 3) The paper also introduced interoperability-based spatial web portal for the benefit of hybrid information integration through portal technologies. In summary, the paper introduces DGIP in aspects of cyber infrastructure, interoperability, and spatial web portal.

Keywords: GIS, Distributed Processing, CyberInfrastructure, Architecture, Spatial Web Portal

Chun Yang, Department of Geography, The University of Hong Kong, Hong Kong. Email: chyang@hkucc.hku.hk; *From Pearl River Delta to Yangtze River Delta: Transformation of Taiwan Investment in Mainland China*

Through firm-level survey and case studies, this paper aims to examine transformations of industrial clustering of Taiwan investment in Mainland China over the past two decades. As the major geographical concentration of Taiwan investment and the most dynamic regions in China, the Pearl River Delta (PRD) and the Yangtze River Delta (YRD) are chosen as cases. It is argued that distinct firm practices and their interactions with institutions and governments in both host and home regions in the context of global economy have brought about different spatial outcomes in the two areas. So-called 'implicit' and 'explicit' industrial clusters driven by Taiwan investment have emerged with different roles and policies of local governments in the PRD and YRD respectively. Moreover, Taiwan investment-driven industrial clustering has exerted distinctive impacts on the trajectories of regional development in the two economic powerhouses of China.

Keywords: Taiwan investment, industrial cluster, Pearl River Delta, Yangtze River Delta, China

Chun Yang, The University of Hong Kong. Email: chyang@hkucc.hku.hk; Haifeng Liao, The University of Hong Kong. Email: felixhku@hkusua.hku.hk; *Industrial Agglomerations of Hong Kong and Taiwan Investment in Dongguan, China: a Town-level Analysis*

Dongguan, an emerging world-famous manufacturing metropolis in South China has aroused considerable attentions in both academic and policy research over the past decade. Industrial clusters driven by the influx of foreign direct investment in Dongguan have been primarily based on qualitative analysis, while without any differentiations of the sources of foreign investment. Based on the firm-level statistical data, this study attempts to explore the extent and patterns of industrial agglomerations of Hong Kong and Taiwan manufacturing investment in Dongguan quantitatively and comparatively. The paper argues that Hong Kong and Taiwan manufacturing agglomerations in various towns of Dongguan have evolved in different sectoral and spatial patterns during the past two decades. It could be explained by different firm linkages and comparative advantages of the source regions, as well as distinct interactions with the host region in the context of global economy.

Keywords: Hong Kong, Taiwan, Dongguan, China, foreign direct investment, industrial agglomeration, comparative study, quantitative study, town-level analysis

Jiansheng Yang, Ball State University. Email: jyang@bsu.edu; *Vegetation change detection on surface coal mines in Indiana using Landsat*

There is a need for rapid and cost-effective techniques for the evaluation of reclamation success on surface coal mines over the long-term. The objective of this study is to explore the use of remote sensing technology to gain knowledge about vegetation establishment and growth on surface coal mines following reclamation. Active coal mines in southwestern Indiana started in 1990s are selected for this study. Field data including vegetation types and their spectra are collected using a portable spectroradiometer and global positioning system (GPS) unit for calibration and accuracy assessment purposes. Five Landsat Thematic Mapper (TM) images acquired in 1984, 1989, 1995, 2000, and 2006 are used to extract vegetation and change information over time. Radiometric correction is conducted on 1995 scene (base scene) and the radiometric characteristics of the rest images are normalized to this base scene. Both unsupervised and supervised classifications are used to classify the images to vegetation and vegetation change maps in different time periods. The accuracy of classification and change detection are evaluated using field collected data and historical high resolution aerial photographs. The method provides a rapid way to obtain accurate and detailed information of vegetation and its change on surface coal mines following reclamation.

Keywords: Landsat TM, remote sensing, surface coal mines, vegetation change

Meixue Yang, University of Delaware. Email: mxyang@lzb.ac.cn; Frederick E. Nelson, Department of Geography, University of Delaware. Email: ; Nikolay I. Shiklomanov, Department of Geography, University of Delaware. Email: ; Tandong Yao, Institute of Tibetan Plateau Research, Chinese Academy of Sciences. Email: ; *Ground Temperature and Soil Freeze-Thaw Processes on the Tibetan Plateau*

The Qinghai-Xizang (Tibetan) Plateau has been referred to as "the ridge of the world." The energy and water cycles on the Plateau play an important role in the Asian monsoon system. Much of the plateau is underlain by permafrost, and the remainder is subject to seasonal freezing. Soil freeze-thaw processes have a significant effect on interactions between the land surface and atmosphere. Observational data sets of soil moisture and temperature obtained by the GEWEX Asian Monsoon Experiment (GAME)-Tibet, which has been conducted since 1996 (continued as CEOP/CAMP-Tibet after 2000), include soil moisture, soil thermal regime, and freeze-thaw processes. Soil energy-water distribution and freeze-thaw processes are highly variable between different sites in the northern part of the Plateau. The temporal and spatial variations of soil moisture content are more complex than those of temperature. Freeze-thaw processes and the vertical distribution of temperature are strongly influenced by variations in soil moisture content. During the summer monsoon period, soil moisture content at the 10 cm level was relatively high at all sites, but showed a high degree of geographic variation. In general, the shallow layers begin to freeze in October and thaw in April at all sites, with freezing duration of about six months. The seven years of observations also indicate that soil temperature is increasing.

Keywords: permafrost, freeze-thaw, soil temperature, soil freezing, Tibetan Plateau; GAME-Tibet; CEOP/CAMP-Tibet

Xiaojun Yang, Florida State University. Email: xyang@fsu.edu; *Relating Estuarine Landscape Patterns with Biophysical and Socio-Economic Conditions: A Multi-scale Approach*

We present a method to characterize spatio-temporal landscape patterns, identify the correlations between landscape patterns and biophysical and socio-economic variables, and determine the significant natural and human drivers of landscape changes. We applied this method to examine landscape dynamics from 1989 to 2002 in the Pensacola estuarine drainage area, situated at the northern Gulf of Mexico, USA. The study was conducted at three different levels, namely census tract, 11-digit hydrological unit, and hexagon. The primary data were the land use and land cover maps for 1989 and 2002 that were produced by classifying Landsat TM/ETM+ imagery. Several core landscape metrics are identified using multivariate statistical analysis. Two major socio-economic variables, namely total population and per capita income, were considered, which were originally derived from US census datasets but further redistributed according to their natural distributions through dasymetric mapping technique. Other variables were NDVI, Soil Conservation Service Curve Number (CN), and a number of accessibility indexes including terrain slope, total length of road networks and several straight-line distance measures to a location of activities (CBD, cities, regional airport, coastline, and major shopping centers). A stepwise multivariate regression method was applied to determine the relationship between landscape structural metrics and biophysical and socio-economic variables. The results indicate that the natural and human variables can explain most of the variability of landscape spatio-temporal patterns but the drivers identified are somewhat different at each level.

Keywords: landscape dynamics, driving forces, data integration, multivariate statistical modeling, multi-level, estuarine watershed

You-Ren Yang, Dr., National Taiwan University. Email: yyren@ms34.hinet.net; Jinn-yuh Hsu, professor, National Taiwan University. Email: jinnyuh@ntu.edu.tw; Chia-ho Ching, Professor, National Taipei University. Email: ching@mail.ntpu.edu.tw; *Revisiting the Silicon Island? The Divergent Institutional and Spatial Embeddedness in the Development of High-technology Parks in Taiwan*

This paper aims to explore the divergent impacts of different technology park projects draw on local development in Taiwan. Technology parks have been instrumental for propelling regional development and acclaimed as the panacea for curing regional declines since industrial restructuring after 1980s. Three parks, which were allocated in different regions, were constructed by the state under different political and economic circumstances, both domestically and globally. As capitalistic development discloses itself among the divergent institutional embeddedness, structural coherence, geographical organizations, and scalar connections, the interplay between the global production networks and local institutions will shape the divergent patterns of 'siliconization' of regional development in the three high-technology projects.

Keywords: Regional development, technology park, global production network, institutional embeddedness, developmental state

Zhengwei Yang, Dr., USDA/National Agricultural Statistics Service. Email: zhengwei_yang@nass.usda.gov; Rick Mueller, USDA/NASS/RDD. Email: Rick_Mueller@nass.usda.gov; *Citrus Grove Change Detection Using Heterogeneously Sensed Imagery*

Citrus grove change detection is of great importance to citrus production, inventory monitoring and policy making. Using remotely sensed imagery to detect the land use and land coverage is one of the most widely-used, cost-effective approaches. However, there is little published research on citrus grove change detection using remotely sensed multi-spectral imagery, especially for those acquired by heterogeneous sensors. The biggest challenge for this problem is that the pixel value of the imagery acquired with the heterogeneous sensors in different years is intrinsically dominated by the radiometric reflection characteristics of the specific sensor from which the imagery was acquired. The purpose of this paper is to investigate the effectiveness of the citrus grove change detection using heterogeneously sensed imagery. In this paper, the histogram matching method is used to perform the radiometric transformation on the heterogeneously-sensed imageries to address the problem of the radiometric reflection difference among heterogeneous sensors. It provides the ability to relatively normalize the radiometric response among heterogeneous sensors without knowing any sensor physical parameters. In this paper, the image differencing and the normalized spectral correlation change detection approaches are assessed and tested against the heterogeneously sensed citrus imagery data. Finally, a comparison of citrus grove change detection results between those two approaches as well as the impact of radiometric transformation to the change detection results is presented. The initial study indicates that the radiometric normalization can significantly improve the image differencing based change detection results.

Keywords: Change detection, Spectral Cross-correlation, Citrus, radiometric Correction, Histogram Matching

Keiji Yano, Ritsumeikan University. Email: yano@lt.ritsumei.ac.jp; Tomoki Nakaya, Ritsumeikan University. Email: ; Yuzuru Isoda, Ritsumeikan University. Email: ; Yutaka Takase, Ritsumeikan University, Cad Center Corporation. Email: ; Tatsunori Kawasumi, Ritsumeikan University. Email: ; Keiji Matsuoka, Ritsumeikan University. Email: ; Akihisa Tsukamoto, Ritsumeikan University. Email: ; Dai Kawahara, Ritsumeikan University, Cad Center Corporation. Email: ; Manabu Inoue, Ritsumeikan University. Email: ; Takashi Kirimura, Ritsumeikan University. Email: ; *Kyoto Virtual Time-Space: New Approaches to Historical GIS*

The "Kyoto virtual time-space" is a GIS with a temporal dimension, based on GIS and Virtual Reality technologies. This allows users to travel virtually over space and time in the Japanese historical city of Kyoto. The original purpose of this project was to provide a platform to handle a broad range of digitized materials of Kyoto. The project resulted in an historical GIS of Kyoto for many different slices of time: for the present day based on commercially available large scale 2 dimensional and 3 dimensional digital maps; for the Meiji/Taisho eras of the late 19th and early 20th centuries based on aerial photos and old topographic maps and the earliest cadastral maps; for the Edo era (ca. 1600-1868) based on hand-drawn maps and paintings; and for Heian era, based on archeological data and historical documents. Also we include a huge GIS database of historical buildings that would have been seen in Kyoto at different times, e.g., Kyo-machiya (traditional merchant/artisan houses), early modern buildings, temples

and shines. For the next phase, we developed new approaches to historical GIS. Analyses in historical GIS were limited to that of a single time slice or a single theme from the past because of the limited availability of digitized historical data. With the use of "Kyoto virtual time-space", it is possible to derive information from the intersections of temporal and spatial data. Thus the next generation of 'historical GIS', as its name connotes, should be both spatial and historical.

Keywords: Virtual city, 3D GIS, Kyoto

Catherine Helen Yansa, Michigan State University. Email: yansa@msu.edu; Jennifer Nelson, Indiana University-Purdue University. Email: ; J. Elmo Rawling III, University of Wisconsin-Platteville. Email: ; Kathy Licht, Indiana University-Purdue University. Email: ; Aaron Young, University of Wisconsin-Platteville. Email: ; *Climate Changes in Southern Lower Michigan Over the Last 2000 Years: Differentiating Between "Lake Effect" and Regional Climate Patterns*

A comparative study of the paleoclimate records of two lakes in southern Lower Michigan was conducted to reconstruct regional paleoclimate changes and to test for a localized "lake effect" signal. Multiple proxies (pollen, plant macrofossils, particle size, % organic matter, and % calcium carbonate) were analyzed from sediment cores collected from Miner Lake (42.7°N, 85.8°W), located close to Lake Michigan, and contrasted with those from Duck Lake (42.4°N, 84.8°W), which is situated in the interior of the state. Proxy data from Duck Lake show that this inland lake was responsive to large-scale climate perturbations, including the Medieval Warm Period (MWP, ca. 1200 to 800 cal yr BP) and Little Ice Age (LIA) cooling (ca. 500 to 150 cal yr BP). For example, the pollen record of this site indicates a shift from beech-maple forest to oak-hickory forest during the MWP and the subsequent resurgence of beech-maple forest during the LIA. Spectral analysis of gray scale data for Duck Lake exhibits dominant periodicities of 207 and 96 years for cool/wet events, which may indicate a global climate signal, possibly induced by solar forcing. In contrast, the paleoclimate record of Miner Lake was invariant during the past several millennia, which suggests that a "lake effect" climate induced by Lake Michigan was more dominant than the regional climate pattern for sites located near the shore of this Great Lake.

Keywords: climate change, Great Lakes, pollen, geomorphology, biogeography, climatology

Shimou Yao, Nanjing Institute of Geography, Chinese Academy of Sciences. Email: yaoshimou@hotmail.com; *Key Strategy of Healthy Development for Urbanization in China*

Currently in the new era of the global economic integration and the rapid development of cities, for cities expanding continually, industries gathering, traffic being heavy, population enlarging, water and soil lessening, and environment deteriorating, many new questions have appeared in urbanizing region, and society-economy challenges become more seriously. Particularly in the 21st century city developing rapidly, it is important how to use the scientific development concept to build a harmonious society. This paper shows five key strategies for cities developing healthy in China, makes a deep exploration of the related issues.

Keywords: Urbanization; Healthy development; Strategy; China

Xiaobai Yao, University Of Georgia. Email: xyao@uga.edu; *Network Analysis of Multiple Route Systems*

Conventional analysis of a topological network can measure the accessibility and connectivity of a node in a network, by the use of a series of matrix-based analysis such as C matrix, D matrix, and T matrix. This study deals with the insufficiency of these network analysis methods in some real world applications. First of all, the topological network requires a representation of only one link between two adjacent nodes. This makes the conventional network analysis methods inadequate to account for multiple connections between two adjacent nodes, which are commonly seen in reality. A more serious problem is the representation and analysis of multiple route systems in a network. This study aims to provide a solution to the above discussed problems. I use public transit system as a typical example for case study. If a public transit system is not too slim, it is commonly seen that many nodes and direct links are on multiple transit routes. This study proposes a revised C matrix, so called RC matrix, to represent both direct node to node links but also routes in a topological network. Based on this RC matrix, a set of new matrix operations are defined to analyze the connectivity and accessibility of single nodes (e.g. transit stops) in the network. The operation gives results that reveal optimal path between two nodes based on either travel cost or transfer times, or a combination of both.

Keywords: Network analysis, transportation, public transit, route analysis

Zhijun Yao, . Email: zy1001@txstate.edu; Benjamin Zhan, . Email: zhan@txstate.edu; 2D line cluster detection

Most clustering methods so far have concentrated on analyses related to spatial point patterns. We present preliminary results about the development of a procedure for detecting the concentration of the occurrences of a pair of variables among N variables in a set of observations. In each observation in the data set, we assume that a variable may have a real number or a null value. For the N variables in question, we position the variables to locations evenly spaced along the X-axis, use the x coordinate of each of the locations as the x coordinate of variable N_x , and utilize the value of N_x for each observation in the data as the y coordinate of variable N_x . When the values of all observations are plotted, a graph similar to a parallel coordinate plot is generated from the data. However, unlike parallel coordinates, for each observation there is only a line segment linking two variables when the two variables are placed consecutively along the X-axis and when both variables in that observation have values. This procedure can be used to detect the clustering of line segments. These line segments may represent the simultaneous concentration of a pair of variables or events in geographic space.

Keywords: line segment, cluster, parallel coordinate plot

Robert Yarbrough, Georgia Southern University. Email: ryarbrough@georgiasouthern.edu; Securing the Border from Atlanta, GA: Scale, Race, and the Politics of Immigration

In March 2006, while the U.S. Congress debated immigration reform, the state legislature of Georgia passed arguably the most punitive and comprehensive state law intended to curb illegal immigration in recent history. Supporters of the legislation drew upon a popular, national discourse of "border security" in arguing for the implementation of Georgia state bill 529 (SB 529). Through a discourse analysis of coverage of the debates surrounding the bill in Georgia's largest newspaper The Atlanta Journal-Constitution, I argue that proponents of SB 529 were actively engaged in scaling down the issue/problem of illegal immigration and effectively promoting their legislation through an appeal to securing and protecting the state of Georgia. In addition, enforcement of the newly-signed law promotes (perhaps even necessitates) racial profiling of non-whites and non-blacks in Georgia, the majority of whom are Latino/Hispanic. This law, therefore, contributes to the racialization of dark-skinned, Spanish-speaking residents of the state by constructing undocumented immigrant status (illegal and/or alien) as integral to "Latino/Hispanic" identity in Georgia. This analysis demonstrates that the debates surrounding this state law appealed to a national discourse of "border security" and scaled it down to garner popular support, while one result of the law is to perpetuate a racialized discourse that increasingly places illegal status at the center of Latino/Hispanic group identity.

Keywords: Immigration Politics, Scale, Race, Atlanta

Brent Yarnal, Penn State University. Email: alibar@psu.edu; Vulnerability Assessments of the Future? The Case of Hurricane Storm Surge

This paper presents a vision for vulnerability assessments of the future, using vulnerability assessments of hurricane storm surge as a well-understood case study. The paper begins by discussing the typical steps taken in contemporary storm surge vulnerability assessments, including procurement and processing of data, methods applied to these data, and analysis and distribution of the results. It presents examples of the usual decisions made by the assessor and typical products generated by applying standard procedures. It then considers the weaknesses of the data, methods, and analyses. Based on this appraisal, the paper suggests improvements needed in conducting such assessments, including better data, more robust methods, and additional analyses. The paper emphasizes the need to build models that not only facilitate projections and/or scenarios based on the variables assessed today, but also handle many more physical, engineering, and socioeconomic variables. These GIS-based models would enable decision makers to visualize the future consequences of every decision they make today, thereby identifying unrecognized vulnerabilities. The most important conclusion is that coastal-zone vulnerability assessments require local stakeholder participation during every phase of the process.

Keywords: Vulnerability assessment, Hurricane storm surge, Hazard scenarios, Stakeholders

Emily D Yates, Chicago Botanic Garden. Email: emilydrewyates@hotmail.com; Betsy Allen, Chicago Botanic Garden. Email: ballen@chicagobotanic.org; The Millennium Seed Bank Project at the Chicago Botanic Garden: Ex-Situ Conservation of Native Prairie Plant Species

The Chicago Botanic Garden, in collaboration with the Royal Botanic Gardens, Kew, is collecting seed from native, tallgrass prairie species as part of the Millennium Seed Bank Project. The Millennium Seed Bank Project is an international conservation program that aims to collect seed from 10% of the world's flora by 2010 for long-term ex-situ conservation. The Chicago Botanic

Garden is currently collecting seed from 1500 species native to the tallgrass prairie ecosystem, which now occupies only 10% of its original 58 million hectare range in the Midwestern and Great Plains states. For each species, 20,000 seeds from a single population are collected along with herbarium vouchers and associated data. After cleaning, the seeds are dried to 15-20% relative humidity and stored at -20C, thereby greatly increasing their longevity. Half of the collected seed is deposited into long-term storage at Kew Gardens, UK, while the rest remains in-country. Seeds not allocated for long-term storage are made available to the scientific and stewardship communities for seed biology and ecology related research, as well as local, on-the-ground restoration projects. The development of seed banking facilities at Chicago Botanic Garden contributes to providing ex-situ conservation of the Midwest local flora, and supports its mission to promote conservation of plants and the natural world. Chicago Botanic Garden's participation in the Millennium Seed Bank Project highlights the interconnections between plants and people and the importance of conserving the natural systems that support them both.

Keywords: seedbanking, conservation-ex-situ, plants, biogeography

Peter Hunt Yaukey, Ph.D., University of New Orleans. Email: pyaukey@uno.edu; Effects of Hurricane Katrina on Urban Landbirds in New Orleans, Louisiana

Previous comparisons of wildlife populations before and after hurricane landfalls have shown some species to decline, and others not. The effects of the August 2005 landfall of Hurricane Katrina on the suburban and urban landbird community of Greater New Orleans, Louisiana, was assessed starting five weeks after landfall. Compared to numbers recorded on 2.2 km of transects during pre-storm surveys between 1994-2000, the ten most numerous bird species all showed strong declines, as did squirrels. Additional transect surveys at 100 random locations city-wide showed that overall bird numbers on the initial 2.2 km were similar to those in the city overall. Additional surveys conducted in the Lower Ninth Ward, Arabi and the Murphy Oil Spill, revealed that bird abundance was extremely low in these areas of especially severe storm impact. The effects of the oil contamination is hard to assess at present; bird populations in the oil spill area are strikingly low, but not obviously lower than in non-contaminated areas also hit by the storm flooding.

Keywords: Biogeography, Hazards, Hurricane, Katrina, Urban, Meteorology, Climatology

Megan Ybarra, U.C. Berkeley. Email: mybarra@nature.berkeley.edu; Envisioning Guatemala as an "Ownership Society": Reflections on the Land Administration Project in Petén, Guatemala

In the wake of Guatemala's 36 year civil war, peace negotiations left one burning problem unresolved: land. Although the Agreement on Social and Economic Aspects and the Agrarian Situation purported to address the root causes of poverty, including highly concentrated land ownership, it offered only market-based solutions. The centerpiece of these solutions, theorized by World Bank economists and popularized by Hernando de Soto, is a land administration program designed to measure and formalize individual property rights, thereby increasing tenure security, creating "liquid" capital and opening up latent land markets. The pilot program is in the department of Petén, which is a formidable testing ground for fixing property rights in the midst of competing claims by peasants, environmentalists, drug traffickers, and former military generals. Rather than increase equity in economic opportunity, the land administration program has fomented a renewed cycle of violence. Development economists fail to account for displacement and violence that occur as an immediate effect of the project, as well as long-term disparate impacts of the project that may exacerbate existing inequalities. Although the project's stated aims are merely to formalize an existing set of individual landed property rights, this development intervention necessarily changes the property regime, thereby changing underlying relationships that land as property embodies. The new property regime cannot be separated from the violence used to enforce it, which may have important ramifications for this kind of project in weak states with heterogeneous societies.

Keywords: property, land use, violence, Latin America

Hengchun Ye, California State University - Los Angeles. Email: hengchun.ye@calstatela.edu; Eric J Fetzer, Jet Propulsion Laboratory, California Institute of Technology. Email: ; David H. Bromwich, Ohio State University. Email: ; Evan F. Fishbein, Jet Propulsion Laboratory, California Institute of Technology. Email: ; Edward T. Olsen, Jet Propulsion Laboratory, California Institute of Technology. Email: ; Stephanie L. Granger, Jet propulsion Laboratory, California Institute of Technology. Email: ; Sung-Yung Lee, Jet Propulsion Laboratory, California Institute of Technology. Email: ; Luke Chen, Jet Propulsion Laboratory, California Institute of Technology. Email: ; Bjorn H. Lambrigtsen, Jet Propulsion Laboratory, California Institute of

Technology. Email: ; Atmospheric Total Precipitable Water of AIRS and ECMWF over Antarctica

This study assess the quality of total atmospheric water vapor measured by Atmospheric Infrared Sounder (AIRS) by comparing it with radiosondes and the European Centre for Medium-range Weather Forecasts (ECMWF) operational analysis products during December 2003 and January 2004. We find that PWV from AIRS Level 3 (daily gridded) data is about 9% drier while ECMWF is 14% moister than sondes at the two grid points closest to the Dome C radiosonde site on the Antarctic Plateau at 3233 m elevation. When AIRS Level 3 data are compared with ECMWF over the entire Antarctic continent, AIRS and ECMWF PWV have similar variability (correlation coefficients are predominantly 0.8 or higher), but with AIRS drier over most of the Antarctic by a consistent offset of about 0.1-0.2 mm. Because of this constant difference, the largest percentage differences are found over the highland areas of about 2500 meters and above, where absolute water vapor amounts are smallest. This should be an important consideration in radiative balance calculations for summertime Antarctica.

Keywords: Antarctic; atmospheric water; AIRS; ECMWF

Junjia Ye, The University of British Columbia. Email: junjiaye@interchange.ubc.ca; Multiple Identities At Work: The Case of Singapore's Financial Sector

The flow of diverse peoples into the global workplace is embedded with particular notions of the "ideal" cosmopolitan worker - notions that serve to reproduce inequalities in workplace access. This paper uses the example of Singapore's financial sector to expound on the issue of access to the professional classes in financial work. I argue that the performance of a particular cosmopolitan identity is crucial for accessing the professional financial class both through institutional and daily, mundane processes. I investigate how certain characteristics of gender, ethnicity, race and nationality limit entry into this class of globally connected and well-paid individuals. Referring to Bourdieu, I conceptualize "class" as an on-going symbolic struggle sustained by attributing bodies in the workplace with difference. In the process of creating the "ideal" worker for the financial sector, the notion of "cosmopolitanism" has been used as a powerful filter that limits access to certain performative kinds of work.

Keywords: Identities, Performance, Cosmopolitanism, Transnationalism

Yanlin Ye, University Of Connecticut. Email: yanlin.ye@gmail.com; Robert Cromley, University of Connecticut. Email: Robert.Cromley@uconn.edu; Toward an Open Server for Geographic Analysis

Online mapping services have gained popularity during the last decade. Although, most commercial and open source Internet Map Servers are good at serving maps, they have limited ability for conducting geographic analysis. This study designs and implements an open infrastructure for hosting spatial data, reusable rich-client services, models or applications built on top of these services, finished maps, and publications of the analysis.

Keywords: GIS, IMS, Rich Client Service

Ian Yeboah, Miami University. Email: yeboahie@muohio.edu; Emancipatory Ethnicity and Urban Land Claims: Marginalization and Impoverishment of the Ga and Adangme in Accra, Ghana?

Postcolonial Sub-Saharan Africa has experienced an upsurge of land claims by various ethnic groups whose lands were acquired by both the colonial and the postcolonial state through eminent domain. Often these land claims are about rural lands and ethnicity has been used as the basis of emancipating the group from impoverishment and marginalization. These economic claims to land, however, belie fears of the future that often result in violence and political unrest. An urban example of such a claim made by the GaDangme Council (GDC) in Ghana calls for an emancipation of the Ga and Adangme ethnic groups from their disenfranchisement, advocates changes in land laws and the distribution of benefits from lands acquired by the state. To an extent, a challenge to the traditional system of political organization of the Ga is also made by the GDC's call. This paper argues that the GDC's claim of marginalization and call for emancipation based on nationalism, although perceptual, has brought the issue to the fore of national debate. The paper suggests ways by which such claims can be addressed to forestall a breakdown of socio-ethnic fabric of Ghana. Resolving the Ga and Adangme case provides lessons for other Sub-Saharan African countries.

Keywords: emancipation, ethnicity, nationalism, urban, land claims, impoverishment

Muriel A. Yeboah, West Virginia University. Email: myeboah@mix.wvu.edu; Gender and livelihoods: Mapping the Economic Strategies of Porters in Accra, Ghana

Economic conditions across the African continent have worsened over the past few decades, and as a result there has been unprecedented growth in urban livelihood strategies. Using feminist methodologies this paper examines the linkages between gendered livelihood strategies and vulnerability among porters in the context of wider contemporary socio-economic changes taking place in Ghana. Porters, people who transport goods from one location to another location in and around market areas in cities of Ghana are among urban poor people striving to earn livelihoods in cities of Ghana. The paper discusses economic developmental processes leading to uneven development and high rural-urban migration in the country. It also highlights some of the strategies that porters adopt in engaging their activities as well as gender-related issues in their livelihoods in Accra. In addition, several factors that affect and lead to high vulnerability levels among porters in the city are explored. Findings indicate that men porters adopt simple technology that enables them to earn higher income than women. The analysis shows that clients, susu collectors, thieves, pickpockets and the general public exploit and harass porters. Moreover, poor living conditions, inadequate housing, lack of or inaccessibility to basic amenities, poor working conditions, and the effects of structural adjustment impact on the livelihoods of porters. In conclusion, the paper emphasizes the importance of policy measures that target porters particularly women at their home villages than measures aimed at targeting them in Accra.

Keywords: gender, livelihood; strategies; vulnerability, Accra,

Emily T Yeh, University of Colorado. Email: emily.yeh@colorado.edu; Blazing pelts and burning passions: Environmentalism, nationalism, and sovereignty in Tibet

On February 11, 2006, hundreds of Tibetan nomads in Zorge county, Sichuan, China publicly burned an estimated one million dollars worth of pelts of endangered animal pelts, including tiger, leopard, and otter, most of which were illegally poached from India. Used to decorate Tibetan robes, many of these pelts were purchased with a family's life savings in this economically marginalized area. Despite the magnitude of monetary destruction, more than one participant recalled it as "the happiest day in my life." The burning, only one of many across cultural Tibet, was a response to the Dalai Lama's statements at the Kalachakra Initiation in India in January 2006, that for religious and environmental reasons, Tibetans should not wear such pelts. Furious at the Dalai Lama, and especially over this evidence of his continued religious, political, and moral authority among Tibetans, the government arrested organizers. Those threatened with detention argued that they were only upholding Chinese national environmental law, and thus being patriotic citizens, while the state accused them of attempting to "split the [Chinese] nation." Several months later, the government forced Tibetans to wear pelts of endangered animals at summer horse race festivals. In doing so, the government ignored its own national environmental laws, which uphold CITES. Based on interviews conducted in Tibet, this paper examines this wave of public burnings and their aftermath to analyze the complicated and contradictory role of transnational environmentalism and discourses of environmental stewardship in the conflict of Chinese and Tibetan nationalisms.

Keywords: Tibet, environmentalism, religious authority, nationalism

Brenda Saw Ai Yeoh, Professor, National University of Singapore. Email: geoya@nus.edu.sg; "Gateway Singapore": Immigration Policies, Differential (Non)incorporation and Identity Politics

Globalizing cities such as Singapore are more akin to "transnational revolving doors" than "immigrant gateways". In the case of Singapore, the concept of a "transnational revolving door" has to be further qualified, based on skill level. For transnational unskilled workers, the "revolving door" is a structural condition that regulates their presence in the city. Use-and-discard state measures prevent them from gaining any significant foothold in Singapore society as socio-political subjects. For these workers, the "revolving door" turns systematically and relentlessly. In contrast, for transnational elites with talents and skills which the city-state wishes to root and retain, the state attempts to slow down the "revolving door" as much as possible. Instead, the state is keen to fashion Singapore as an immigrant gateway that is able to attract international talent to supplement its small base of local talent in order to remain globally competitive. Using a case study of skilled PRC transmigrants in Singapore, the paper however indicates that international talent is highly mobile: permanent residency and citizenship will not guarantee their integration into society and ironically may actually confer a higher degree of potential mobility. Immigrant gateways are animated by everyday identity politics dependent on a complex web of identifications with, as well as pragmatic opportunities in, "home" and "host". How comfortably the PRC transnational elite are able to negotiate their identities vis-à-vis similar-and-yet-different Singaporean Chinese in everyday

lived realities will have a significant bearing on whether Singapore becomes "home" or simply part of an unending sojourn.

Keywords: transnational migrants; immigration policy, identity politics; Chinese migrants, Singapore

Christian Yeomans, University of Wales, Aberystwyth. Email: cay02@aber.ac.uk; Post-socialist citizens, 'deep participation' and the sharpening of network governance: Research notes from Berlin.

Recent research on differentiation between multiple spaces of post-socialism has tended to deploy West-centric network governance models as 'complete', coherent, and even original ways of making sense of social change, marginalization and difference in post-socialist spaces. At the same time, new academic directions in network governance are starting to engage notions of a deeper order of citizen participation as an emerging dimension of healthy societal coordination. Employing field-evidence collected as part of a recent project, this paper raises the possibility that everyday patterns of participatory practice among citizens in an eastern district of post-socialist Berlin reveal a startling link between these trends: that the 'new' governance discourses deployed to manage thinking on changing post-socialist spaces are in fact beginning to aspire to and reproduce societal coordination principals that had existed already in advanced forms as pillars of GDR state-socialist societal coordination. The paper goes on to discuss the implications of this for perceptions of 'difference' and for the future of governance interaction and citizen-participation in post-socialist societal spaces. Special attention is afforded to the particular historical, sociopolitical and cultural contexts in which such patterns of governance practice are embedded.

Keywords: Post-socialism, Berlin, governance, citizen participation

Henry Wai-chung Yeung, National University of Singapore. Email: geoywc@nus.edu.sg; Situating Regional Development in the Competitive Dynamics of Global Production Networks: An East Asian Perspective

The debate on the nature and dynamics of regional development in both academic and policy circles has now moved on from the earlier focus on endogenous regional assets to analyzing the complex relationship between globalization and regional change. This paper attempts to engage with this debate through the experience of regional development in East Asia. The East Asian perspective shows that regional development cannot be understood independently of the changing dynamics of global production networks. While the existing literature on East Asia tends to focus on the state as the key driver of economic development at the national and regional levels, I argue that the developmental state is a necessary but not sufficient condition for regional development to take place. Instead, we need to study the complex strategic coupling of those economic actors, particularly large business firms, operating in specific regions in Asia with their lead firm counterparts orchestrating production networks on a global basis. To illustrate these strategic coupling processes and their impact on regional trajectories, I draw upon primary data collected through personal interviews with over 70 leading Asian firms. The paper concludes with some major implications for theorizing regional development and strategic policy options.

Keywords: Regional development, global production networks, strategic coupling, Asia, business firms

Natalia Yevchenko, Rostov CASE. Email: natayevch@yahoo.com; International Strategy of the South Russia Region

The Southern Federal Okrug of the Russian Federation has the largest boundary length in European Russia. Geographical location of the Southern Federal Okrug could be an advantage for effective regional development via international activity. However, over the past decade the Southern Federal Okrug has been growing less attractive for foreign trade and investments. The economic level is low, key production elements (energy, fuel, professional staff) are scarce, whereas political instability in some Caucasian republics keeps growing. Regional Administrations do not pursue any clear-cut economic policy, as they have seen no positive output of international business. The situation in the region has to be changed by developing international policy which would involve both medium- and long-term forecasts. The Russian Duma (Parliament) should adopt in 2006 new legislation on the so-called "boundary-to-boundary cooperation". The bill in question does not take full account of the possible international involvement of municipalities in environmental assessment, especially for large investment projects which could be detrimental to environment. The 660-km long state boundary with Ukraine needs state budget allocation for its immediate and effective protection. Ukraine has been fortifying its boundary since 2004, while Russia, having declared a policy of reliable customs control, has not moved ahead since. The Southern Federal Okrug must be granted federal tax remissions and investment incentives, similar to those offered to foreign investors in natural resources sector. Regional Administrations are to be evaluated by the number of new jobs they have created, the amount of attracted investments, and cuts in

federal budget subsidies.

Keywords: regional development, Caucasus, Russia

Ling Yin, Department of Geography, University of Tennessee. Email: lyin@utk.edu; Shih-Lung Shaw, Department of Geography, University of Tennessee. Email: sshaw@utk.edu; Dali Wang, Department of Computer Science, University of Tennessee. Email: wang@tiem.utk.edu; A GIS-based Cellular Automata Model of Fire Spread Simulations

Cellular Automata (CA) has been a popular approach of simulating spatial changes over time. The grid-based partition of space in cellular automata fits well with the fundamental design of raster geographic information systems (GIS). However, implementation of a CA simulation model also requires functions that can represent the transition rules and compute spatial changes over time efficiently. With the open development environment offered by some GIS software vendors, it is feasible to integrate GIS with CA using a tight-coupling approach. This paper first discusses the advantages and the disadvantages of using ArcGIS/ArcObjects for CA simulations in terms of spatial data structures and spatial analysis functions. The paper then presents an efficient spatial data structure and neighborhood search functions for GIS-based CA simulations. Finally, this paper discusses the potential of coupling a GIS-based CA simulation model with a high performance computing environment in order to improve the performance when dealing with complex simulation models and large data sets. The improved data structure, new spatial analysis functions, and high performance computing approach can provide useful extensions to the development of GIS functions for simulating complex real world processes.

Keywords: Cellular Automata, GIS, Fire spread model

Samantha C Ying, Stanford University. Email: sammying@stanford.edu; Benjamin D Kocar, Stanford University. Email: ; Mickey Sampson, Resource Development International-Cambodia. Email: ; Scott Fendorf, Stanford University. Email: ; Christopher A Francis, Stanford University. Email: ; Near Surface Pore Water and Surface Water Cycling of Arsenic and Manganese in the Mekong Delta, Cambodia

In an attempt to circumvent illnesses caused by surface water pathogens, Cambodians recently turned to well water as the main source of drinking water. However, some wells within a well populated region, Kandal Province, have been measured to contain over 100 µg L⁻¹ arsenic, equating to ten times greater than the suggested limit set by the World Health Organization. Near surface pore water cycling of arsenic may contribute a slow input of arsenic into the ground water via vertical transport of arsenic-containing pore water through cracks formed by shrink-swell processes. Arsenic may be released from soil solid-phase during the wet season through reductive dissolution of iron and manganese oxides or arsenate reduction caused by microbial arsenic respiration. Here, we investigate the annual cycling of arsenic, iron, and manganese in seasonal ponds and near surface pore waters at 10, 50, 100, 200, and 400 cm depths and their effects on microbial community composition at multiple sites within the Mekong Delta. High concentrations of manganese oxide nodules can also be found in the surface soils, which may affect arsenic cycling in near surface processes via adsorption of trace amounts of arsenic. Cultivation and characterization of manganese-oxidizing bacteria may lead to greater understanding of how biogenic manganese oxides formed by native soil bacteria can be used to remediate arsenic from groundwater sources.

Keywords: Environmental Science, Arsenic- manganese, Cambodia

Michael S. Yoder, Texas A&M International Univ. Email: myoder@tamiu.edu; Neoliberalism, Federalism, and Transportation Corridors of the U.S. and Mexico: The Case of Three International Bridges of the Rio Grande

Since the mid-1980s, policy makers and the private sector in Mexico and the border states of the U.S. have increasingly defined international trade as a primary, if not the primary, engine of economic growth. Localities compete fiercely for permission and funds to construct international bridges spanning the Rio Grande. To construct these bridges, the cornerstones of inland ports linking Mexico and Texas, the public sector and its private sector allies face significant hurdles that include the issuance of presidential permits by both federal governments, securing sources of funding, and undertaking arduous planning processes. Such planning is both bi-national and inter-governmental in each country. This paper examines three international bridges spanning the Rio Grande in South Texas and northeastern Mexico, and highlights the dramatic differences from locality to locality in terms of bridge finance and revenue disbursement produced by the two countries' respective federal systems and adherence to neoliberal governance. In depth interviews of key public officials and private actors revealed three facets of the bridges that illustrate the differing conditions of bridge development from place to place, and the workings of the post-Fordist state to stake out a place for each locality in the global supply chain. These

themes are the unique planning, financing and revenue distribution arrangement of each bridge; the efforts of each locality to promote the bridges and their corresponding transportation corridors; and the impact of each bridge and its related infrastructure, such as warehousing and connector roads, on the built environment.

Keywords: neoliberalism, inland ports, U.S.-Mexico Border, international bridges

Eun-hye Enki Yoo, Dr., University of Texas at Dallas. Email: enki.yoo@gmail.com; Phaedon Kyriakidis, Dr., University of California, Santa Barbara. Email: phaedon@geog.ucsb.edu; Area-to-point coKriging in spatial hedonic pricing models

Considering the significance of locational attributes as a housing price determinant, we propose area-to-point coKriging with external drift as a means to predict house prices. Similar to existing spatial autoregressive models, the proposed framework explicitly specifies a property's spatial characteristics within the error structure of pricing models. The consideration of such spatially dependent error structure improves the quality of hedonic pricing model predictions, since the presence of spatial dependence in errors leads to biased estimates of the residual variance and inefficient estimate of the regression model coefficients. The unique feature of the proposed framework, however, is in its flexibility which allows incorporating integrated house price values measured over irregularly shaped spatial units, such as census tracts or local housing markets. Incorporating such area-averaged house price data in hedonic models will affect significantly the accuracy and the precision of predictions, in particular, when only a limited number of exogenous variables are available. Furthermore, the proposed geostatistical framework reports uncertainty associated with each individual house price prediction via its associated coKriging variance. In a case study, the application of the proposed geostatistical hedonic regression model is illustrated using apartment sales prices collected in Seoul, Korea during 2003. The performance of coKriging with external drift in the context of hedonic models is evaluated in terms of coherence property of predicted housing prices, i.e., reproduction of areal average when the predicted values are reaggregated, and the precision of predictions compared to a set of true values of a validation set.

Keywords: coKriging, external drift, spatial hedonic model

Hyebin Yoon, Department of Geography Ohio State University. Email: yoon.120@osu.edu; Emerging sectors in film production and the transfer of technology: Artists or programmers?

Advances in digital technology have brought many changes into the production systems of the film industry. The huge success of 3D-animated film in the box office and increasing demand of special effects for live-action film production using digital technology are part of these changes. These emerging sectors, 3D-animated films and special effects, have different requirements of labor and skills compared to other sectors in the film industry. These new sectors have been influenced by many factors such as the state of technology, computer software, and growing market. To understand the characteristics of these new sectors, this paper examines spatial patterns worldwide of the location of firms involved in special effects and 3D-animated film. The paper then reviews the cross-sectoral skills that are used in these two sectors and compares them in order to gain insight into how technology is transferred from one to the other.

Keywords: digital technology, labor, 3D-animated film, special effects, cross-sectoral skill transfer

Seo Youn Yoon, Department of Geography, University of California, Santa Barbara. Email: yoon@geog.ucsb.edu; Konstadinos Goulias, Department of Geography, University of California, Santa Barbara. Email: goulias@geog.ucsb.edu; Measuring activity spaces as determinants of travel behavior

Activity space is a very important concept in assessing benefits to urban residents, describing their time allocation and travel patterns, and explaining individual and household travel behavior. Several methods have been proposed to calculate activity space from recorded activity locations and to measure the spatial extent of activity space. These include confidential ellipses, kernel density estimation methods and minimal spanning trees. Each of them uses locations of activities in different ways and may capture different aspects of urban quality of service as well as explain different aspects of activity participation and travel behavior. This study incorporates products of each method into Geographic Information System (GIS) and uses GIS to capture spatial characteristics, such as network density or activity opportunities. A comparison is first made among the proposed methods. Then, using statistical analysis each product is correlated with typical travel behavior indicators including trips made, distances traveled, and duration of activity participation. The analysis shows which methods are more appropriate for modeling travel behavior emphasizing within household temporal and spatial interactions. Lessons learned are summarized and the study identifies a new method to build activity space from travel diaries to be

eventually used in forecasting travel demand.

Keywords: activity space, travel behavior

Mami Yoshimura, University of Waterloo. Email: myoshimu@fes.uwaterloo.ca; Geoffrey Wall, University of Waterloo. Email: gwall@fes.uwaterloo.ca; Weaving stories in Taiwan: Japanese colonialism and Atayal culture

This presentation is concerned with Japanese colonialism and Atayal indigenous culture in Taiwan. It highlights findings from ethnographical research undertaken in Taiwan and with Atayal artifacts in Japanese museums. During Japan's occupation of Taiwan from 1895 to 1945, the government of Japan banned Atayal facial tattoos. This ban eventually led to the loss of gender identity among the Atayal because facial tattooing symbolized maturity and availability for marriage. To get facial tattoos, Atayal men had to be accomplished headhunters and women had to be meticulous weavers. Japan's colonialism cut the links between gender identity, facial tattooing and marriage, and further undermined the Atayal's culture by taking their weaving back to Japan where there is a large museum collection of Atayal weaving. The Atayal men's headhunting activity and facial tattoo ritual have not been revived. On the other hand, the Atayal women's weaving has been revitalized as a way to promote their ethnic identity. The reintroduction of weaving required the Atayal weavers to retrace their weaving history and to reconstruct and revive lost skills. The reintroduction of weaving has had multiple effects on the Atayal community. The meaning of weaving has changed from the representation of the Atayal women's gender identity alone to the representation of the Atayal's collective ethnic identity as a whole. It has also become an ethnic symbol and a tourism product. By working with the weavers, insights have been gained into the legacy of Japan's colonialism and the future of Atayal culture.

Keywords: colonialism, identity, tourism, weaving, the Atayal, and Taiwan

Chad L. Yost, Graduate Student, Saint Cloud State University. Email: chadyost@hotmail.com; Mikhail Blinnikov, Ph.D., Saint Cloud State University. Email: mblinnikov@stcloudstate.edu; Diagnostic phytolith evidence for the presence and abundance of wild rice (*Zizania sp.*) from central Minnesota lake sediments.

This study develops a novel approach to understanding the paleoecology and paleobiogeography of wild rice (*Zizania sp.*) through the analysis of silica phytoliths from central Minnesota lake sediments. Phytoliths, opal silica microfossils of distinctive forms, are typically .005 to .200 millimeters in size and are preserved in a wide variety of environmental extremes. Wild rice, like many other grasses, is a prolific producer of phytoliths and provides greater taxonomic resolution than that afforded by pollen for the Poaceae family. We established a modern silica phytolith reference collection from 40 aquatic, wetland and upland plant species, with emphasis on the Poaceae, and identified a few highly diagnostic forms that allow unambiguous identification of wild rice in lake sediments. Modern sediments collected along transects from four lakes within the study area show a positive relationship between wild rice abundance and estimates of absolute abundance of wild rice phytoliths. Dominant phytolith morphotypes recovered from lake sediments can be linked to *Phragmites*, *Phalaris* and *Calamagrostis* and indicate phytolith deposition is inclined to be spatially focused in some lakes. We are currently analyzing sub-samples from a 1400 cm core with a basal date of 10,000 years BP that has previously been analyzed for pollen. The degree of correlation between wild rice phytolith abundance and Poaceae pollen abundance will be presented as a part of this paper. Further research will expand this study across a wider spatial and temporal extent with the intent to better understand the entry and speciation of *Zizania* in North America.

Keywords: phytoliths, wild rice, *Zizania*, Minnesota, paleoecology

Craig Young, Dr BSc PHD, Manchester Metropolitan University, UK. Email: c.young@mmu.ac.uk; 'The return of the cosmopolitan. Urban visions, European dreams'

This paper will outline the key strategies of post-socialist urban identity construction across East and Central Europe and analyse how in an attempt to underpin strategies of a 'return to Europe' cities are building identities which hark back to a mythical Golden Age of European, multi-cultural identities. The notion of the cosmopolitan city is frequently mobilized in post-socialist discourses of urban identity formation as a way of signifying a 'return to Europe', but specifically a mythical past is constructed for the city in which the city was a) explicitly European and b) the site of multicultural harmony and of a 'cosmopolitanism' which welcomed all cultures. The paper examines various examples of the operationalisation of this idea of the cosmopolitan city as a means of building post-socialist urban identities in an integrating Europe. It explores the extent to which this notion be sustained in contemporary post-socialist cities and also the implications of such identity building processes for how 'Europe' is imagined. In particular, the paper explores whether the production of new

cosmopolitan visions of the past to support future development inevitably produces a 'non-cosmopolitan' 'Eastern other'.

Keywords: Post-socialism, Europe, urban identity, European integration

Douglas Young, York University. Email: dgyoung@istar.ca; *In-between Growth and Decline: Confronting uneven development in Toronto and Berlin*

Highly uneven urban geographies of growth and decline appear to have become accepted by many in North America and Europe as a universal condition - perhaps even a necessary prerequisite - of global economic competitiveness and neo-liberal urbanism. At the same time, however, the consequent social disadvantage that is concentrated in some urban districts is viewed by policy-makers to be a threat to overall urban economic success and social stability. Such districts are considered as crises to be managed by way of strategic and targeted state intervention that includes new limited spending initiatives. A particular challenge for such state-initiated policies are districts that embody, in their built environments and the social practices of their residents, the social utopianism of the Modern Era during which time they were initially developed. In this paper I explore confrontations between neo-liberal urbanism and the legacies of modernity in attempts to address uneven development in two places: Toronto, a global city of both explosive growth and increasing poverty, and Berlin, a city of national treasures but limited growth. Case studies of two districts - Jane-Finch in Toronto and Marzahn in Berlin - suggest that their modernist legacies provide the potential for area residents to challenge state-imposed concepts of crisis management and to reorient debates about growth and decline in their respective urban regions.

Keywords: growth and decline of cities; Toronto; Berlin; modernity

Jason C. Young, Miami University. Email: youngjc2@muohio.edu; *Public Space and Cultural Power: A Study of the Maijuna*

This paper views the political struggles of the Maijuna, a people of the Peruvian Amazon, through theories of public space. I evaluate whether Western theories on the importance of public space for political action apply to indigenous peoples living in the interior of the rain forest. This evaluation builds upon field observations and interviews performed in the Sucasari village of the Maijuna, found along the Amazon River in Peru. It also draws heavily upon secondary publications about the Maijuna. Using these resources I discuss how the Maijuna lost many of their public spaces during periods of colonization and explain how this loss negatively impacted the transmission of traditional knowledge from one generation to the next. However, the Maijuna are mobilizing to stop these losses, and I examine how public space is important for this regeneration of cultural pride. I conclude that these public spaces are important spaces for political struggle for the Maijuna. In particular, the Maijuna are now using spatial techniques to gain further rights (including rights to more of their traditional lands) for their community. I conclude by analyzing the benefits of these techniques, such as participatory mapping and indigenous political coalitions.

Keywords: indigenous politics, Peru, political geography, public spaces

Jeffrey M. Young, SANZ EarthWhere. Email: jyoung@sanzen.com; *Geospatial Data Collaboration Imperative*

This paper examines geocollaboration underway in .gov, .mil, .com, .edu, .org and .net communities. Geospatial data collaboration initiatives at USGS, USDA, Northern Command, NOAA, BLM, selective state governments and others are compared and contrasted. These organizations employ spatial data provisioning to support collaboration. Spatial data provisioning technologies enhance the value of geospatial holdings through sharing and reuse. Isolated and redundant practices are being dismantled and institutions are embracing collaborative philosophies with the associated accountability. As spatial data holdings increase, the time is right to consider an integrated multi-organization, multi-tier approach to data collection storage and dissemination. Recent catastrophic events have forged some defining moments in the collective geospatial community. With these events has come an expectation of faster and more effective responses to protect lives and property. Some changes are being driven by improvements in how projects are managed in terms of project design, sensors employed, interpretations applied and the conclusions presented. We can expect to see an increased resolution in sensors, increased temporal and spatial availability, improved access to multi-sources, improved time to deliver, increased end user skills, and new and affordable tools. Our citizens expect smooth, seamless distributions of products and results. Ultimately, the drama of events over time and space demands a sharpened collaborative response. Impacts of change on our cultural and physical landscapes are evident. Professional collaborators for managing change should recognize that their contributions do indeed influence daily operations and decisions.

Keywords: geocollaboration, spatial data provisioning, geospatial data

John Young, United States Geological Survey. Email: jyoung@usgs.gov; John Jones, United States Geological Survey. Email: ; Jeffrey Evans, U.S. Forest Service. Email: ; *Using spatial filtering and landform analysis of LiDAR data to reveal forested sinkholes*

We acquired and processed LiDAR data for the watershed surrounding the USGS Leetown Science Center (Leetown, WV) through a partnership with the USDA-Natural Resources Conservation Service. Our goal for this project was to develop fine-scale surface models to delineate sinkholes and other threats to ground water recharge in the local area. LiDAR data were delivered as unprocessed x,y,z (location and surface height) data files, and as "bare earth" models that are processed to remove trees and buildings in order to represent the unvegetated or "bare" ground surface. However, close inspection of these models revealed that numerous vegetation artifacts remained, reducing their effectiveness for modeling fine surface features such as small sinkholes. To address this problem, we employed a progressive curvature filter that effectively removed vegetation artifacts from the LiDAR data. Once a filtered surface model was prepared, we conducted landform analysis to reveal small topographic depressions that might indicate sinkhole development. Field surveys showed that the filtered LiDAR dataset was very effective at locating small surface depressions in forested areas, many of which were obvious sinkholes.

Keywords: LiDAR, spatial filter, sinkhole, landform, Karst

Julie Young, York University. Email: juliey@yorku.ca; *"It Kind Of Gets In The Way Sometimes": Youth Living In Toronto With Uncertain Legal Status*

Immigration policies allow states to select members and to thus perpetuate exclusive social and spatial relations, locating some individuals outside the system without access to services and rights even while they live within state borders. While states determine who is permitted to cross their borders and under what conditions, it is individuals who migrate so it is important to understand how they negotiate the immigration and settlement processes. This paper presents insights from youth living with uncertain legal status in Toronto and highlights the multiple ways in which an individual can be living with precarious status, in terms of both their access to services and their participation. Despite the uncertainty of their status, the youth were able to develop and sustain a network of support persons both within and outside of Canada. School in particular was a space where their status was constantly negotiated: at times going to school offered support while at others it was a reminder of the precariousness of the youth's situations. The project highlights the ways in which legal status is constructed at a number of scales and reveals how these youth participated and strove in their daily lives despite their lack of officially sanctioned status.

Keywords: immigration status, refugees, citizenship, belonging, youth

Kenneth R. Young, University of Texas at Austin. Email: kryoung@mail.utexas.edu; Kelley A. Crews-Meyer, University of Texas at Austin. Email: kacm@uts.cc.utexas.edu; Julio Postigo, University of California, Davis. Email: jcpostigo@ucdavis.edu; Mario Cardozo, University of Texas at Austin. Email: mcardozo@mail.utexas.edu; *Drivers of landscape and agricultural change in floodplains of the western Amazon*

Annual floods in the northeastern Amazon of Peru alter landscapes and reset conditions for farmers, structuring their agricultural calendars and facilitating some aspects of their land use practices. Through semi-structured interviews along the Amazon River and tributaries, we evaluated local land-use responses to different hydrological and precipitation regimes related to topography and river size, origin, and connectivity. In addition, we asked about perceptions of and responses to extremes in those regimes, for example during the Amazon dry period of 2005 and due to past high water levels caused by El Niño events. Commonly mentioned concerns for floodplain agriculture were pests, availability of credit and labor, transportation costs and difficulties, and prices paid for products and produce. In addition to household-level strategies for accommodating environmental fluxes and reported concerns, there are additional opportunities and stresses that have implications for development and conservation efforts. These contingencies originate from the urbanizing Amazon (through movements of people and commerce), from the national and regional governments (through regulations and incentives), and from globalization (as mediated through commodities and international influences). Extreme events often require people and communities to gauge land use consequences of landscape dynamism.

Keywords: agriculture, Amazon, extreme climate events, flooding, land use change

Stephen S. Young, Dr., Salem State College. Email: syoung@salemstate.edu; Persistent Changes in NDVI between 1982 and 2003 over India using AVHRR data.

Global vegetation change studies using AVHRR data for the period 1982 to 2003 have shown extensive areas of the world increasing in photosynthesis, as captured by NDVI data. Increasing levels of NDVI in the high latitudes has been attributed to global warming, but what about the other regions of the world. At the global scale, South Asia is one of the major regions of the world in the lower latitudes demonstrating intensive and extensive levels of increasing NDVI during this period. This presentation will show preliminary results of NDVI change studies over India using AVHRR GIMMS data between 1982 and 2003. The three methodologies of: univariate differencing, temporal profiling and anomaly analysis were undertaken in the research. A persistence filter was used to filter out ephemeral changes. The preliminary results indicate positive trends of vegetation change occurred over most parts of the country and these changes appear not to be highly correlated with rainfall data, which indicates that land cover transformations may be the major driving force behind the changes. The potential driving forces of change will be explored.

Keywords: Global Change, India, remote sensing

Stephen Young, University of Washington. Email: sjy2@u.washington.edu; Finance at the frontier: Redlines and Microloans in India

This paper will present some preliminary research on the impacts of the globalization of financial capital in two key sites in India. Firstly, I look at Mumbai, exploring how the city is changing as it is increasingly integrated into global financial markets and subject to the 'gaze' of international investment funds and risk rating agencies. I explore both the imagined geographies that work to simulate the city as a 'big emerging market' and the effects that neoliberal policies are having on the ground, particularly in relation to growing social-economic inequalities. Secondly, I look at how many of the banks based in Mumbai (and other financial centers) are increasingly involved in lending to microfinance schemes that have been expanding in regions which were initially 'redlined' as a consequence of the same neoliberal reforms. This shift towards for-profit microfinance has been accompanied by a growing emphasis on competitive interest rates and entrepreneurial clients, which raises serious questions about microfinance as a panacea to the disinvestment and dispossession of neoliberal change. It also underlines the importance of thinking through the governance of global finance and the governmentality of microfinance in relation to one another.

Keywords: neoliberalism, finance, governance, microfinance, governmentality, India

Tom Young, University of Toronto. Email: youngt@geog.utoronto.ca; Natural Communities; Political Landscapes

The conservation of biodiversity through the identification and protection of natural communities has been a focus of the Nature Conservancy for decades. Yet the existence of natural communities as real entities has been in dispute in the field of ecology since the beginning of the 20th century. How has the Nature Conservancy seized on this controversial construction and represented it as solid conservation science, providing the backbone for successful conservation initiatives on the ground? The concept "natural community" does important political work. Like the broader notion of biodiversity, it recasts the scale at which land attaches to human constituencies. It calls into being a global citizenry as a stakeholder in any land use decision. Yet the concerns of the global citizenry are mediated and interpreted by a specific political construction, the conservation organization, whose interests are never as transparent as it would have us believe. Drawing on material from northern Vermont, this paper will look at the way the discourse of natural communities has provided a justification for considerably more restrictions on land use than could be justified under single-species focused approaches to conservation. As such it represents a powerful discursive tool with which the Nature Conservancy is attempting to reshape the political landscape of conservation.

Keywords: political geography, ecology, Vermont

Don Youngblut, Carleton University. Email: dyoungbl@connect.carleton.ca; Dendrochronological studies in the southern Yukon Territory, Canada: are two species better than one?

A network of annual ring-width chronologies featuring high elevation white spruce (*Picea glauca*) and lower elevation lodgepole pine (*Pinus contorta*) has been developed from the southern Yukon region. The relative close proximity of the thirty-five sample sites affords the opportunity to examine the different dendroecological information these two species may provide, particularly as fire plays an important role in the maintenance and development of these forests. Patterns of ring-width variability between the chronologies across the region suggest species-specific controls on growth supersede those of geographic

location. However, lower frequency patterns of growth variability between the two species have displayed periods of synchronicity during the last several hundred years. Tree growth at the higher elevation spruce sites shows sensitivity to summer growing conditions whereas the lower elevation pine sites show a more mixed sensitivity, generally most consistent with regional records of moisture availability (i.e., streamflow). We discuss the feasibility of combining radial growth patterns from both species to document past climatic conditions and the association between climate variability and fire activity over the last 300-500 years. We also highlight the potential influence of diurnal temperature variability on radial growth at some of these sites.

Keywords: dendrochronology, Yukon, lodgepole pine

Yolonda Youngs, Arizona State University. Email: yyoungs@asu.edu; Battling for the red buttes of Phoenix: Multiple and contested views of Papago Park, Arizona

In 1914, President Woodrow Wilson signed the legislation to create Papago Saguaro National Monument on the edges of the fledgling metropolis of Phoenix, Arizona. This seemingly benign act of preservation to protect the prominent red rock buttes and desert flora set in motion the gears of social, political, and economic contest over ownership and use of this public pleasure ground. Twenty-five years later, Congress revoked Papago Park's national monument status and declared the area a state park. Once declared a "useless wasteland" by Arizona Governor Carl Hayden, Papago Park's red rock buttes evolved into an icon of for local Phoenixians and a contested terrain where battles over city, state, and regional identity were fought between local boosters, recreation enthusiasts, and artistically minded citizens each looking to express their interpretation of this landscape. Combining archival research, interviews, and field observations, this paper explores the emergence the Papago Park's spatial configuration as a material representation of these conflicts of multiple, contested, and negotiated meanings over nature and culture from 1914 to 2006. Papago Park is an example of how conflicting ideas about nature and culture play out public space through time. Through this case study of a protected area in Arizona, this paper explores the flexibility as well as resistance of preservation legislation as federal, state, and national stakeholders engage in debates about the use of public lands. This paper also offers applications for park managers and planners by investigating the importance of local participants in decisions about preservation efforts.

Keywords: national monument, public lands, contested meanings, culture and nature, Arizona

Danlin Yu, Montclair State University. Email: yud@mail.montclair.edu; Spatial interpolation, GWR, would more information make big difference?

Spatial interpolation usually interpolates the unknown values purely depending on the existence of spatial autocorrelation. Geographically weighted regression, although is used primarily in modeling the spatially varying relationships, can also be used to interpolate unknown values. The difference between these two interpolation methods are that the traditional spatial interpolation is a univariate interpolation, whilst the GWR uses multivariate information to interpolate. Using house data from the City of Milwaukee, this study evaluates the interpolation accuracy of the univariate interpolation method represented by IDW and ordinary Kriging and GWR interpolation. It is found that by modeling the spatial varying relationships, GWR interpolation could be more accurate than the univariate interpolation methods. However, misspecification can be a serious problem for GWR interpolation.

Keywords: Spatial interpolation, geographically weighted regression, hedonic models, City of Milwaukee

Hongbo Yu, Oklahoma State University. Email: hongbo.yu@okstate.edu; Shih-Lung Shaw, University of Tennessee. Email: sshaw@utk.edu; A Temporal GIS Design for Exploring Spatio-temporal Patterns of Acquisition Projects

The project concept, which is defined in the time-geographic framework to describe a sequence of activities organized to complete a specific goal, provides a process-oriented representation of human activities. With the wide adoption of information and communication technologies in our daily lives, activities of a project now can be performed in either physical space or virtual space. This phenomenon can lead to profound changes in the spatial and temporal distribution of our activities and therefore is worth of a close study. In this paper, the authors focus on the examination of various spatio-temporal scenarios that an acquisition project can be completed. An acquisition project involves three tasks (i.e., information search, transaction, and delivery) in the process. As each task can be performed in either physical or virtual space, a total of eight scenarios are identified in this study to describe different combinations of activities performed in physical and virtual spaces. For example, a project of purchasing a book at Amazon.com is identified as a V-V-P scenario because the project is done by browsing the book catalog on the web site (information search in virtual space), placing an online order for the book (transaction in virtual space), and having

the book delivered to home (delivery in physical space). A temporal GIS design is developed to support the representation of the eight scenarios of an acquisition project and the exploration of spatio-temporal relationships of activities in a project. Using a hypothetical activity dataset, a prototype system is created to implement the design.

Keywords: virtual space, time geography, project, GIS

Hwa-Lung Yu, San Diego State University. Email: hlyu@mail.sdsu.edu; George Christakos, San Diego State University. Email: gchrista@mail.sdsu.edu; Integrated Spatiotemporal Modelling and Mapping of Natural Systems

This work proposes the integrated spatiotemporal modelling and mapping of natural systems by means of the Spatiotemporal Epistemic Knowledge Synthesis and Graphical User Interface (SEKS-GUI) framework. Based on rigorous theoretical reasoning and sound empirical evidence, the SEKS-GUI involves combinations of teleologic and adaptation knowledge synthesis principles (epistemic ideals of maximum informativeness and statistical induction/stochastic deduction adaptation); expresses the system's space-time dependence structure using a multitude of both ordinary and generalized spatiotemporal covariance models; explores heterogeneous (spatially non-homogeneous and temporally non-stationary) system distributions; integrates core knowledge bases and various uncertainty sources of the system; and generates a meaningful picture of the system using space-time dependent probability functions and associated maps of important natural attributes (physical, cultural etc.). The wide applicability of the proposed framework is demonstrated in terms of real-world case studies.

Keywords: Spatiotemporal Analysis; Environmental Modelling

Jaehyung Yu, Texas A & M University-Kingsville. Email: jaehyung.yu@tamuk.edu; Samuel Cantu, Texas A&M University - Kingsville. Email: kssc022@tamuk.edu; Joon-yeoul Oh, Texas A&M University - Kingsville. Email: kfjo000@tamuk.edu; GIS-based flood and storm surge damage assessment of Corpus Christi, TX

Flooding is one of the most influential natural disasters in the United States. Among the top 10 nature disasters ranked by FEMA's relief cost, 8 of them are hurricane or flood related. Inland flooding and storm surge has been reported to be responsible for more than half of the casualties and property damages associated to hurricanes and tropical storms. In terms of number of lives cost and property damage, floods are the number-one natural disaster in the United States. Due its geographic location, Corpus Christi can not be free from flood and storm surge disasters. Corpus Christi is the eighth largest city in Texas with a 2000 metro census of 380,783. There is no reported quantitative damage estimations yet in this area, however, enormous damages are expected if disastrous hurricane hits the city. This study simulates the flood and storm surge area in Geographic Information Science (GIS) environment and provides accurate quantitative damage estimations in terms of life and properties. Raster-based simulation will be used to map the risk area in detail of pixel level 10 m as the water level increases every m. In addition, vector layer of residence and commercial properties provides accurate number of possible life and properties threat with the water level increase. The output will be utilized for damage management plan and possibly reconsideration of evacuation plan.

Keywords: GIS, Damage Assessment, Raster analysis, Life and property damage

Qian Yu, University of Massachusetts-Amherst. Email: qyu@geo.umass.edu; Estimating Riverine and Coastal Chromophoric Dissolved Organic Matter (CDOM) Using In Situ Hyperspectral Data and High Resolution Satellite Image

Chromophoric dissolved organic matter (CDOM) is the part of DOM that is highly colored and absorbs light. Early research reported that the concentration of CDOM can be correlated with the total concentration of dissolved organic carbon (DOC). Because of the correlation between DOC and CDOM, remote sensing method can potentially be used to assess DOC. The CDOM efficiently absorbs short-wave-length solar radiation. Therefore, optical remote sensing potentially provides the means to measure over large geographic regions. Some studies have already proved the feasibility of estimating the amount of CDOM using remote sensing imagery in lakes, estuaries, and bay. Because of the high CDOM absorption and low reflectance, this practice requires sensor measurements of high radiometric sensitivity. In this study, we use both In Situ hyperspectral measurement and satellite image to estimate the CDOM in a riverine and coastal environment. The ratio of multi-bands in visible range is adopted in the estimation to remove the effect of atmosphere (especially aerosol-scattering) and suspended sediments, so as to increase the image contrast for a better regression. Hyperspectral data from intensive field spectroradiometer measurement are useful to develop and calibrate the estimates from imagery. The study result can potentially improve the understanding of carbon cycling from

landscapes to coastal water in large scales.

Keywords: CDOM, Hyperspectral data, high resolution image, remote sensing

Fei Yuan, Minnesota State University, Mankato. Email: fei.yuan@mnsu.edu; Shouraseni Sen Roy, University of Miami. Email: ssr@miami.edu; Analysis of Phenological Change Patterns and Growing Season Trends in Response to Climatic Variables and Urbanization

Vegetation phenology refers to the study of the timing of recurring vegetation circles. It is a well established fact that climatic variables are main factors for vegetation growth. Previous studies have demonstrated that there is an increasing trend of annual sum of NDVI in temperature-dependent regions because of earlier start and later end dates of canopy emergence and senescence, which is associated with increasing trend of air temperature in the past two decades. While monitoring changes of vegetation phenology due to global warming are a significant issue in environmental studies, accurate assessment of phenology change patterns at local level is complicated due to various non-climatic factors such as urbanization, and other disturbances. This study aims to analyze vegetation phenology patterns and growing season trends at local level in Minnesota, as a combined function of variable climatic conditions and urbanization using satellite remote sensing and long term climate data. The results may provide useful information for better agriculture practices and land use management in Minnesota.

Keywords: Vegetation phenology, remote sensing

Brendan T Yuill, Arizona State University. Email: byuill@asu.edu; Mary H Nichols, PhD, USDA ARS Southwest Watershed Research Center, Tucson, AZ. Email: ; Mark W Schmeckle, PhD, Arizona State University. Email: ; Supply, sorting & yield of transported sediments in a semi-arid, ephemeral watershed.

Sediment transport is sampled during eight flow seasons at Lucky Hills, a 4.53 ha subwatershed of the Walnut Gulch Experimental Watershed near Tombstone, Arizona. Depth integrated, total load sediment sample concentrations and particle size distributions are analyzed. Measured concentrations average 1.18 % at the watershed outlet although they are highly variability, occasionally surpassing concentrations of 3.00 % and producing transport rates over 15 kg/m/s. Within runoff events, sediment concentrations do not vary systematically with discharge. However, fine material concentrations (< 0.125 mm) pulse at the beginning of each flow event, with little relation to seasonality or recovery period, and gradually wane through the event duration. The coarse material concentrations (> 0.25 mm) exhibit a much weaker association with time, although the highest values are often collected during the later part of an event. This difference in the character of transported sediment depending on particle size is likely due to the contribution of fine sediment from hillslopes in contrast to more complex sorting processes between coarse material and its supply from the channel bed. Complimentary measurements of bedload transport link values of transport flux with the character of the upstream bed material, arranged in patches of variable particle size distribution and mobility that evolve in response to flow hydraulics and local sediment supply.

Keywords: sediment transport, fluvial geomorphology, flash floods, drylands, semi-arid

Justin Zackey, University of California, Berkeley Center for Chinese Studies. Email: jzackey@berkeley.edu; Peasant Perspectives on Deforestation in Southwest China: Social Discontent and Environmental Mismanagement

This paper examines the causes of deforestation in southwest China by listening to peasants' own descriptions of their role in illegal timber cutting. It finds that a sense of "relative deprivation" amongst China's rural poor has encouraged poor environmental management. Peasants justify illegal tree cutting by pointing to China's rapidly increasing inequalities, their lack of economic opportunity and the absence of economic support from the (corrupt) government. These issues, combined with the continuing institutional problems with forest management after decollectivization, convince peasants that ignoring environmental conservation edicts and cashing in on their trees is a good choice. This article distinguishes itself from other critical studies of environmental degradation in China by identifying relative poverty and social discontent as major factors driving deforestation.

Keywords: China, Deforestation, Environmental Management, Poverty, Social Discontent

Amy Zader, University of Colorado. Email: amy.zader@colorado.edu; "Rice is Life": A Critical Overview of China's GM Rice Debate

The struggle over the use of genetically modified (GM) rice in Chinese agriculture is a critical component to larger debates regarding the production and trade of GMOs. The Chinese government has invested a significant amount of time and money into the research and development of agricultural biotechnology. However, international environmental NGOs are bringing the issues of risk and uncertainty of GMO production to China's growing environmental movement. The approval of GM rice for cultivation has formed a national state political debate. This debate is complicated by scientists directly involved in biotechnology development sitting on the central state's advisory board and by European activists, threatening to halt trade relations if GM rice is approved. This paper explores issues surrounding the GM rice debate in China. Paying particular attention to the role of actors influencing the central state, I argue these scientists and environmental activists send a variety of messages to Chinese farmers, consumers, state officials and international audiences. Thus, the central state's responsibilities are stretched as it waits to make a decision. In the meantime, Greenpeace has released reports of GM rice being sold 'illegally' in Chinese markets. This paper suggests further research needs to be done on how Chinese scientists, farmers and consumers are responding to the introduction of GM rice in fields.

Keywords: China; Agriculture; Biotechnology; GMOs; Environmental activism

Terry Lee Zahniser, Muskegon Community College. Email: travelingyrene@comcast.net; West Michigan - A Region Ripe For Change

The purpose of this poster is to illustrate West Michigan's unique natural and human characteristics, and what must be done for it to advance into the world community and 21st Century. West Michigan is a region undergoing major social, economic and political changes. But, in order for this region to make the necessary 'leap' to the next level of 'smart' development and expansion, it must overcome several challenges to that potential growth and eventual world prominence. West Michigan is situated within major domestic and global transportation corridors that provide the region with easy market access for its agricultural and industrial goods, as well as use of the planet's largest available commodity of freshwater - the Great Lakes and its watershed. This strategic geographic location and abundance of natural and human resources puts West Michigan at the apex of future growth and progress that should make it capable of participating more competitively on a global scale.

Keywords: sustainability, political, west michigan, triplex, water, economy, development, natural resources

Robert Zajkowski, University of Cincinnati. Email: zajkowr@email.uc.edu; Issue Voting and Newspaper Distribution in Ohio

This paper focuses on the distribution of voting on Issue 3 in Ohio on the 7 November election in 2006.

Keywords: Electoral, GIS, Newspaper, Political Marketing

Anna Zalik, University of California, Berkeley; York University. Email: zalik@berkeley.edu; Securing the 'License to Operate': Industrial access to oil under state re-regulation

Through a comparison of the activities of Royal Dutch Shell subsidiaries in three sites - Nigeria's Delta Region, the Canadian Tar Sands and Mexico's Gulf States, this paper offers a multi-scalar approach to the study of corporate strategy. The paper theorizes how industrial access is mutually constituted through territorially embedded trajectories of social and agrarian reproduction (notably state policies concerning the use of the sub-soil), and trans-national financial and industrial policies guiding the behavior of private industry (namely transformations in corporate governance procedures across the global North and South). In particular, the comparison explores how industrial approaches for achieving social consent are highly contingent on the region and activity of operation. As such it provides background for an ongoing study of pre-existing possibilities for 'claims-making' available to resident populations in these sites.

Keywords: oil, re-regulation, corporate practice, Mexico, Nigeria, Canada,

Ramin D. Zamanian, Department of Geography and Anthropology, Louisiana State University. Email: rzaman1@lsu.edu; A Material/Conceptual Landscape Analysis of the Virgin of Guadalupe Pilgrimage Site in Mexico City, Mexico

As geographers continue to research the interactions between physical landscapes and conceived or represented landscapes, the Virgin of Guadalupe pilgrimage site, a prominent site for Latin American Catholicism, provided an opportunity for further research in this area of study. Mexico City's rapid expansion drastically changed the material landscape from rural to densely urban, especially since the early 1900s. With indigenous spirituality closely tied to the physical aspects of the landscape, especially those more related to the natural

and rural elements, the onset of urbanity can potentially lead to alienation and consequently a decrease in pilgrimages and participation in worship at the site. How then, do those representing the site adjust to the changes in the landscape in order to maintain a sense of spirituality, and how accurate of a portrayal are the representations? How is spirituality maintained through the interactions of all other elements of the material/conceptual landscape associated with the site? Repeat photography, field observation, and archival research were used to answer these questions. Several dialectical considerations are discussed in order to provide a more in-depth understanding of the site's interactions with its surroundings. Subsequently the introduction of a material/conceptual landscape site analysis model, developed in regards to this pilgrimage site but potentially applicable elsewhere, paves the way for understanding the intricate interactions taking place among different aspects of the material/conceptual landscape.

Keywords: Mexico City, material/conceptual landscape, indigenous spirituality, pilgrimage, geography of religion, cultural geography

Kazimierz J. Zaniewski, University of Wisconsin-Oshkosh. Email: zaniewsk@uwosh.edu; Trends in Population Change in the United States, 2000-2005

The paper examines regional differences in demographic trends in the United States since the 2000 census. Two components of population change, natural increase and net migration, and their relationship to socio-economic conditions, levels of urbanization and relative location are examined at the county level with the use of analysis of variance. Economically depressed areas, particularly many farming and mining dependent areas have recorded population decline. On the other hand, counties with the strong service sector, retirement destination and recreation areas have gained population since 2000. The levels of urbanization and proximity to metro centers have been positively correlated with population growth rates. Implications of this analysis for future research are also briefly discussed.

Keywords: population change, United States

Marc Zarrouati, University of Toulouse (France). Email: marc.zarrouati@toulouse.iufm.fr; Torture: a 'liberal' disciplinary mechanism?

In "The Birth of Biopolitics", Michel Foucault defines political liberalism as an intrinsically restrictive movement which the 'Police State' imposes upon itself. In this type of rationalisation of the 'government of populations' which was beginning to develop in Europe in the mid-18th century, 'Raison d'État', far from disappearing, becomes anchored in the 'power over people's lives' or 'biopower', instead of in the 'discipline of their bodies. In this connection, the legal process of granting civil and political freedoms is a secondary consideration, insofar as it takes over a pre-existing political rationale, which makes it possible. Foucault's thinking on liberalism therefore allows for the genealogy of the concept of 'State of Exception' - as introduced by Giorgio Agamben - as a 'liberal' political expression of the old 'Raison d'État'. We propose to study the genealogy of this concept, starting from an analysis of the power effects of the liberal discursive system legitimising torture as part of the war against terrorism. We will show, in particular, how the effect of such discourses is to relegate alleged terrorists to the fringes of the population of the governed, into a 'liminal' area where the State's administration of aliens is based, paradoxically, on a 'police' approach? rather than a diplomatic or military one, and in which torture emerges as an 'inverted' disciplinary mechanism? in a way that will be further explained.

Keywords: Biopower, Foucault, Torture, Terrorism, State of exception

Jamie Zech, Texas State University. Email: j.zech@txstate.edu; Processes of Exchange and Identity in Gentrifying Neighborhoods

This paper discusses the social and material impress of gentrification on two areas in Austin, Texas and how the processes of gentrification can dislocate or dissolve place identity. Both of the study areas are comprised of historically low-income, minority neighborhoods that are rapidly being transformed by an influx of upper-income Anglos. In addition to examining the dynamics of place identity in gentrifying communities, this study also explores whether and to what extent communities in the process of gentrifying exchange their values, beliefs, and practices (economic, political, social, ethnic, and cultural) - gentrifying with gentrified. How is socio-cultural space negotiated as the value of geographic space changes?

Keywords: gentrification, place identity, neighborhood

Richard Zehner, Great Basin Center for Geothermal Energy. Email: geothermal@mines.unr.edu; Curt Robinson, Geothermal Resources Council. Email: crobison@geothermal.org; Mark Coolbaugh, Great Basin Center for Geothermal Energy. Email: sereno@dim.com; Lisa Shevenell, Great Basin Center for Geothermal Energy. Email: lisaas@unr.edu; *GIS techniques in Locating Geothermal Resources*

Current interest in renewable energy has sparked a resurgence in geothermal power plant development, which utilizes water heated by the Earth to generate electricity. Unlike many other renewables, geothermal power provides reliable baseload (24/7) electricity in areas with favorable geology, such as the Western United States. California and Nevada together produce approximately 2500 MW of geothermal power, or 37% of the total world geothermal energy production of 6833 MW. High temperature geothermal systems suitable for power generation occur in regions where the combination of high heat flow and permeability produce hot water (>150°C) in sufficient volume. Most geothermal power plants around the world utilize the heat of cooling magma at volcanoes or igneous intrusions. However, in Nevada, extensional tectonics create a thinned crust and copious fracturing that produce the same conditions, without the magma. Since favorable conditions for geothermal development occur at the confluence of several geologic factors, Geographic Information Systems (GIS) provide an efficient method for regional geothermal exploration. Gravity gradients, super-accurate GPS/Geodesy, Quaternary fault movements, heat flow from wells, active seismicity, and groundwater geochemistry have all been employed in geothermal exploration and can be depicted as layers in a GIS. Geostatistical techniques such as weights of evidence and logistic regression have been used to quantify the relationship between these layers and high-temperature geothermal systems, resulting in the production of geothermal favorability maps.

Keywords: GIS, geothermal, California, Nevada

Ezra Zeitler, University Of Nebraska-Lincoln. Email: ezeitler@unlserve.unl.edu; *Commemorating Conquest: Native American Iconography in Secondary Schools*

Among the many ways American society symbolizes authority over indigenous peoples is through the appropriation of their culture in the form of the athletic team nickname and mascot. Secondary schools fielding teams with Native American nicknames in America contribute significantly in preserving false representations and stereotypes of those they claim to honor. By examining imagery preserved in high school yearbooks and critiquing photos of current athletic facilities across the country, this essay provides historic and contemporary examples of how disparaging misrepresentations of Native Americans are used by the dominant (White) society to memorialize its conquest over a "savage" foe. In addition, the use of public opinion forums such as letters-to-the-editor and similar online publications provide examples of hegemonic rhetoric that is typical of the dominant society.

Keywords: Native American mascots, cultural hegemony, iconography

Sarah E. Zell, MA, University of Texas at Austin. Email: sarahzell@mail.utexas.edu; Emily Skop, PhD, University of Texas at Austin. Email: eskop@prc.utexas.edu; Wilson Fusco, PhD, Universidade Estadual de Campinas. Email: wfusco@nepo.unicamp.br; *Legality, Ethnicity, and Return Migration: The Importance of Destination State Policy in Brazilian Migration*

In an era of expanding geographies of migration, this paper provides a comparative portrait of two relatively recent Brazilian migration flows. It compares migrant composition in a legally regulated "ethnic-return" guest worker program, from Maringá, Brazil to Japan, with that of a largely unauthorized flow, from Criciúma, Brazil to the United States. The research combines survey data analysis and fieldwork. The survey collected demographic information the migration history of more than 1,500 respondents in each sending city. To elaborate on the survey data, in the summer of 2005 in-depth semi-structured interviews with a sample of return migrants and family members/friends of migrants from each community of origin were conducted, sixteen in Maringá and eighteen in Criciúma. Describing demographic selectivity and social dynamics (i.e., use of networks) over time in the two migration flows, the study ultimately shows that though social networks allow for the diversification of migrant composition over time, destination country policies, as intervening obstacles, play an important part in influencing migrant composition and the migrant experience. Examining variables such as legal status and rate of return migration, these two cases when held in comparison allow for an assessment of the role state policies play in influencing the shape, intensity, and direction of migratory movements. The paper critiques theories on migrant social networks and transnational migration, emphasizing the importance of the state as an actor in organizing and even inducing migration flows.

Keywords: migration-international, immigration-policy, Brazil

Jenna Zemrak, Keene State College. Email: jzemrak@ksc.mailcruiser.com; Adam Marcoux, Keene State College. Email: amarcoux@ksc.mailcruiser.com; Tabatha Manley, Keene State College. Email: tmanley@keene.edu; Sarah Desrosiers, Keene State College. Email: sdesrosiers@ksc.mailcruiser.com; Jo Beth Mullens, Keene State College. Email: jmullens@keene.edu; *Public Perception on Dam Removal: A New Hampshire Case Study*

Over the last decade, dam removal has emerged as an issue debated in numerous communities around the country. During this period, an increasing number of dams considered either safety hazards, too costly, or impediments to rivers restoration efforts were removed. While removal is a viable option for some dams which have become obsolete, the decision-making process surrounding a removal can lead to polarized and entrenched positions within a community. This study examines public attitudes toward the proposed removal of the Homestead Woolen Mills Dam, a small private dam located on the Ashuelot River in southwest New Hampshire. Originally proposed for removal in 1997, implementation was stalled due in large part to concerns and debate within the local community. A survey was conducted to examine residents' knowledge and views towards the fate of this dam. Results of the survey indicated that despite state and local government efforts to inform citizens about the benefits and costs of removing the dam, few felt they were well-informed about key issues. Additionally, a significant majority did not perceive any benefits to be associated with the removal and articulated other completing values, most importantly a historic covered bridge downstream of the dam. When considering removal financing, respondents expressed support for cost sharing among the private owner, the local community and the state and federal government.

Keywords: Dam Removal, Public Perception, New Hampshire, Historic Landmark

Yu Zeng, University of Iowa. Email: yu-zeng@uiowa.edu; George Malanson, University of Iowa. Email: george-malanson@uiowa.edu; *Coupling Climate Change with Complex Alpine Treeline Dynamics*

Use of alpine treelines as a potential indicator of climate change has been suggested by previous research. But the impact of climate change on alpine treelines is still poorly understood. It is not only because of the difficulty to get reliable long time observational data, but also because of the fact that both climate change and alpine treeline exhibit complex behaviors. Therefore, it is important to couple the climate change with a spatially explicit treeline model to investigate the coupled complexity. In this study, we use a spatial simulation model to simulate alpine treeline advance under different climate change scenarios. The results are analyzed to gain insights on how signals of climate change influence alpine treeline dynamics.

Keywords: climate change, alpine treeline dynamics, coupled complexity

Barbara Zennaro, American Samoa Environmental Protection Agency. Email: zennarob@gmail.com; Edna Buchan, Environmental Protection Agency. Email: ebuchan2@yahoo.com; *A GIS approach to water quality stream monitoring in American Samoa*

Stream ecosystems in American Samoa are poorly understood and currently under threat by the Territory's growing human population. Monthly water quality samples were collected at a number of streams stations throughout the territory for the past 4 years to determine the status and trends in stream water quality. A total of 8 streams were selected annually representing different levels of anthropogenic disturbance (pristine, minimal, intermediate and extensive) within island watersheds. Stream data consisted of flow regime, temperature, salinity, conductivity, pH, dissolved oxygen, total nitrogen, total phosphorous, nitrite, nitrate, and enterococci. The data was stored and analyzed into a GIS geodatabase, and geospatial analysis was utilized to locate the source of pollutants. Preliminary results showed that there is a gradient of decreasing habitat scores with increasing level of human disturbance. In particular, one of the main threats to water quality is the waste originated by the numerous piggeries present in the territory. A new program will enforce regulations on piggeries, and this will most probably result in an improvement of water quality, as shown by previous pilot projects. The goal is to create a GIS model to easily identify the source and the fate of pollutants in American Samoa streams to help government agencies to make informed decisions of the managements of the limited island's resources.

Keywords: Water quality, Stream monitoring, GIS, American Samoa

F. Benjamin Zhan, Texas State University-San Marcos. Email: zhan@txstate.edu; Xuwei Chen, Texas State University-San Marcos. Email: xc1001@txstate.edu; Intercity and Urban-Rural Commute Flows in Central Texas

The coordination of different public transportation agencies in a given area requires a better understanding of commute flows between urban-rural areas and commute flows between different cities and counties in the area. This study uses U. S. Census Transportation Planning Package (CTPP) 2000 Part 3 journey-to-work data at the Traffic Analysis Zone (TAZ) level in a five-county area in the Austin-San Antonio area to analyze inter-county and urban-rural commute flows as well as the geographic distribution of these flows to the underlying transportation networks in the area. Preliminary results indicate that: (1) inter-county commute flows account for about 13% of the total commute flows in the area, and (2) commute flows between urban and rural areas account for 20% of the total commute flows in the area.

Keywords: Commute, GIS, Public Transportation, Transit, Network Flows

Chunhua Zhang, Nipissing University. Email: chunhuaz@nipissingu.ca; John M. Kovacs, Nipissing University. Email: johnmk@nipissingu.ca; Examining ENVISAT ASAR imagery for mapping forested wetlands of the Mexican Pacific

Although considered an extremely beneficial coastal resource, mangrove forests world-wide have experienced considerable degradation in the last few decades as the result of numerous anthropogenic causes. Protection of these often remote and extensive coastal wetlands has been hindered by a lack of up-to-date inventorying. Consequently, optical satellite imagery is now being used to map these forests. However, in many tropical regions persistent cloud cover limits these endeavors. The purpose of this investigation is to determine whether C-band satellite synthetic aperture radar imagery, which can penetrate clouds, could be used as an alternative source for mapping mangroves. Focusing on one of the largest mangrove forests of the Pacific coast of the Americas, we examined eight scenes of ENVISAT ASAR imagery to determine whether mangrove forests could be distinguished from other common coastal land covers including cropland, saltpan, palm forest and urban infrastructure. Moreover, we assessed the potential of this sensor for distinguishing various types of mangrove including dead stands, poor condition stands, healthy tall stands and healthy dwarf stands. The results of this study do suggest that the selection of the incident angle and, more importantly, the polarization mode greatly influences the ability to map these forests at acceptable accuracies. Of particular importance is the ability of the depolarized mode for separating the various types of mangrove studied.

Keywords: radar, mangrove, wetland, land-cover, classification, mapping

Haifeng Zhang, University of South Carolina, Binghamton University. Email: czhang@binghamton.edu; Testing Tiebout Hypothesis Using Geographic Analysis Approach

Previous economic and political research has drawn on the Tiebout hypothesis to explain how families choose their residence and neighborhood public services. In the context of education, families often sort themselves into relatively homogenous neighborhoods by income and taste for public education? wealthy families tend to live in neighborhoods with high quality schools and poor families cluster in neighborhoods with poor quality schools. Public school data and spatial statistical methods (i.e., spatial autocorrelation and spatial regression) were employed to test the Tiebout Hypothesis and reveal the phenomena of White flight in South Carolina. Evidence of White flight, suburban public schools experienced substantial increase of enrollments while inner city schools lost students, was disclosed. Significant positive spatial autocorrelation of public school participation among neighborhoods provided evidence for the Tiebout hypothesis.

Keywords: Spatial analysis, school choice, white flight

Jane Xinxin Zhang, Ph.D, Department of Geo/Physical Sciences, Fitchburg State College, MA. Email: xzhang2@fsc.edu; Kang-tsung Chang, Ph.D, Department of Geography, National Taiwan University, Taipei, TAIWAN. Email: ktchang@ntu.edu.tw; Joan Q. Wu, Ph.D, Department of Biological System Engineering, Washington State University. Email: jwu@mail.wsu.edu; Effects of DEM Resolution and Source on Soil Erosion Modeling Using the WEPP Model

Digital elevation models (DEMs) vary in resolution and accuracy by the production method. DEMs with different resolutions and accuracies can generate varied topographic and hydrologic features, which can in turn affect predictions in soil erosion models, such as the WEPP (Water Erosion Prediction Project) model. This study investigates the effects of DEMs on deriving topographic and hydrologic attributes, and on predicting watershed erosion using WEPP v2006.201. Six DEMs at three resolutions from three sources were prepared for two small forested watersheds located in northern Idaho, USA. These DEMs were used to calculate topographic and hydrologic parameters that served as inputs to

WEPP. The model results of sediment yields and runoffs were compared with field observations. For both watersheds, DEMs with different resolutions and sources generated varied watershed shapes and structures, which in turn led to different extracted hillslope and channel lengths and gradients, and produced substantially different erosion predictions by WEPP.

Keywords: DEM resolution; DEM accuracy; LIDAR; forested watershed; erosion modeling; WEPP

Jianting Zhang, LTER Network Office, the University of New Mexico. Email: jzhang@lternet.edu; Deana D Pennington, LTER Network Office, the University of New Mexico. Email: ; Composing and Validating Conceptual Geospatial Models in the Kepler Scientific Workflow System

Motivated by the popularity of ESRI ArcGIS ModelBuilder in modeling executable geospatial processes, we propose to use the Kepler scientific workflow system for conceptual geospatial modeling. We develop ontologies of geospatial data types and operations and build a conceptual geospatial workflow library for composing abstract geospatial workflows. Supported by the Kepler structural and semantic type checking infrastructure, the ontologies and the library are used to annotate semantic types of in-put/output ports of the processing units in composed workflows and perform semantic validations on the workflows. The feasibility of the proposed approach is demonstrated using a real ecological and geospatial analysis example.

Keywords: Conceptual Modeling, Workflow, Semantics, Ontology

Jun Zhang, University of Minnesota. Email: zhan0167@tc.umn.edu; Local Talent, National Politics, and Global Networks: the Rise of Beijing as China's Dominant Urban Internet Clusters

Existing economic geographic studies are largely focused on the development of mature industrial clusters. As some recent literature points out, it is important to trace the origin of firm formation and cluster emergence in order to provide a more adequate explanation of regional economic development. In this paper, I seek to explain why Beijing was able to ascend as the dominant urban cluster in the nascent Internet industry in China. My data are mainly based on my interviews with Internet entrepreneurs during 2002-3, as well as a database on China's Internet industry that I have developed in the past few years. My analytical framework is centered on the interplay between three geographic scales: local, national, and global. I argue that the rise of Internet cluster in Beijing has benefited substantially from the particular post-1989 national political environment in China, Beijing's status as China's national capital and the largest urban talent base, its active local entrepreneurship in the incipient stage of the Internet industry, as well as the entrepreneurs' widespread overseas connections, particularly to Silicon Valley and the Wall Street.

Keywords: Internet, China, industrial clusters, entrepreneurship, market transition

Keqi Zhang, Department of Environmental Studies and International Hurricane Research Center, Florida International University. Email: zhangk@fiu.edu; Processing and Analysis Tools for Airborne LIDAR Data

Airborne LIDAR technology allows accurate and inexpensive measurements of topography, vegetation canopy heights, and buildings over large areas. In order to provide researchers high quality data, NSF has created the National Center for Airborne Laser Mapping (NCALM) to collect, archive, and distribute the LIDAR data. However, the LIDAR systems collect voluminous irregularly-spaced, three-dimensional point measurements of ground and non-ground objects scanned by the laser beneath the aircraft. To advance the use of the technology and data, NCALM is developing public domain algorithms for ground and non-ground measurement classification and tools for data retrieval and transformation. We present preliminary algorithms and tools for processing and analysis of LIDAR data. While Geographic Information Systems (GIS) provide a useful platform for storing, analyzing, and visualizing most spatial data, the sheer volume of raw LIDAR data makes most commercial GIS packages impractical. Instead, we have developed a suite of applications which combine self developed C++ programs with the APIs of commercial remote sensing and GIS software. Tasks performed by these applications include: 1) transforming data into specified horizontal coordinate systems and vertical datums; 2) merging and sorting data into manageable sized tiles, typically 4-km-square in dimension; 3) filtering point data to separate measurements for the ground from those for non-ground objects; 4) interpolating the irregularly spaced elevations onto a regularly spaced grid to allow raster based analysis; and 5) converting the gridded data into standard GIS import formats.

Keywords: LIDAR, NCALM, classification, and data processing

Tao Zhang, . Email: tz05@fsu.edu; Xiaojun Yang, . Email: xyang@fsu.edu; *Quantifying the Land Use - Water Quality Relationship in the Apalachicola River Basin*

Anthropogenic effects from upstream watersheds are degrading the nation's coastal ecosystem health primarily through unloading contaminants and nutrients into downstream estuaries. Understanding the cause of nutrient enrichment is critical for watershed assessment and management. This paper reports a research effort we have made to characterize the relationship between land use pattern and water quality in the Apalachicola River Basin. The study area extends across the States of Alabama, Georgia, and Florida. We assemble land/use data from USGS and water quality data from EPA and USGS. A step-wise multivariate regression method is applied to determine the relationship between land use/cover composition and water quality indicators at sub-watershed level. Our results indicate that land cover/use composition can explain a considerable variability of water quality indicators at the Apalachicola River Basin. Our further research will refine the analytic framework and incorporate a multi-scale perspective.

Keywords: Land use/cover, water quality indicators, Apalachicola, stepwise regression

Xuele Zhang, Zhengzhou University, Zhengzhou 450001, China and Institute of Soil Science, CAS, Nanjing 210008, China. Email: ZXLzhu@zzu.edu.cn; Hui Wang, Institute of Soil Science, Chinese Academy of Sciences, Nanjing 210008, China. Email: ; Guangping Xiao, Shandong Normal University, Jinan 250014, China. Email: ; *Comparison of Diversity Characteristics Between Pedological and Biological Taxonomies*

Biologists have not paid much enough attention to the mathematical structures of biological classifications and their interpretations. A few have made such an analysis mainly using statistical distribution models in nonbiological classification, such as Soil Taxonomy. In this paper, we compare the biological classification of a target group of soil borne plant parasitic nematodes (the *Tylenchina* suborder) with a nonbiological one, Chinese Soil Taxonomy as an example, using the same methods and analyze the similarities and differences between them. Results show that both taxonomies are very similar, have the same structure and diversity characteristics, and are both informative systems. Both taxonomies fit well to the same distribution models such as power law and lognormal. Minor differences also exist between both taxonomies. Whereas the *Tylenchina* suborder is a more profuse branching system than Chinese Soil Taxonomy, the latter seems to be a little bit better descriptive as an information system (according to the evenness values). The Willis curves show the Chinese Soil Taxonomy has a more regular structure than the tested biological classification. This feature might be explained by the distinct taxonomical practices in using both disciplines. (Supported by NSFC 40671012)

Keywords: Chinese Soil Taxonomy; *Tylenchina* suborder; Diversity characteristics; Willis curves; Structure

Yanli Zhang, GeoTREE, University of Northern Iowa. Email: yanlizhang@hotmail.com; Ramanathan Sugumaran, GeoTREE, University of Northern Iowa. Email: sugu@uni.edu; *Development and Validation of a Web-based Watershed Management Spatial Decision Support System*

Watershed is the natural resources unit and its management is always a challenging job because of the broad responsibilities. In order to keep balance between development pressure and environment protection for a sustainable future, efficient tools and techniques are constantly needed by local planners and government agencies. Also, public participation at the beginning of planning process can reduce the number of appeals and can help managers to identify the concerns of local residents at the earliest stage. Based on these two considerations, we developed a web-based watershed management spatial decision support system (WWMSDSS) using the Watershed Management Priority Indices (WMPI) approach. WMPI is a zoning method for watershed management planning and it integrates land use/land cover derived from the remote sensing data, hydrological data, soil, slope, roads, etc. In order to support watershed planning, the land is divided into three categories: Conservation Priority Index (CPI), Restoration Priority Index (RPI), and Storm water Management Priority Index (SMPI). The WWMSDSS was developed with ArcGIS Server®, ASP, Java Script, and Visual Basic .NET®. Several graphical user interfaces have been developed to assist potential users. This presentation describes the development and validation of the WWMSDSS for Dry Run Creek watershed in Cedar Falls, IA. It works as a web-based spatial data analysis application and allows user to interactively run the whole system to evaluate different scenarios.

Keywords: watershed management, decision support system, conservation, restoration, storm-water, GIS

Feng Zhao, Boston University. Email: zhao26@bu.edu; *Spring flooding mapping for the purpose of restoration in Connecticut River Watershed using Landsat etm plus and digital elevation model*

Spring flooding has been frequent in parts of New England region and, hence brought a great loss to people residing along the Connecticut River watershed. As an essential step to identify the appropriate sites for restoration, mapping the intraseasonal flooding dynamics is necessary before the restoration takes place. In this study, a typical spring flooding was mapped based on the ETM+ data acquired in 2001 and the DEM. A composite image consisting of a water index layers for both April and September, respectively and a hill shade layer, was stacked to better display the flooding area. Then an unsupervised classification was performed, and corresponding flooding extent was extracted. The high overall accuracy indicates that the methodology was both reliable and efficient for spring flood mapping.

Keywords: flooding, mapping

Tingting Zhao, University of Michigan. Email: tzhao@umich.edu; Daniel G. Brown, Professor, University of Michigan. Email: danbrown@umich.edu; Kathleen M. Bergen, Dr., University of Michigan. Email: kbergen@umich.edu; *Effects of Urban Sprawl on Gross Primary Production (GPP): Sensitivity of Estimation to Land-Cover Data Quality*

Suburban and exurban development occupies a large fraction of the land surface in the United States. Their impacts on ecosystem carbon fluxes and stocks are yet to be fully understood. In our study, we investigated changes in gross primary production (GPP) between 1991 and 1999 in Southeastern Michigan, where low-density residential settlement has occurred at the urban-rural fringe. We also analyzed sensitivity of the estimated changes in GPP to remotely sensed land-cover data and its relations to landscape spatial patterns. Our approaches included: 1) estimating the growing season GPP with Landsat land-cover and AVHRR NDVI data based on the light-use-efficiency theory; 2) sampling four townships representative of different stages and trends of residential development; 3) using Monte Carlo simulation in each of the four townships to generate 50 realizations of the 30-meter land-cover data by introducing classification errors that consider spatial patterns of commission errors; 4) calculating GPP and its changes based on the simulated land-cover data and deriving estimation sensitivities by different stages and trends of residential development; and 5) examining correlation between the estimation uncertainty and patch characteristics of the original and simulated land-cover data. We found divergent responses of GPP to residential development trends. The estimated GPP increased in low-density development areas and decreased with the intensified development. We also found the estimated GPP is less sensitive to land-cover data in urban or rural areas than in suburban or exurban areas, where landscapes are more fragmented.

Keywords: Gross primary production, urban sprawl, classification uncertainty, Monte Carlo simulation, scaling

Xiaobin Zhao, University of Hong Kong. Email: sxzhao@hkucc.hku.hk; *Dynamic Changes and Spatial Paths of FDI in Mainland China*

China is one of the most favorite recipients of FDI in the world. Both MNC and FDI have been playing an important role in transforming the spatial economy of China. This paper will review the recent changes and dynamic spatial paths of FDI in Mainland China.

Keywords: Spatial Paths, FDI, China

Yibin Zhao, Department of Geography & Resource Management, The Chinese University of Hong Kong. Email: yibinzhao@cuhk.edu.hk; Shih-Lung Shaw, Department of Geography, The University of Tennessee. Email: sshaw@utk.edu; Hui Lin, Department of Geography & Resource Management, The Chinese University of Hong Kong. Email: huilin@cuhk.edu.hk; *Exploring Spatiotemporal Patterns in Large Daily Travel Diary Dataset: A Time-Geographic Approach*

Hägerstrand's time geography presents an elegant conceptual framework for representation of human activities in a space and time context. Due to the advancements in location-aware technologies and in geographic information systems, there has been a renewed interest in time geographic approach in recent years. The classical time-geographic framework however falls short of providing adequate analysis functions for examining and comparing spatio-temporal patterns of and spatio-temporal relationships among different space-time paths. Although some recent studies have made good progress in expanding the analytical capabilities of time-geographic approach, there is a need to develop exploratory analysis functions to help identify the hidden spatio-temporal patterns and relationships in large activity datasets. This paper presents selected exploratory analysis functions that employ the concepts of data aggregation and cluster analysis. We also will present a pilot study, which is based on travel diary data collected in South Florida and is implemented in a GIS environment, to

discuss the strengths and limitations of the suggested exploratory analysis approach.

Keywords: time geography, space-time path, data aggregation, cluster analysis

Tao Zheng, University of Maryland - College Park. Email: tzheng@glue.umd.edu; Shunlin Liang, University of Maryland. Email: sliang@geog.umd.edu; Mapping Incident Photosynthetically Active Radiation From AVHRR Data

Because Photosynthetically Active Radiation (PAR) controls vegetation's photosynthesis, PAR has become an indispensable driving parameter for many ecosystem models. A number of algorithms have been developed to estimate PAR using remotely sensed data, however, none of the existing algorithms or products taps into the valuable resource of more than 20 years of continuous observations taken by Advanced Very High Resolution Radiometer (AVHRR). Deriving PAR from AVHRR data has its unique merit considering that many ecosystem models require long time data record for initiation, calibration and validation. In this paper, a new method was developed to estimate incident PAR from AVHRR visible band data, which has two components. The first component is to estimate instantaneous PAR with an algorithm that is centered on deriving both surface reflectance and atmospheric properties simultaneously from top of atmosphere radiance values. A series of sequential observations at a same location, along with pre-created lookup tables, enable this simultaneous estimation. The second component is to scale the instantaneous PAR to daily average value using a sinusoidal model. This new method was implemented over the continental United States using one-year AVHRR data of 1999. The accuracy of the estimated instantaneous and daily PAR was assessed by two methods: first, they were compared with PAR values derived from co-located half-hourly Geostationary Operational Environmental Satellite (GOES) data; and second, they were validated against ground measurements taken at five Fluxnet sites.

Keywords: PAR, AVHRR, Lookup Table

Sheng Zhong, The University of British Columbia. Email: mppshengz@yahoo.com; What Makes Shanghai's Suzhou Creek So Attractive? A Preliminary Study on Location Choices of Suzhou Creek Creative Enterprises

Suzhou Creek Area, one of Shanghai's traditional industrial bases, had seen much of its industrial and warehousing space turn derelict in the mid 1990s due to obsolescence and public policy interventions. However, since a Taiwanese architect converted a historic warehouse into a modern design studio in 1997, the area had miraculously been transformed into a magnet for artists and creative enterprises within a few years' time. This paper is an attempt to explore the reasons behind Suzhou Creek Area's post-industrial revival from a demand-side perspective, namely the location choices of artists and their enterprises. A questionnaire survey based on non-probability sampling methods was conducted in May 2006, mainly covering questions in three areas: What are the basic profiles of Suzhou Creek creative enterprises? What are their location preferences? What impacts do urban planning and the surrounding property development have on their location decisions? From the survey, it was found that most of these creative enterprises are small in scale and they value the spaciousness of industrial and warehouse buildings, the cultural meanings of place, good transportation and closeness to clients and other enterprises. While many of them expressed concerns over the proliferating property development nearby, they were generally optimistic of a win-win situation based on policy interventions. Although results from this empirical study are far from conclusive, given the constraints of the sampling methods used, they nevertheless can shed a bit light on the formative mechanisms of emerging creative clusters in Shanghai.

Keywords: Shanghai, Suzhou Creek, location choices, artists, creative enterprises

Bin Zhou, George Mason University. Email: bzhou@gmu.edu; Wenwen Li, . Email: wli6@gmu.edu; Chaowei Yang, . Email: cyang3@gmu.edu; Cyber Infrastructure for Geospatial Applications

Cyber infrastructure offers great computing potential with high reliability and throughput. Through grid, cyber infrastructure provides the capability to break large dataset computing down into many smaller ones, and the capability to divide intensive computation, that would be impossible on a single computer, into parallel computations. Therefore, Grid computing can satisfy the geospatial applications that require large data resource and/or intensive computational capacity. To support such applications, we developed a grid platform using Globus, condor, and condor-G. Via interfaces provided and developed, a Web user can implement geospatial applications in a secure, scalable, and reliable fashion. We'll also extend this platform to the GMU campus as a campus grid, and connect to SURF grid to share resources. Integrating these widely distributed computing resources using grid technology enabled the geospatial applications

that can not be done previously on single machine.

Keywords: Cyber Infrastructure, Grid Platform, Geospatial Application, Globus

Bo Zhou, University of Missouri-Columbia. Email: bz9n9@mizzou.edu; The application of Hyperspectral Remote Sensing in detecting Sericea in Missouri

When conservationists in Missouri realized that *Sericea Lespedeza* (later in this paper referred to as *Sericea*) is taking its toll in threatening the healthiness of the economic vegetation, they decided to start controlling the invasion of this species. A major challenge encountered is to map its spatial spread. While remote sensing and aerial photography have been available for many years, newer detecting technologies as implemented in hyper-spectral sensors have made it possible to acquire detailed laboratory-like spectrum of *Sericea* patches and surrounding natural grasses in the air. In this study I will discuss one case study of detecting *Sericea* using the AISA image that records the spectra at high spectral (2.9nm bandwidth, visible-infrared) and spatial (~1m) resolution. Ground reference spectra will be acquired using the Analytical Spectral Devices (ASD). The study area includes a public grassland owned by the Mark Twain National Forest and a private pasture land in Missouri. The AISA images will be processed with the spectral feature mapping followed by the supervised classification methods. The results will be validated based on field surveys.

Keywords: Remote Sensing, Hyper-spectral, Weed detection.

Guiyun Zhou, California State University, Los Angeles. Email: gzhou1@lsu.edu; Barry Hibbs, California State University, Los Angeles. Email: bhibbs@calstatela.edu; Exploring the Source of High Selenium Concentration in San Diego Creek Watershed, Orange County, California

Selenium is a nutrient in a small amount but is a toxin beyond a certain concentration to humans and animals. Elevated selenium was found in the shallow aquifer in San Diego Creek Watershed, Orange County, California. The highest concentration of selenium was found to reside in the historic march. Drainage networks will be extracted from the DEM data to decide whether the distribution of high selenium concentration coincides with the historical drainage system, which was substantially different from the distribution of current man-made channels. The poster will illustrate the distribution of selenium and possibly some interesting patterns between the distribution of selenium and historical drainage network and is expected to provide insights into the source of high selenium concentration in San Diego Creek Watershed.

Keywords: Geological Mapping, Groundwater, DEM, California

Libin Zhou, Florida State University. Email: lz06c@fsu.edu; Xiaojun Yang, Florida State University. Email: xyang@fsu.edu; Neural Networks for Urban Landscape Classification From Satellite Imagery

Accurate landscape mapping is a prerequisite for sustainable urban and landscape planning. This paper reports a research effort we have made to improve landscape mapping from Landsat Enhanced Mapper Plus (ETM+) imagery by parameterizing a feed-forward neural network. The study area is part of the Beijing metropolitan area, which contains a mosaic of complicated landscape types. A multi-layer perceptron network is parameterized with a variety of architectures to classify an ETM+ image into seven major land use/cover types. For comparison purpose, the same training data set for neural network classification is used for a classic parameter-based classifier, namely, Gaussian Maximum Likelihood (GML). The classification maps from the two different approaches are assessed in terms of their accuracy using the same set of reference data derived from field mapping and photographs, topographic maps and SPOT panchromatic image interpretation. We find that neural networks can generate noticeable improvement in classification accuracy when comparing to the GML classifier. However, we find that the performance of neural network classification varies with the architectures parameterized. Our further research will continue to optimize the parameters that control the structure of neural networks so that better landscape classification can be achieved.

Keywords: Neural Networks, Classification, Remote sensing, Urban land use

Naijun Zhou, University of Maryland College Park. Email: njzhou@umd.edu; How can users participate in semantic interoperability?

Currently the task of semantic interoperability heavily relies on interoperability engineer. This paper discusses how the semantic relationships can be presented as knowledge to users. A visual tool is introduced that helps users understand the semantic interoperability problem thus achieve semantic interoperability based on users' decision.

Keywords: semantic interoperability, knowledge, visualization

Yu Zhou, PhD., Vassar College. Email: yuzhou@vassar.edu; *Synchronizing Export And Import Substitution: Path Of China's High-Tech Industry*

Studies on technological changes in developing countries have emphasized export sectors and state intervention as the proven path for technological upgrade; while virtually ignore the role of domestic market in technology learning. This paper challenges such established theories through case studies in China's information, communication technology (ICT) sectors since the 1990s. It argues that technological development may be more effective if import substitution is jointly practiced with export. In China, it is precisely the synchronization of export upgrade and domestic market growth that have helped to create China's most competitive companies. By analyzing the practices of Chinese firms' in personal computer manufacturing, multimedia semiconductor chip design, and in using and establishing technical standards, the paper shows the on-the-ground deficiency of foreign multinational corporations in responding to the needs of an emerging market. It also argues that the regional division of labor and inter-regional collaboration of firms in China's ICT industry have created possibilities for synergy, and multiple opportunities for local technological learning and innovation.

Keywords: Export, import substitution, China, technology development, ICT sectors, regional collaboration

A-Xing Zhu, Professor, Univ of Wisconsin. Email: azhu@wisc.edu; Ping Wang, Beijing Normal University. Email: wangp@lreis.ac.cn; Qiangguo Cai, Professor, Institute of Geography, Chinese Academy of Sciences. Email: caiqg@igsrr.ac.cn; Huiping Liu, Professor, Beijing Normal University. Email: ; *A Hybrid Model for Modeling Watershed Behaviors and Its Application for Scenario Analysis*

A hybrid model was developed for modeling hydrological behaviors and their impact on soil erosion at landscape level. The model consists of two major parts: the physically-based part and the empirical part. The former is a spatially distributed hydrological model, WetSpa Extension, used to model the hydrological behaviors over space. The latter is a sediment module which in turn consists of two components: soil erosion model based on the empirical relationship between the discharge and sediment yield derived from experimental plots, and a simple sediment delivery ratio describing sediment transport. At each location (such as a raster cell) the hybrid model computes the volume and speed of discharge using WetSpa Extension. The discharge is then used to compute the amount of soil erosion using empirical relationships. The model is capable of operating at very fine space and temporal resolutions (such as daily or hourly discharges and event-based sediment yields at 5 meters or finer pixel resolution). The model has been applied in the small catchments of HeMingGuan watershed, located in JiaLingJiang River basin in central SiChuan Province. Validation of modeling results from these catchments suggests that the model performed successfully in simulating daily discharge and event sediment yields. In addition, the model was used to assess the effects of the water and soil reservation practices over these catchments and it was found that this model can serve as a scenario analysis tool for natural resource managers to contemplate the effects of their managerial practices

Keywords: Environmental Modeling; soil erosion; physically-based models; hydrological models; scenario analysis; WetSpa Extension; China-SiChuan

Haijun Zhu, George Mason Univ.. Email: hzhu1@gmu.edu; *Vector Data Compression Using DPCM and Entropy Coding*

The volume of vector data transmitted via Internet is one of the most critical factors influencing the quality of geospatial information service. A proper compression algorithm (e.g., compression of natural images with JPEG) can significantly reduce the data size. This paper proposed a vector data compression algorithm using Differential Pulse Code Modulation (DPCM) and entropy coding. DPCM, a simplification of predictive coding, is used to reduce the redundancy between adjacent points of vector data. Lossless entropy coding is adopted to further reduce the size of data compressed. The intrinsic complexity of vector data structure is the main obstacle for designing the vector data compression algorithm. To overcome this problem, an entropy coding algorithm is specially designed so that the beginning of each geometry feature can be directly identified from coded bit stream without extra bits added. This approach also makes the proposed algorithm easy to implement.

Keywords: Vector data compression, DPCM, Entropy coding, Geospatial information service

Tongxin Zhu, University of Minnesota. Email: tzhu@d.umn.edu; Tongxin Zhu, University of Minnesota-Duluth. Email: tzhu@d.umn.edu; *Gullying and Tunneling in the Hilly Loess Region of Northern China*

Gully development has attracted increasing attention recently. The growing interests are driven by the increasing concerns over the off-site impacts caused by soil erosion at the larger spatial scales than plot-scales (Valentin, et al, 2005). Piping/tunnel erosion is closely associated with gully development in many regions of the world. However, detailed studies of the interactions between gully development and piping are scarce. The role of piping/tunneling erosion in initiating and extending gully systems remain important for geomorphological theory. The present study was conducted in a semi-arid watershed in the hilly region of northern China and the objectives of this study are (1) to investigate the role of tunnel erosion in the development of different types of gullies; (2) to examine the tunnel activities at different stages of gully development; and (3) to identify the conditions favoring tunnel and gully development. All gullies were identified in the 9.1 km² watershed. The activity of gullies was assessed in the field by criteria such as sharp-edge, mass wasting, cracks, recent deposited sediments, biological crusts, and vegetation re-growth. It is found that gullies with tunnel development at the gully head are all very active in erosion. However, not all active gullies are associated with tunnel erosion. The development of gullies with/without tunnels is largely controlled by the topographic and lithologic conditions.

Keywords: gully, tunnel erosion, piping, Loess Plateau, China

Yuanda Zhu, Louisiana State University. Email: yzhu2@lsu.edu; Steven L Namikas, Louisiana State University. Email: snamik1@lsu.edu; *Modelling the Spatial and temporal variations of surface moisture content on a micro-tidal, fine-grained beach, Padre Island, TX*

Surface moisture content is one of the most important factors in meteorology, hydrology and ecology. Modeling surficial moisture dynamics is still underdeveloped to date due to its extreme complexity related to saturated and unsaturated water flow underground and energy and mass transfer between earth surface and atmosphere. Surface moisture content can be predicted technically using various hydrophysical models. Traditional hydraulic models involving liquid and vapor water transport usually have no consideration of the evaporation dynamics on the surface. Land surface models which allow variable soil moisture content treat only the bulk soil moisture, and they in many cases have a specified bottom layer in which zero exchange with deeper aquifers is assumed. However, field investigation shows that spatial and temporal variations of beach surface moisture content are closely linked with groundwater table fluctuations and diurnal and inter-diurnal changes of evaporation. A coupled evaporation and groundwater model is therefore needed to be developed to simulate beach surface moisture variations. Based on an eight-day field experiment, groundwater table oscillations, water retention of beach sand, and evaporation process were simulated analytically and numerically to represent the spatiotemporal variability of beach surface moisture content.

Keywords: surface moisture content, beach, modelling, Padre Island

Asim Zia, San Jose State University. Email: asim.zia@sjsu.edu; *Land Use Adaptation to Climate Change: Forecasting the Economic Impact of Hurricanes in the Atlantic and Gulf Coastal Regions of the U.S.*

Global climate change, especially the phenomena of global warming, is expected to increase the intensity of land-falling hurricanes. Societal adaptation is needed to reduce vulnerability from increasingly intense hurricanes. This study quantifies the adaptation effects of potentially policy driven caps on population densities, housing densities and agricultural cover in coastal (and adjacent inland) areas vulnerable to hurricane damages in the Atlantic and Gulf Coastal regions of the U.S. Time series regressions, especially autoregressive moving average (ARMA) models, are estimated to forecast the economic impacts of hurricanes of varying intensity, given that various patterns of land use — population, housing, agriculture — emerge in the Atlantic and Gulf coastal counties of the U.S. The ARMA models use time series data from 1900 to 2005 for inflation adjusted hurricane damages and socio-economic and land-use data in the coastal or inland regions where hurricanes caused those damages. Multiple spatial scales are employed to test the robustness and sensitivity of these results. The results from this study provide evidence that increases in housing density and agricultural cover cause significant rise in the de-trended inflation-adjusted damages. Population density, surprisingly, shows up as negatively correlated with the de-trended damages. As expected, higher intensity hurricanes significantly increase the economic damages. More importantly, hurricane intensity shows up as a variable with the largest standardized effect on hurricane damages. The evidence from this study implies that land use adaptation in the form of capping housing density and agricultural cover can significantly reduce vulnerability from intense hurricanes.

Keywords: Land Use, Climate Change, Natural Hazards, Coastal Management, Adaptation

Friederike Ziegler, University of Durham, UK. Email: r.f.ziegler@durham.ac.uk; 'I'm not old' - towards a new theoretical approach to ageing research

'Old age' has been studied by social scientists for some decades. Nonetheless some researchers have argued recently that ageing research lacks in theories which embrace the various aspects of ageing, such as the individual's experience of the ageing process or changes in social structures and generational cultures. Much academic literature and western popular culture consider old people either as a 'problem' for society or as vulnerable to social exclusion. The life course approach is one of the most promising attempts to link the ageing person with his/her past and to study the relationships between biographical and historical events. Despite of this 'ageing' is considered as it relates to 'old age' only, i.e. the later stages of a person's life. On the basis of recent qualitative research with older people in the UK, I am here developing an approach to ageing which considers ageing as a process a person is subject to from the day they are born. Older people do rarely consider themselves as 'old', and I will investigate the significance of this finding. This argument fundamentally questions what it means to live life as a human being. Ageing is integral to what it is to be human and does not begin at a certain age. This approach could provide a theoretical as well as a moral basis for researchers of ageing, in that it will highlight the vital contributions of older people to society, not just in an economic context, but also as vessels for human experience and as vectors of knowledge.

Keywords: ageing- theory- life course

Susy Svatek Ziegler, University of Minnesota - Minneapolis. Email: ziegler@umn.edu; Evan Larson, University of Minnesota - Minneapolis. Email: lars2859@UMN.edu; Julia Rauchfuss, University of Minnesota - Minneapolis. Email: rauch024@UMN.edu; Max Handler, University of Minnesota - Minneapolis. Email: hand0106@umn.edu; Grant Elliott, University of Minnesota - Minneapolis. Email: ellio176@umn.edu; *The Influence of Climate and Fire on Tree Recruitment in an Oak Savanna*

Pulses of tree recruitment at an oak savanna in east central Minnesota coincided with dry periods throughout the past 200 years. Bur oak trees reached coring height (30 cm) as early as 1809, before Europeans settled on the sand plain. Land managers had thought that settlers planted green ash on sandy ridges in the oak savanna, but ash trees established over a wide range of dates beginning in the early twentieth century. Northern pin oak shrubs are increasing in abundance since the introduction of prescribed burns, suggesting that the current management plan might be creating oak woodland rather than an open, park-like savanna.

Keywords: biogeography, drought, oak savanna, Minnesota

Kathryn L. Ziewitz, Florida State University. Email: klz06c@fsu.edu; *From the Redneck Riviera to Florida's Great Northwest: Rebranding Florida's Panhandle*

The Florida Panhandle is undergoing a transformation. This largely rural region has experienced a surge in real estate development in recent years, especially along the coast, that has rivaled other better-known markets in peninsular Florida. At the same time, business and government entities in the region have actively engaged in a campaign to change perceptions about the identity of the region. This paper examines the discourse used by the region's dominant landowner in its efforts to "re-brand" the region in order to attract land buyers. This company, the St. Joe Company, owns approximately 800,000 acres in the region and is Florida's largest landowner. In the late 1990s, the company ceased its operations as a pulp and paper manufacturer and began to convert many of its holdings, chiefly timberlands, into an array of real estate developments. For this paper, both printed and visual media will be analyzed, including advertisements, annual corporate reports, press releases, and items from newspapers and magazines, to trace the branding campaign from its inception in 1997 to present. The analysis will include attention to: 1) How the area's natural attributes are being capitalized upon to sell land in similar fashion to other consumer goods; 2) The company's "New Ruralism" campaign, which seeks to transfer the success of the high-end coastal marketing campaign to inland rural properties; and 3) Reactions to the re-branding campaign by both the target audience and existing residents of the region.

Keywords: Florida Panhandle, real estate development, regional identity

Karl S. Zimmerer, University of Wisconsin - Madison. Email: zimmerer@wisc.edu; Karl S. Zimmerer, Dept. Geography and Nelson Institute for Environmental Studies. Email: zimmerer@wisc.edu; *Spatial Externalities in Land Use: Economic Geography and the Political Ecology of Agriculture and Agrobiodiversity*

Spatial externalities contribute to the economic processes that result in the clustering of land use and land cover. Spatial externalities influence the potential for income on adjoining parcels of land and hence exert potentially important influences on land use choice and landscape pattern. Economic theory suggests that where spatial externalities are present on a landscape the private allocation of land will not necessarily maximize economic welfare. Recognizing and evaluating the role of spatial externalities in land use can be used to identify a role for policy to enhance environmental quality and farmer welfare. Statistically quantifying the presence of such externalities from landscape pattern is one of the first steps in informing policy. It is insufficient for policy guidance, however, unless the underlying processes of the externality are identified and determined as positive or negative. This paper discusses the underlying processes of spatial externalities and potential identification strategies associated with quantifying these spatial externalities from observations of landscape change. The paper relates the economic dynamics of spatial externalities to the political ecology of agriculture and agrobiodiversity in particular.

Keywords: Spatial externalities, agriculture, environment, agrobiodiversity, land use, economic geography, political ecology

Jeffrey A Zimmerman, PhD, University of Wisconsin Whitewater. Email: zimmermj@uww.edu; *From the "Gray City" to the "Green City": Urban Sustainability, the Provision of Eco-Amenities, and the Making of the New Chicago*

Mayor Richard M. Daley promised in 1999 to re-make Chicago as the "greenest city in the world". His administration has since spearheaded a multi-scalar policy package; one that successfully reworked the city into what Daley now calls a global "eco-superstar". Daley's efforts ranged from the primarily cosmetic to dramatic, even radical, institutional reform. Most visible for the average Chicagoan was the planting of over 400,000 trees across the central neighborhoods. This was accompanied by an aggressive re-landscaping effort which transformed miles of utilitarian thoroughfares into orderly boulevards showcasing hearty prairie perennials. Deeper reform initiatives included the building of two million square feet of "green roofs", the addition of new bike paths, adding green space to the neglected Chicago Riverfront, and adopting the "Chicago standard", which mandates that all public buildings meet LEED certification by the US Green Building Council. This paper evaluates these green city-rebuilding efforts in Chicago. Although there is much to praise in Daley's approach, what remains largely unexamined is the particular geographic distribution of these eco-amenities. A closer inspection of these patterns reveals that green amenities have been enlisted both in the service of gentrification at the local scale, and towards securing Chicago's place as a "progressively unique" place within a broader, more globalized inter-urban competition.

Keywords: urban sustainability, Chicago, green amenities, gentrification

Rae Zimmerman, Ph.D., Robert F. Wagner Graduate School of Public Service, New York University. Email: rae.zimmerman@nyu.edu; Zvia Segal Naphtali, Ph.D., Robert F. Wagner Graduate School of Public Service, New York University. Email: zvia.naphtali@nyu.edu; Carlos E. Restrepo, Ph.D., Robert F. Wagner Graduate School of Public Service, New York University. Email: cerestrepo@gmail.com; *Spatial Concentration Of Critical Infrastructure Systems And Resource Allocation For National Security Grants*

The spatial concentration of critical infrastructure systems such as energy production and transportation represents a vulnerability to national security. These systems are critical to the functioning of our society and are often the target of terrorist attacks abroad. In addition, emergency response efforts can be hindered if they are disabled or destroyed during a natural disaster. This paper uses GIS to analyze the spatial concentration of electricity production and consumption, transportation (vehicle-miles traveled, auto and bus registrations, and traffic congestion), and oil and gas pipeline networks (natural transmission and distribution and petroleum product liquid pipelines) at the state and local level and examines how this information can be used as inputs into resource allocation decisions for security grants. The results indicate that there are very important differences in the spatial distribution of infrastructure systems. States such as New York and California have a high concentration of the country's public transit rider-ship and states such as Texas, Louisiana and California have high concentrations of oil and gas pipeline networks. Although data used are primarily at the state level, the methods are transferable to other geographic scales. The data are compared to current resource allocation programs such as the Department of Homeland Security's Urban Area Security Initiative and Urban Area Transit

Security Grant Program.

Keywords: GIS, MAP, USA

Friedrich M. Zimmermann, University of Graz - Austria. Email: friedrich.zimmermann@uni-graz.at; *Tourism in Austria - Growing Tourism Centers and Suffering Peripheries*

Austria is well-known for the highest tourism intensity in the world. Despite of the very positive international perspectives for tourism, Austria is facing enormous pressure from international competition. Tour operators dominate the international supply and create images and fashions by using efficient marketing strategies. Additionally international capital is supporting tourism centers and business concentrations, offer efficient organization and price advantages by using economies of scale and low-cost labor. This leads to the domination of some multinational tourism groups which cause enormous pressure on small- and medium-scale tourism offers, esp. in spatially disadvantaged peripheries. Austria's tourism can be characterized by problems like small-scale, family-run enterprises with financial problems, high quality but high prices (high taxes, high labor costs), traditional tourism (infra)structures with image problems and effects of inertia, high ecological standards with high costs and strict development limits and social impacts, like tourism weariness of the local population. The paper is the result of a multivariate study of the competitive capacity of tourism regions in Austria. It refers to the spatial concentration process with a commercialization of supply, esp. in winter resorts and cities; in contrast to this it illustrates the crisis of the traditional Alpine summer destinations, esp. in rural peripheries and the challenges of a sustainable tourism and community development. Initiatives by the European Union to reduce regional disparities by improving the tourism situation in remote areas are discussed, as well as sectoral strategies like life-style oriented product specifications, innovative marketing, high standard specialization, and (cross-border) cooperation.

Keywords: tourism, regional development, peripheries in transition, EU policies, Austria

Alisa S. Zlotoff, Department of Geography, University of Colorado-Boulder. Email: alisa.zlotoff@colorado.edu; *Branding Trust: Producing a Risk-Free 'Economy of Qualities' for Organic Milk*

Callon et al. (2002) utilize the concept of the 'economy of qualities' to analyze values of commodities that are not strictly economic, values that derive from mutually constitutive social relationships between producers and consumers. In order to illuminate the ways in which consumers, marketers, and producers interact to produce value, this paper applies the economy of qualities to a case study of organic milk production and marketing in Colorado. Framing an analysis in this way makes it possible to address the power of consumers to shape, define, and qualify products' values. In addition, this analysis helps to show how actors' broader anxieties regarding food cohere in qualifying organic milk as risk-free. Organic milk's value hinges on this risk-free definition, which is expressed through various marketing narratives that reference the product's safety, trustworthiness, and wholesomeness. Such narratives, moreover, illustrate the connections between perceptions of food's risk and productions of food's value.

Keywords: organic milk, consumption, food marketing

Christos Zografos, Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, Spain. Email: czografos@gmail.com; Joan Martínez Alier, Departament d'Economia i d'Història Econòmica, Universitat Autònoma de Barcelona, Spain. Email: Joan.Martinez.Alier@uab.es; *Wind energy conflicts and environmental justice concerns*

Environmental justice is typically studied as a situation of inequitable distribution of costs and benefits from natural resource use, looking at how the growing environmental load of economies is transferred to disfavoured groups while benefits remain with influential ones. However, a new employment of the concept has emerged in the context of conflicts regarding the promotion of wind energy. Wind parks opponents claim that ecosystems where energy is produced bear landscape impacts of 'clean' energy generation while benefits are transported to sustain economic activity in rich and unsustainable areas (e.g. cities) outside the production locality. They argue that this socio-geographically unequal distribution of environmental costs and benefits generates a new sort of environmental injustice legitimised by sustainability claims (need to tackle climate change). To consider the relevance of this argument for environmental justice we explore the political ecology of wind energy generation in rural Catalonia, focusing on a case study of conflict over a massive wind park construction on a landscape of particular historical value (major Spanish Civil War battle site). We examine the institutional framework that promotes wind energy and consider to what extent it generates unequal distributions of environmental burdens and benefits that serve as a source of environmental injustice and ecological distribution conflicts. We also look at the impacts of this framework on the environmental movement which is split up into wind energy

opponents and supporters who emphasise different values (e.g. landscape/ climate) and normative arguments (e.g. environmental justice/ eco-efficiency) regarding the nature of 'green' economic activities.

Keywords: wind energy, environmental justice, political ecology, Catalonia

Edmund J. Zolnik, Ph.D., George Mason University. Email: ezolnik@gmu.edu; *A Biographical-Multilevel Approach to the Study of Travel Behavior*

One of the principal shortcomings of quantitative analyses in human geography is the over reliance on models which can only account for the average outcomes of spatial events. While methodological advancements in the form of multilevel models now allow geographers to account for average outcomes as well as deviations about average outcomes, it is not without question that such models can fully account for the social, cultural and political contexts which affect human behavior. In this paper I argue that mixed-method research that adopts a biographical-multilevel approach to the study of human behavior can address some of the concerns raised by humanist and critical geographers about quantitative analyses in human geography. Using travel behavior in the United States as an example, I will discuss how a multilevel approach can complement qualitative analyses which rely on biographical accounts of travel behavior. Such mixed-method research offers human geographers the opportunity to identify the appropriate role for quantitative methods as well as to explore how context affects behavior.

Keywords: biographical approach, multilevel models, travel behavior

Robert J Zomer, International Water Management Institute (IWMI). Email: r.zomer@cgiar.org; Glenn Hyman, Dr., CIAT - International Center for Tropical Agriculture. Email: g.hyman@cgiar.org; *The CGIAR-CSI GeoNetwork: Advancing Geospatial Science For Sustainable Development, Biodiversity Conservation, And Poverty Alleviation*.

The Consortium for Spatial Information (CGIAR-CSI) is an initiative of the the Consultative Group for International Agriculture Research (CGIAR), linking the efforts of CGIAR scientists, national and international partners, and others working to apply and advance Geospatial Science for International Sustainable Agriculture Development, Natural Resource Management, Biodiversity Conservation, and Poverty Alleviation in Developing Countries. The CGIAR-CSI facilitates collaboration and capacity building for data sharing, data dissemination, and geospatial analysis amongst the fifteen CGIAR centers and their many regional activities; with geospatial laboratories, scientists and researchers throughout the developing countries; and within the broader global research and development communities. The CGIAR-CSI Geonetwork project is a standardized and decentralized spatial information management environment, designed to enable access to geo-referenced databases, cartographic products and related metadata from a variety of sources, enhancing the spatial information exchange and sharing between organizations and their audience, using the capacities of the internet. This approach of geographic information management aims at facilitating a wide community of spatial information users to have easy and timely access to available spatial data and to existing thematic maps that might support informed decision making.

Keywords: Sustainable Development, Agriculture, Biodiversity, Poverty, Data Sharing, GeoPortal

Leo Zonn, University of Texas at Austin. Email: zonn@mail.utexas.edu; Katherine Williams, University of Texas at Austin. Email: K.R.Williams@mail.utexas.edu; *The 'Alamo' on the Road: Mobility and the Cinematic Experience*

Over the last decade the Alamo Drafthouse Cinema of Austin, Texas, has established a unique reputation for its creative programming and for its audience friendly setting, including the serving of food and alcohol in a stadium setting. In 2002 the theater took the audience/film engagement one step further by creating the 'Rolling Roadshow Tour', whereby films were shown in settings that were associated with their cinematic subject matter. The meaning of venue and the nature of the audience participation were therefore uniquely and constantly constructed to fit the character of each film. The focus here is upon this engagement and the mobility that is so important to the program and to the audience itself. We examine this process from two views: firstly, whether it reflects an exercise of creativity that in fact is moving toward hyperreality with the 'absolute fake masquerading as the real'. Secondly, we draw upon Cresswell's theorization of mobility, which proposes that people are able to transgress norms of behavior and experience 'place' in unique and unorthodox ways. We believe that in the case of the 'Roadshow', regardless of how commercial it may have become, the audience exercise is one of ironic engagement and a need for community participation, and that the audience is well aware of the distinction between fantasy and reality which then itself becomes part of the appeal.

Keywords: cinematic experience, place, representation, mobility

Matthew Zook, Ph.D., University of Kentucky. Email: zook@zooknic.com; Mark Graham, University of Kentucky, Geography. Email: immedium@gmail.com; *The Creative Reconstruction of the Internet: Google and the Privatization of Cyberspace and DigiPlace*

The Internet has often been portrayed as the ultimate leveler of information where existing hierarchies of power and privilege are undermined by meritocracy. But in practice some websites and functions are more equal than others and Google has become a key means to construct meaning out of disorder. This ordering, however, is at its heart a subjective and political process as Google's algorithms determines centrality and periphery on the Net. The recent incorporation of spatial elements into the Google indexing (e.g., GoogleEarth) raises fresh and geographically relevant concerns. This paper focuses on the construction, access and use of Google to deploy geo-referenced information in the physical environment and the ways this melding of code and place affects how people interact with place. Using the theoretical concept of DigiPlace this paper analyzes how GoogleEarth is structured and shapes what appears (and what does not) in DigiPlace. Although GoogleEarth has been lauded as a paragon of democratic decentralized difference, allowing a multitude of unfixed and fluid views and viewpoints to coexist, it remains that a certain amount of control is exerted by Google over what is seen. This control takes many forms including the direct manipulation of satellite imagery (often via blurring), the distribution of satellite imagery deemed highly sensitive to state and corporate concerns, the ordering of views and results, and ways in which various spatial elements are, and are not, represented.

Keywords: Google, Code, Internet, DigiPlace, Cyberspace

James Zoulas, University of California, Los Angeles. Email: jzoulas@ucla.edu; Hongkyo Koo, University of California, Los Angeles. Email: gotiger9@ucla.edu; Antony Orme, University of California, Los Angeles. Email: orme@geog.ucla.edu; *Beach erosion and recovery: Nature versus nurture*

Beach erosion and recovery are natural occurrences on all coasts. Erosion is more or less predictable in response to specific storm events or more prolonged destructive wave series. Recovery occurs during ensuing phases of relative calm and constructive wave series. Some forcing events, such as tsunamis and great storms, have no recognizable frequency but, within a given tidal and eustatic framework, most controlling wave series function within seasonal, annual, and decadal recurrence intervals involving periodic and quasi-periodic cycles. Human disturbance of beach and nearshore systems, for example from sand mining and engineering projects, disrupts the natural system and replaces it with a nurtured system. Spatial disruption is evident from beach gains and losses, but disruption of temporal cycles only becomes obvious when beach changes of both natural and nurtured systems within a coastal cell are monitored over several decades. This paper explores the effects of cyclic and non-cyclic changes in beach geometry in three coastal cells along the southern California coast over the past 80 years, using archival data, repeat field surveys, historical aerial photography, and GIS analysis. Analyzed data support the hypothesis that temporal cycles of beach change, especially those involving artificial nourishment, are significantly shortened on nurtured coasts. This contrasts with temporal cycles on natural coasts, which are most influenced by increased storm activity related to quasi-cyclic El Niño events and warm phases of the Pacific Decadal Oscillation. These differences in long-term beach behavior raise economic, political, and legal issues regarding current practices of beach management.

Keywords: Geomorphology, Coasts, Human impacts

Christine Zuhlsdorf, Wasserman Scholar, UCLA. Email: czuhlsdorf@gmail.com; *Concentrated Animal Feeding Operations and Their Effects on the Environment*

Vegetation health adjacent to bovine concentrated animal feeding operations was analyzed and compared to historical vegetation data; it was then referenced against the vegetation health surrounding free range beef farms. Feeding operations often contaminate surrounding natural resources by leaching toxins into the water and soil. The vast size of the concentrated feeding operations encompasses so many animals that the proportion of waste is nearly impossible to manage. Subsidies are readily given to these unsustainable operations. Remote sensing of the locations allowed for comparisons over a period of more than two decades. Using the normalized difference vegetation index (NDVI) for measuring spectral reflectance assisted in demonstrating the health of vegetation. In situ measurements provided a visual comparison to the remotely sensed data and the agricultural censuses statistics. The lack of enforcement of regulations contributes to the contamination of local water sources that then disperse the toxins to a greater area. Vegetation loss in surrounding areas continues to be a problem that affects various flora and fauna habitats. Subsidies encourage unsupported growth of the feeding operations. Concentrated animal feeding operations are unsustainable and affect more than their immediate environment. The risk of a large scale contamination increases as practices

continue to go unchecked and exceed the limits of local environmental loads. Continual monitoring of nearby plant communities helps measure the environmental degradation. A move to more sustainable management practices that combine free-range policies with economic gain will help the beef industry to still make a profit while conserving natural resources.

Keywords: Environment, Vegetation, Agriculture, Cattle, Remote sensing

Sharon Zukin, PhD Program, City University of New York. Email: szukin@gc.cuny.edu; Valerie A Trujillo, PhD Program, City University of New York. Email: vtrujillo@gc.cuny.edu; Peter Frase, CUNY - Graduate Center. Email: pfrase@gc.cuny.edu; Danielle Jackson, PhD Program, City University of New York. Email: djackson@gc.cuny.edu; Tim Recuber, PhD Program, City University of New York. Email: trecuber@gc.cuny.edu; Abraham Walker, PhD Program, City University of New York. Email: awalker2@gc.cuny.edu; *Entrepreneurial Capital and the Rhetoric of Growth: Boutiques and Gentrification in New York City*

Since the 1970s, certain kinds of upscale restaurants, cafés, and stores have emerged as highly visible signs of gentrification. Taking Harlem and Williamsburg as field sites, we explore through interviews with store owners, data on changing composition of retail and services (1979-2006), and discursive analysis of print media the role of new stores as agents of change. We find that the media, city government, and quasi-public organizations (in the case of Harlem) have valued small upscale retail businesses, along with all forms of entrepreneurial capital, as symbols and agents of revitalization. However, the "boutiquing" of urban areas brings up complex social issues and questions for public policy. These include displacement of local retail and services for longstanding residents and the responsibility of the state for encouraging neighborhood stability and diversity, as well as whether government efforts to preserve affordable housing should also consider the mix of shops.

Keywords: Harlem, Williamsburg, entrepreneurial capital, gentrification, retail, state led revitalization

Michael Zukosky, Department of Geography and Anthropology, Eastern Washington University. Email: mzukosky@ewu.edu; *Settlement, Nature Reserves, and Pastoral Development: Engineering New Minority Localities in Northern Xinjiang*

In northwest China's Xinjiang region, international and domestic financial capital are mobilized in large-scale relocation and settlement policies for minority pastoral groups. Promoted as solutions to the economic and environmental problems of the region, new rural settlements for pastoralists represent an important flow of capital, as prioritized as "infrastructure construction" within the 'Open the West Policy.' At the same time, settlement, referred to as 'ecological migration,' interweaves with the establishment of forest reserves and draws upon other sources of funding through the nationally subsidized Forestry Bureau, enabling local governments to engage a modernist form of social and ecological engineering. Contrasting discourses of 'settlement' within a county level government and forestry bureau with the experiences of several settlement residents, this paper looks at some of the effects of settlement, as financial capital transforms both the social and natural landscape and its government, as new units for the administration of both land and people emerge. Moreover, the experiences of local residents speak to how settlement and its governance reflect critical, local imaginaries of state responsibility and obligation.

Keywords: Settlement, Development, Pastoralism, China

Leo Charles Zulu, Dr., Michigan State University. Email: zulu@msu.edu; *Conservation Re-Scaling And Emergence Of Community Forest Management In Malawi*

Predominance of community natural resources management (CNRM) in conservation policies in Africa over the past two decades is perhaps the biggest development since the start of scientific conservation. Broader neoliberal attempts to transform social relations by decentralizing governance to local communities, and widespread failure of centralized, top-down conservation have given currency to CNRM. Proponents tout social and ecological benefits, including more efficient environmental governance, better conservation, sustained provision of ecosystem goods and services, community empowerment, equity and social justice. Critics argue success is rare. CNRM transfers power and benefits from central bureaucracies to village bureaucracies composed of few local elites. Others see tyranny in the way CNRM is promoted, often leaving little room for constructive empirical criticism. This study contributes to this debate by examining the evolution and re-scaling of forest conservation policy over the past century in Malawi from top-down to CNRM introduction in 1996. It looks at substantive policy changes, motivations behind them, and their implications, drawing on historical accounts and contemporary community forest management in southern Malawi. Study findings show that introduction of community forest management policy in Malawi was more about externalizing conservation costs by a cash-strapped government than about community empowerment in

environmental governance. They point to the need for flexibility and balance between strong government leadership that acts as glue to hold CNRM together and rigid village-scale conservation. They highlight the need for CNRM strategies that allow forest conservation at multiple scales simultaneously to meet the needs of various social actors.

Keywords: CNRM, Malawi, Africa, natural resources management, policy

Joseph Terzungwe Zume, University Of Oklahoma. Email: jzume@ou.edu; Aondover Tarhule, University of Oklahoma. Email: atarhule@ou.edu; *Modeling The Relation Between Climate Variability And Groundwater Levels In A Shallow Alluvial Aquifer On The U.S. Southern Great Plains*

In arid and semiarid environments, alluvial deposits along streams often constitute shallow productive aquifers that support a variety of human activities. On the United States southern Great Plains for example, alluvial aquifers are some of the most dependable sources of water for irrigation, municipal, agricultural, and industrial uses. These aquifers also are critical to aquatic and wetland ecosystems because they recharge overlying streams during non-flood periods. Unfortunately, the dynamics of alluvial aquifers in these environments have not been fully understood, especially, how they might respond to the combined impacts of climate variability and enhanced anthropogenic water withdrawals. This study uses the U.S. Geological Survey's three-dimensional groundwater flow model, MODFLOW, to simulate the response of an alluvial aquifer in northwestern Oklahoma, to impacts of climate variability and aquifer exploitation. Northwestern Oklahoma is one of the southern Great Plains' areas that are drought-prone and experience episodic water shortages. By simulating several climatic as well as groundwater withdrawal scenarios, this study provides information that is necessary to evaluate and reconcile competing management alternatives for Great Plains' alluvial aquifers.

Keywords: MODFLOW, Southern Great Plains, Northwestern Oklahoma, alluvial aquifers, climate variability

Sandra Zupan, University of Wisconsin-Milwaukee. Email: szupan@uwm.edu; *Assessing Environmental Justice and A Community Empowerment Process: The Case of the 30th Street Industrial Corridor in Milwaukee, Wisconsin*

Brownfields, or contaminated, abandoned sites, overwhelmingly cause environmental and socio-economic burdens. Such burdens are especially significant in inner-city neighborhoods where brownfield sites are often concentrated. Redevelopment of these sites, however, mitigates health risk, adds amenities, and provides an opportunity for direct community participation. It has been suggested that meaningful community participation is the key to achieving environmental justice goals - economic, social and political empowerment of marginalized and poor inner-city communities. According to leading researchers such power changes could reverse the deteriorating conditions of inner-city areas and increase exercise of control over a community's future. Focusing on an area comprised of eleven distressed Milwaukee neighborhoods this case study seeks to reveal how disadvantaged and disempowered communities navigate and negotiate the process of public participation in order to improve and maintain the well-being of their communities. The importance of the proposed study lays in its attempt to advance the limited knowledge of existing power relationships, particularly at the urban, neighborhood level. Environmental justice and brownfields frameworks are merged in this study and placed in the spatial and temporal scalar context in order to creatively address the meaning and sustaining of the empowerment process in a localized context.

Keywords: Environmental justice, brownfields, community empowerment, Milwaukee